

Appendix B

Waste Profiles and Approvals

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ANALYTICAL REPORT

PREPARED FOR

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Norfolk Southern Corporation
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JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180588-1

Eurofins Canton

Job Notes

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Authorization



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present

Eurofins Canton

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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- 3
- 4
- 5
- 6
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- 8
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- 15
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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Job ID: 240-180588-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180588-1

Comments

No additional comments.

Receipt

The samples were received on 2/17/2023 9:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.6° C and 5.5° C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563073 was outside the method criteria for the following analyte: Carbon Disulfide. An MRL standard at or below the reporting limit (RL) was analyzed with the affected samples: WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8), WC-WS1-A8 (4-5) (240-180588-9), (CCVIS 240-563073/3), (LCS 240-562767/2-A) and (MB 240-562767/1-A) and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

Method 8260D: An MS/MSD was done in preparation batch 240-562767 and analytical batch 240-563073 however it was reported in a different analytical batch. The affected samples are WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8) and WC-WS1-A8 (4-5) (240-180588-9).

Method 8260D: The method blank for preparation batch 240-562767 and analytical batch 240-563073 contained Acetone above the reporting limit (RL). This compound is considered a common laboratory contaminant. The associated samples: WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8), WC-WS1-A8 (4-5) (240-180588-9), (LCS 240-562767/2-A) and (MB 240-562767/1-A) were not re-extracted and/or re-analyzed because the concentration of the common lab contaminant in the method blank was less than 5 times the RL.

Method 8260D: The MS/MSD for preparation batch 240-562767 and analytical batch 240-563092 is not reported because it was analyzed in another batch.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563092 was outside the method criteria for the following analyte: Carbon disulfide. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8), WC-WS1-A8 (4-5) (240-180588-9), WC-WS1-A9 (3-4) (240-180588-10), WC-WS1-A10 (2-3) (240-180588-11), (240-180588-G-11-B MS) and (240-180588-G-11-C MSD). Elevated reporting limits (RLs) are provided.

Method 8270E: The laboratory control sample (LCS) for preparation batch 240-562526 and analytical batch 240-562828 recovered outside control limits for the following analyte: Atrazine. This analyte was biased high in the LCS and was not detected in the associated samples: WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8), WC-WS1-A8 (4-5) (240-180588-9), WC-WS1-A9 (3-4) (240-180588-10) and WC-WS1-A10 (2-3) (240-180588-11); therefore, the data have been reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-562828 recovered above the upper control limit for

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Job ID: 240-180588-1 (Continued)

Laboratory: Eurofins Canton (Continued)

2-Nitrophenol. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8), WC-WS1-A8 (4-5) (240-180588-9), WC-WS1-A9 (3-4) (240-180588-10) and WC-WS1-A10 (2-3) (240-180588-11).

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-562828 recovered outside acceptance criteria, low biased, for bis (2-chloroisopropyl) ether, 4-Nitrophenol, Benzaldehyde and Bis(2-chloroethyl)ether. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples: WC-WS1-A1 (2-3) (240-180588-1), WC-WS1-A2 (2.5-3.5) (240-180588-2), WC-WS1-A3 (3-4) (240-180588-3), WC-WS1-A4 (5-6) (240-180588-4), WC-WS1-A5 (1-2) (240-180588-5), WC-WS1-A6 (3-4) (240-180588-7), WC-WS1-A7 (2-3) (240-180588-8), WC-WS1-A8 (4-5) (240-180588-9), WC-WS1-A9 (3-4) (240-180588-10) and WC-WS1-A10 (2-3) (240-180588-11) were non-detect for the analytes, the data has been reported.

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-WS1-COMP (A1-A5) (240-180588-6), WC-WS1-COMP (A6-A10) (240-180588-12) and (240-180588-A-6-G MS). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-WS1-COMP (A1-A5) (240-180588-6) and WC-WS1-COMP (A6-A10) (240-180588-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
537 (mod)	EPA 537 Isotope Dilution	EPA	ELLE
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180588-1	WC-WS1-A1 (2-3)	Solid	02/17/23 14:47	02/17/23 21:00
240-180588-2	WC-WS1-A2 (2.5-3.5)	Solid	02/17/23 14:57	02/17/23 21:00
240-180588-3	WC-WS1-A3 (3-4)	Solid	02/17/23 15:10	02/17/23 21:00
240-180588-4	WC-WS1-A4 (5-6)	Solid	02/17/23 15:27	02/17/23 21:00
240-180588-5	WC-WS1-A5 (1-2)	Solid	02/17/23 15:37	02/17/23 21:00
240-180588-6	WC-WS1-COMP (A1-A5)	Solid	02/17/23 00:00	02/17/23 21:00
240-180588-7	WC-WS1-A6 (3-4)	Solid	02/17/23 16:17	02/17/23 21:00
240-180588-8	WC-WS1-A7 (2-3)	Solid	02/17/23 16:27	02/17/23 21:00
240-180588-9	WC-WS1-A8 (4-5)	Solid	02/17/23 16:37	02/17/23 21:00
240-180588-10	WC-WS1-A9 (3-4)	Solid	02/17/23 16:43	02/17/23 21:00
240-180588-11	WC-WS1-A10 (2-3)	Solid	02/17/23 16:51	02/17/23 21:00
240-180588-12	WC-WS1-COMP (A6-A10)	Solid	02/17/23 00:00	02/17/23 21:00



Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	62	J B	230	57	mg/Kg	200	✳	8260D	Total/NA
Vinyl chloride	0.72		0.29	0.14	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.43	J	1.3	0.43	mg/Kg	20	✳	8270E	Total/NA
2-Methylnaphthalene	5.3		0.38	0.050	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.23	J	0.38	0.073	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.33	J	0.38	0.10	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.36	J	0.38	0.061	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.86		0.38	0.087	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.70		0.38	0.24	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.5		0.38	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.63		0.38	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.36	J	0.38	0.18	mg/Kg	20	✳	8270E	Total/NA
Chrysene	1.3		0.38	0.038	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.2	J	1.3	0.33	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	1.6		0.38	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.21	J	0.38	0.070	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.55		0.38	0.19	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	3.4		0.38	0.061	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.4		0.38	0.057	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.5		0.38	0.054	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0062	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.48	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.012	J B	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	26	J B	95	23	mg/Kg	100	✳	8260D	Total/NA
Vinyl chloride	26		24	12	mg/Kg	100	✳	8260D	Total/NA
2-Methylnaphthalene	2.9		0.35	0.046	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.21	J	0.35	0.068	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.24	J	0.35	0.095	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.26	J	0.35	0.057	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.54		0.35	0.081	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.41		0.35	0.22	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.69		0.35	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.37		0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.27	J	0.35	0.16	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.79		0.35	0.035	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.90	J	1.2	0.31	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	1.0		0.35	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.22	J	0.35	0.065	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.27	J	0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.8		0.35	0.057	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.1		0.35	0.053	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.90		0.35	0.051	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0054	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.32	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0010	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.013	J B	0.050	0.0028	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	37	J B	140	34	mg/Kg	125	✱	8260D	Total/NA
Vinyl chloride	54		1.4	0.69	mg/Kg	5	✱	8260D	Total/NA
2-Methylnaphthalene	2.4		0.37	0.048	mg/Kg	20	✱	8270E	Total/NA
Acenaphthene	0.27	J	0.37	0.070	mg/Kg	20	✱	8270E	Total/NA
Acenaphthylene	0.25	J	0.37	0.098	mg/Kg	20	✱	8270E	Total/NA
Anthracene	0.32	J	0.37	0.059	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]anthracene	0.50		0.37	0.084	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]pyrene	0.35	J	0.37	0.23	mg/Kg	20	✱	8270E	Total/NA
Benzo[b]fluoranthene	0.57		0.37	0.16	mg/Kg	20	✱	8270E	Total/NA
Benzo[g,h,i]perylene	0.31	J	0.37	0.17	mg/Kg	20	✱	8270E	Total/NA
Benzo[k]fluoranthene	0.25	J	0.37	0.17	mg/Kg	20	✱	8270E	Total/NA
Chrysene	0.72		0.37	0.036	mg/Kg	20	✱	8270E	Total/NA
Dibenzofuran	0.66	J	1.2	0.32	mg/Kg	20	✱	8270E	Total/NA
Fluoranthene	1.1		0.37	0.11	mg/Kg	20	✱	8270E	Total/NA
Fluorene	0.34	J	0.37	0.067	mg/Kg	20	✱	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.25	J	0.37	0.18	mg/Kg	20	✱	8270E	Total/NA
Naphthalene	1.9		0.37	0.059	mg/Kg	20	✱	8270E	Total/NA
Phenanthrene	1.9		0.37	0.055	mg/Kg	20	✱	8270E	Total/NA
Pyrene	0.98		0.37	0.052	mg/Kg	20	✱	8270E	Total/NA
Arsenic	0.0060	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.38	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00078	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.012	J B	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	84	J B	330	81	mg/Kg	333.333	✱	8260D	Total/NA
Vinyl chloride	23		0.25	0.12	mg/Kg	1	✱	8260D	Total/NA
2-Methylnaphthalene	2.4		0.35	0.046	mg/Kg	20	✱	8270E	Total/NA
Acenaphthene	0.35		0.35	0.067	mg/Kg	20	✱	8270E	Total/NA
Acenaphthylene	0.30	J	0.35	0.094	mg/Kg	20	✱	8270E	Total/NA
Anthracene	0.49		0.35	0.057	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]anthracene	0.65		0.35	0.080	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]pyrene	0.38		0.35	0.22	mg/Kg	20	✱	8270E	Total/NA
Benzo[b]fluoranthene	0.71		0.35	0.15	mg/Kg	20	✱	8270E	Total/NA
Benzo[g,h,i]perylene	0.30	J	0.35	0.17	mg/Kg	20	✱	8270E	Total/NA
Benzo[k]fluoranthene	0.22	J	0.35	0.16	mg/Kg	20	✱	8270E	Total/NA
Chrysene	0.87		0.35	0.035	mg/Kg	20	✱	8270E	Total/NA
Dibenzofuran	0.79	J	1.2	0.31	mg/Kg	20	✱	8270E	Total/NA
Fluoranthene	1.9		0.35	0.10	mg/Kg	20	✱	8270E	Total/NA
Fluorene	0.42		0.35	0.064	mg/Kg	20	✱	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.23	J	0.35	0.17	mg/Kg	20	✱	8270E	Total/NA
Naphthalene	1.8		0.35	0.057	mg/Kg	20	✱	8270E	Total/NA
Phenanthrene	2.7		0.35	0.052	mg/Kg	20	✱	8270E	Total/NA
Pyrene	1.4		0.35	0.050	mg/Kg	20	✱	8270E	Total/NA
Arsenic	0.0046	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.40	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00094	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J B	0.050	0.0028	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	65	J B	230	56	mg/Kg	200	✱	8260D	Total/NA
Vinyl chloride	3.2		0.29	0.14	mg/Kg	1	✱	8260D	Total/NA
2-Methylnaphthalene	2.6		0.35	0.046	mg/Kg	20	✱	8270E	Total/NA
Acenaphthene	0.52		0.35	0.067	mg/Kg	20	✱	8270E	Total/NA
Acenaphthylene	0.23	J	0.35	0.094	mg/Kg	20	✱	8270E	Total/NA
Anthracene	0.56		0.35	0.056	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]anthracene	0.84		0.35	0.080	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]pyrene	0.57		0.35	0.22	mg/Kg	20	✱	8270E	Total/NA
Benzo[b]fluoranthene	0.95		0.35	0.15	mg/Kg	20	✱	8270E	Total/NA
Benzo[g,h,i]perylene	0.43		0.35	0.17	mg/Kg	20	✱	8270E	Total/NA
Benzo[k]fluoranthene	0.33	J	0.35	0.16	mg/Kg	20	✱	8270E	Total/NA
Chrysene	1.1		0.35	0.035	mg/Kg	20	✱	8270E	Total/NA
Dibenzofuran	0.88	J	1.2	0.30	mg/Kg	20	✱	8270E	Total/NA
Fluoranthene	2.2		0.35	0.10	mg/Kg	20	✱	8270E	Total/NA
Fluorene	0.50		0.35	0.064	mg/Kg	20	✱	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.37		0.35	0.17	mg/Kg	20	✱	8270E	Total/NA
Naphthalene	1.8		0.35	0.056	mg/Kg	20	✱	8270E	Total/NA
Phenanthrene	2.8		0.35	0.052	mg/Kg	20	✱	8270E	Total/NA
Pyrene	1.7		0.35	0.050	mg/Kg	20	✱	8270E	Total/NA
Arsenic	0.0071	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.52	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J B	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00066	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.011	J	0.025	0.00042	mg/L	1		8260D	TCLP
Vinyl chloride	0.28		0.025	0.00045	mg/L	1		8260D	TCLP
Perfluorooctanoic acid	0.36	J	0.68	0.23	ng/g	1	✱	537 IDA	Total/NA
Perfluorooctanesulfonic acid	0.44	J	0.68	0.23	ng/g	1	✱	537 IDA	Total/NA

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	3.1		0.26	0.13	mg/Kg	1	✱	8260D	Total/NA
2-Methylnaphthalene	2.4		0.35	0.045	mg/Kg	20	✱	8270E	Total/NA
Acenaphthene	0.36		0.35	0.066	mg/Kg	20	✱	8270E	Total/NA
Acenaphthylene	0.21	J	0.35	0.093	mg/Kg	20	✱	8270E	Total/NA
Anthracene	0.48		0.35	0.056	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]anthracene	0.83		0.35	0.079	mg/Kg	20	✱	8270E	Total/NA
Benzo[a]pyrene	0.56		0.35	0.22	mg/Kg	20	✱	8270E	Total/NA
Benzo[b]fluoranthene	1.0		0.35	0.15	mg/Kg	20	✱	8270E	Total/NA
Benzo[g,h,i]perylene	0.42		0.35	0.16	mg/Kg	20	✱	8270E	Total/NA
Benzo[k]fluoranthene	0.23	J	0.35	0.16	mg/Kg	20	✱	8270E	Total/NA
Chrysene	1.1		0.35	0.035	mg/Kg	20	✱	8270E	Total/NA
Dibenzofuran	0.73	J	1.2	0.30	mg/Kg	20	✱	8270E	Total/NA
Fluoranthene	2.1		0.35	0.10	mg/Kg	20	✱	8270E	Total/NA
Fluorene	0.37		0.35	0.064	mg/Kg	20	✱	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.33	J	0.35	0.17	mg/Kg	20	✱	8270E	Total/NA
Naphthalene	1.7		0.35	0.056	mg/Kg	20	✱	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A6 (3-4) (Continued)

Lab Sample ID: 240-180588-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phenanthrene	2.3		0.35	0.052	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.6		0.35	0.050	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0054	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.50	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.014	J B	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	83	J B	340	83	mg/Kg	333.333	✳	8260D	Total/NA
Vinyl chloride	42		1.0	0.50	mg/Kg	4	✳	8260D	Total/NA
2-Methylnaphthalene	3.0		0.35	0.046	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.42		0.35	0.067	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.44		0.35	0.094	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.53		0.35	0.057	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.83		0.35	0.080	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.48		0.35	0.22	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.97		0.35	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.39		0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.22	J	0.35	0.16	mg/Kg	20	✳	8270E	Total/NA
Chrysene	1.1		0.35	0.035	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.88	J	1.2	0.31	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	2.2		0.35	0.10	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.44		0.35	0.064	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.34	J	0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.5		0.35	0.057	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.6		0.35	0.052	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.7		0.35	0.050	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0062	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.40	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0010	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J B	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	96	J B	350	85	mg/Kg	333.333	✳	8260D	Total/NA
Vinyl chloride	20		0.26	0.13	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	3.6		0.37	0.048	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.25	J	0.37	0.071	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.24	J	0.37	0.099	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.24	J	0.37	0.059	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.52		0.37	0.084	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.34	J	0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.50		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.24	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.20	J	0.37	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.67		0.37	0.037	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.98	J	1.2	0.32	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A8 (4-5) (Continued)

Lab Sample ID: 240-180588-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.99		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.27	J	0.37	0.068	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.20	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.7		0.37	0.059	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.0		0.37	0.055	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.88		0.37	0.053	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0057	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.36	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00087	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.013	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.011	J B	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00063	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	17	J B	68	17	mg/Kg	66.6666	✳	8260D	Total/NA
Vinyl chloride	19		0.26	0.13	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	3.4		0.37	0.048	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.45		0.37	0.071	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.44		0.37	0.099	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.55		0.37	0.059	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.99		0.37	0.084	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.63		0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.1		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.48		0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.41		0.37	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	1.3		0.37	0.037	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.1	J	1.2	0.32	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	2.4		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.51		0.37	0.068	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.42		0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.8		0.37	0.059	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	3.1		0.37	0.055	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.8		0.37	0.053	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0047	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.63	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00093	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J B	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	17	J B	49	12	mg/Kg	40	✳	8260D	Total/NA
Vinyl chloride	1.3	F1	0.30	0.15	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	5.0		0.38	0.049	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.15	J	0.38	0.072	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.22	J	0.38	0.10	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.22	J	0.38	0.061	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.60		0.38	0.086	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.49		0.38	0.24	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.77		0.38	0.16	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A10 (2-3) (Continued)

Lab Sample ID: 240-180588-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[g,h,i]perylene	0.44		0.38	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.28	J	0.38	0.17	mg/Kg	20	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	1.9	F1	1.8	1.3	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.95		0.38	0.038	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.3		1.3	0.33	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.86		0.38	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.16	J	0.38	0.069	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.34	J	0.38	0.19	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	3.1	F1	0.38	0.061	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.4	F1	0.38	0.056	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.84		0.38	0.054	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0055	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.40	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00077	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J B	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.017	J	0.025	0.00042	mg/L	1		8260D	TCLP
Vinyl chloride	0.83		0.025	0.00045	mg/L	1		8260D	TCLP
Perfluorooctanoic acid	0.32	J	0.69	0.23	ng/g	1	✳	537 IDA	Total/NA
Perfluorooctanesulfonic acid	0.36	J	0.69	0.23	ng/g	1	✳	537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Date Collected: 02/17/23 14:47

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		59	18	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,1,2,2-Tetrachloroethane	ND		59	35	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		59	16	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,1,2-Trichloroethane	ND		59	13	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,1-Dichloroethane	ND		59	11	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,1-Dichloroethene	ND		59	19	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,2,4-Trichlorobenzene	ND		59	31	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,2-Dibromo-3-Chloropropane	ND		120	52	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Ethylene Dibromide	ND		59	19	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,2-Dichlorobenzene	ND		59	28	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,2-Dichloroethane	ND		59	11	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,2-Dichloropropane	ND		59	8.7	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,3-Dichlorobenzene	ND		59	11	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
1,4-Dichlorobenzene	ND		59	13	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
2-Butanone (MEK)	ND		230	37	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
2-Hexanone	ND		230	62	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
4-Methyl-2-pentanone (MIBK)	ND		230	56	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Acetone	62	J B	230	57	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Benzene	ND		59	9.9	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Dichlorobromomethane	ND		59	14	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Bromoform	ND		59	54	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Bromomethane	ND		59	39	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Carbon disulfide	ND		59	25	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Carbon tetrachloride	ND		59	24	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Chlorobenzene	ND		59	8.2	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Chloroethane	ND		59	35	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Chloroform	ND		59	13	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Chloromethane	ND		59	16	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
cis-1,2-Dichloroethene	ND		59	9.4	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
cis-1,3-Dichloropropene	ND		59	29	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Cyclohexane	ND		120	38	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Chlorodibromomethane	ND		59	27	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Dichlorodifluoromethane	ND		59	12	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Ethylbenzene	ND		59	11	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Isopropylbenzene	ND		59	8.9	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Methyl acetate	ND		290	39	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Methyl tert-butyl ether	ND		59	8.7	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Methylcyclohexane	ND		120	16	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Methylene Chloride	ND		120	90	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Styrene	ND		59	12	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Tetrachloroethene	ND		59	23	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Toluene	ND		59	56	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
trans-1,2-Dichloroethene	ND		59	15	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
trans-1,3-Dichloropropene	ND		59	25	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Trichloroethene	ND		59	34	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Trichlorofluoromethane	ND		59	32	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200
Vinyl chloride	0.72		0.29	0.14	mg/Kg	✱	02/20/23 14:17	02/23/23 10:35	1
Xylenes, Total	ND		120	21	mg/Kg	✱	02/20/23 14:17	02/23/23 11:22	200

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Date Collected: 02/17/23 14:47

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/20/23 14:17	02/23/23 10:35	1
Toluene-d8 (Surr)	108		56 - 125	02/20/23 14:17	02/23/23 11:22	200
Dibromofluoromethane (Surr)	85		41 - 138	02/20/23 14:17	02/23/23 10:35	1
Dibromofluoromethane (Surr)	100		41 - 138	02/20/23 14:17	02/23/23 11:22	200
4-Bromofluorobenzene (Surr)	95		41 - 143	02/20/23 14:17	02/23/23 10:35	1
4-Bromofluorobenzene (Surr)	108		41 - 143	02/20/23 14:17	02/23/23 11:22	200
1,2-Dichloroethane-d4 (Surr)	96		58 - 125	02/20/23 14:17	02/23/23 10:35	1
1,2-Dichloroethane-d4 (Surr)	108		58 - 125	02/20/23 14:17	02/23/23 11:22	200

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.43	J	1.3	0.43	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,4,5-Trichlorophenol	ND		3.8	1.8	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,4,6-Trichlorophenol	ND		3.8	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,4-Dichlorophenol	ND		3.8	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,4-Dimethylphenol	ND		3.8	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,4-Dinitrophenol	ND		8.4	3.6	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,4-Dinitrotoluene	ND		5.1	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2,6-Dinitrotoluene	ND		5.1	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2-Chloronaphthalene	ND		1.3	0.36	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2-Chlorophenol	ND		1.3	0.25	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2-Methylnaphthalene	5.3		0.38	0.050	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2-Methylphenol	ND		5.1	0.79	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2-Nitroaniline	ND		5.1	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
2-Nitrophenol	ND		1.3	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
3-Nitroaniline	ND		5.1	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4,6-Dinitro-2-methylphenol	ND		8.4	2.0	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4-Bromophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4-Chloro-3-methylphenol	ND		3.8	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4-Chloroaniline	ND		3.8	0.76	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4-Chlorophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4-Nitroaniline	ND		5.1	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
4-Nitrophenol	ND		8.4	2.4	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Acenaphthene	0.23	J	0.38	0.073	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Acenaphthylene	0.33	J	0.38	0.10	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Acetophenone	ND		2.5	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Anthracene	0.36	J	0.38	0.061	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Atrazine	ND	+	5.1	0.91	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Benzaldehyde	ND		2.5	0.58	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Benzo[a]anthracene	0.86		0.38	0.087	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Benzo[a]pyrene	0.70		0.38	0.24	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Benzo[b]fluoranthene	1.5		0.38	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Benzo[g,h,i]perylene	0.63		0.38	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Benzo[k]fluoranthene	0.36	J	0.38	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Butyl benzyl phthalate	ND		1.8	0.56	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Date Collected: 02/17/23 14:47

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.4	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Carbazole	ND		1.3	0.48	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Chrysene	1.3		0.38	0.038	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Dibenz(a,h)anthracene	ND		0.38	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Dibenzofuran	1.2 J		1.3	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Diethyl phthalate	ND		1.8	0.79	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Dimethyl phthalate	ND		1.8	0.36	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Di-n-octyl phthalate	ND		1.8	0.71	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Fluoranthene	1.6		0.38	0.11	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Fluorene	0.21 J		0.38	0.070	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Hexachlorobenzene	ND		0.38	0.072	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Hexachlorobutadiene	ND		1.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Hexachlorocyclopentadiene	ND		8.4	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Hexachloroethane	ND		1.3	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Indeno[1,2,3-cd]pyrene	0.55		0.38	0.19	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Isophorone	ND		1.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
N-Nitrosodiphenylamine	ND		1.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Naphthalene	3.4		0.38	0.061	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Nitrobenzene	ND		2.5	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Pentachlorophenol	ND		3.8	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Phenanthrene	2.4		0.38	0.057	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Phenol	ND		1.3	0.20	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
Pyrene	1.5		0.38	0.054	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20
3 & 4 Methylphenol	ND		10	0.74	mg/Kg	☼	02/18/23 10:21	02/21/23 11:50	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	79		46 - 137	02/18/23 10:21	02/21/23 11:50	20
Phenol-d5 (Surr)	66		26 - 120	02/18/23 10:21	02/21/23 11:50	20
Nitrobenzene-d5 (Surr)	53		25 - 120	02/18/23 10:21	02/21/23 11:50	20
2-Fluorophenol (Surr)	64		20 - 120	02/18/23 10:21	02/21/23 11:50	20
2-Fluorobiphenyl (Surr)	77		34 - 120	02/18/23 10:21	02/21/23 11:50	20
2,4,6-Tribromophenol (Surr)	125	S1+	10 - 120	02/18/23 10:21	02/21/23 11:50	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0062	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 11:57	1
Barium	0.48	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 11:57	1
Cadmium	0.0015	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 11:57	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 11:57	1
Lead	0.012	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 11:57	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 11:57	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 11:57	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:25	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Date Collected: 02/17/23 14:47

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.4		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	21.6		0.1	0.1	%			02/18/23 10:23	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Date Collected: 02/17/23 14:57

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		24	7.4	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,1,2,2-Tetrachloroethane	ND		24	14	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		24	6.4	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,1,2-Trichloroethane	ND		24	5.4	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,1-Dichloroethane	ND		24	4.6	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,1-Dichloroethene	ND		24	7.8	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,2,4-Trichlorobenzene	ND		24	13	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,2-Dibromo-3-Chloropropane	ND		48	21	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Ethylene Dibromide	ND		24	7.5	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,2-Dichlorobenzene	ND		24	11	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,2-Dichloroethane	ND		24	4.5	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,2-Dichloropropane	ND		24	3.5	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,3-Dichlorobenzene	ND		24	4.4	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
1,4-Dichlorobenzene	ND		24	5.2	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
2-Butanone (MEK)	ND		95	15	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
2-Hexanone	ND		95	25	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
4-Methyl-2-pentanone (MIBK)	ND		95	23	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Acetone	26	J B	95	23	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Benzene	ND		24	4.0	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Dichlorobromomethane	ND		24	5.8	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Bromoform	ND		24	22	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Bromomethane	ND		24	16	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Carbon disulfide	ND		24	10	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Carbon tetrachloride	ND		24	9.7	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Chlorobenzene	ND		24	3.3	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Chloroethane	ND		24	14	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Chloroform	ND		24	5.1	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Chloromethane	ND		24	6.3	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
cis-1,2-Dichloroethene	ND		24	3.8	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
cis-1,3-Dichloropropene	ND		24	12	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Cyclohexane	ND		48	16	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Chlorodibromomethane	ND		24	11	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Dichlorodifluoromethane	ND		24	5.0	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Ethylbenzene	ND		24	4.5	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Isopropylbenzene	ND		24	3.6	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Methyl acetate	ND		120	16	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Methyl tert-butyl ether	ND		24	3.5	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Methylcyclohexane	ND		48	6.3	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Methylene Chloride	ND		48	36	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Styrene	ND		24	4.9	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Tetrachloroethene	ND		24	9.2	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Toluene	ND		24	23	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
trans-1,2-Dichloroethene	ND		24	5.9	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
trans-1,3-Dichloropropene	ND		24	10	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Trichloroethene	ND		24	14	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Trichlorofluoromethane	ND		24	13	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Vinyl chloride	26		24	12	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100
Xylenes, Total	ND		48	8.7	mg/Kg	✱	02/20/23 14:17	02/23/23 00:01	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Date Collected: 02/17/23 14:57

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/20/23 14:17	02/23/23 00:01	100
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/23/23 11:00	1
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/23/23 11:48	200
Dibromofluoromethane (Surr)	101		41 - 138	02/20/23 14:17	02/23/23 00:01	100
Dibromofluoromethane (Surr)	88		41 - 138	02/20/23 14:17	02/23/23 11:00	1
Dibromofluoromethane (Surr)	101		41 - 138	02/20/23 14:17	02/23/23 11:48	200
4-Bromofluorobenzene (Surr)	104		41 - 143	02/20/23 14:17	02/23/23 00:01	100
4-Bromofluorobenzene (Surr)	95		41 - 143	02/20/23 14:17	02/23/23 11:00	1
4-Bromofluorobenzene (Surr)	108		41 - 143	02/20/23 14:17	02/23/23 11:48	200
1,2-Dichloroethane-d4 (Surr)	104		58 - 125	02/20/23 14:17	02/23/23 00:01	100
1,2-Dichloroethane-d4 (Surr)	95		58 - 125	02/20/23 14:17	02/23/23 11:00	1
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/20/23 14:17	02/23/23 11:48	200

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
bis (2-chloroisopropyl) ether	ND		2.4	0.24	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,4-Dimethylphenol	ND		3.5	0.95	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,4-Dinitrophenol	ND		7.8	3.4	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2-Chlorophenol	ND		1.2	0.24	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2-Methylnaphthalene	2.9		0.35	0.046	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2-Methylphenol	ND		4.7	0.73	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2-Nitroaniline	ND		4.7	0.95	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
2-Nitrophenol	ND		1.2	0.31	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
3,3'-Dichlorobenzidine	ND		2.4	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
3-Nitroaniline	ND		4.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4,6-Dinitro-2-methylphenol	ND		7.8	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4-Chloroaniline	ND		3.5	0.71	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
4-Nitrophenol	ND		7.8	2.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Acenaphthene	0.21	J	0.35	0.068	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Acenaphthylene	0.24	J	0.35	0.095	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Acetophenone	ND		2.4	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Anthracene	0.26	J	0.35	0.057	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Atrazine	ND	*+	4.7	0.85	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Benzaldehyde	ND		2.4	0.54	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Benzo[a]anthracene	0.54		0.35	0.081	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Benzo[a]pyrene	0.41		0.35	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Benzo[b]fluoranthene	0.69		0.35	0.15	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Benzo[g,h,i]perylene	0.37		0.35	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Benzo[k]fluoranthene	0.27	J	0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Date Collected: 02/17/23 14:57

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		2.4	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Bis(2-chloroethyl)ether	ND		2.4	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Butyl benzyl phthalate	ND		1.7	0.52	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Caprolactam	ND		7.8	1.8	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Carbazole	ND		1.2	0.45	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Chrysene	0.79		0.35	0.035	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Dibenzofuran	0.90	J	1.2	0.31	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Diethyl phthalate	ND		1.7	0.73	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Dimethyl phthalate	ND		1.7	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Di-n-butyl phthalate	ND		1.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Di-n-octyl phthalate	ND		1.7	0.66	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Fluoranthene	1.0		0.35	0.11	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Fluorene	0.22	J	0.35	0.065	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Hexachlorocyclopentadiene	ND		7.8	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Indeno[1,2,3-cd]pyrene	0.27	J	0.35	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Isophorone	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Naphthalene	1.8		0.35	0.057	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Nitrobenzene	ND		2.4	0.31	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Phenanthrene	2.1		0.35	0.053	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Phenol	ND		1.2	0.19	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
Pyrene	0.90		0.35	0.051	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20
3 & 4 Methylphenol	ND		9.5	0.69	mg/Kg	☼	02/18/23 10:21	02/21/23 12:15	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	84		46 - 137	02/18/23 10:21	02/21/23 12:15	20
Phenol-d5 (Surr)	68		26 - 120	02/18/23 10:21	02/21/23 12:15	20
Nitrobenzene-d5 (Surr)	54		25 - 120	02/18/23 10:21	02/21/23 12:15	20
2-Fluorophenol (Surr)	57		20 - 120	02/18/23 10:21	02/21/23 12:15	20
2-Fluorobiphenyl (Surr)	76		34 - 120	02/18/23 10:21	02/21/23 12:15	20
2,4,6-Tribromophenol (Surr)	126	S1+	10 - 120	02/18/23 10:21	02/21/23 12:15	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0054	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 12:39	1
Barium	0.32	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 12:39	1
Cadmium	0.0010	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 12:39	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 12:39	1
Lead	0.013	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 12:39	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 12:39	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 12:39	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Date Collected: 02/17/23 14:57

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.5		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	15.5		0.1	0.1	%			02/18/23 10:23	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Date Collected: 02/17/23 15:10

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		35	11	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,1,2,2-Tetrachloroethane	ND		35	21	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		35	9.4	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,1,2-Trichloroethane	ND		35	8.0	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,1-Dichloroethane	ND		35	6.8	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,1-Dichloroethene	ND		35	12	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,2,4-Trichlorobenzene	ND		35	19	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,2-Dibromo-3-Chloropropane	ND		70	31	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Ethylene Dibromide	ND		35	11	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,2-Dichlorobenzene	ND		35	17	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,2-Dichloroethane	ND		35	6.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,2-Dichloropropane	ND		35	5.2	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,3-Dichlorobenzene	ND		35	6.5	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
1,4-Dichlorobenzene	ND		35	7.7	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
2-Butanone (MEK)	ND		140	22	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
2-Hexanone	ND		140	37	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
4-Methyl-2-pentanone (MIBK)	ND		140	34	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Acetone	37	J B	140	34	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Benzene	ND		35	5.9	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Dichlorobromomethane	ND		35	8.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Bromoform	ND		35	32	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Bromomethane	ND		35	23	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Carbon disulfide	ND		35	15	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Carbon tetrachloride	ND		35	14	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Chlorobenzene	ND		35	4.9	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Chloroethane	ND		35	21	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Chloroform	ND		35	7.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Chloromethane	ND		35	9.3	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
cis-1,2-Dichloroethene	ND		35	5.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
cis-1,3-Dichloropropene	ND		35	17	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Cyclohexane	ND		70	23	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Chlorodibromomethane	ND		35	16	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Dichlorodifluoromethane	ND		35	7.5	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Ethylbenzene	ND		35	6.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Isopropylbenzene	ND		35	5.4	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Methyl acetate	ND		180	24	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Methyl tert-butyl ether	ND		35	5.2	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Methylcyclohexane	ND		70	9.3	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Methylene Chloride	ND		70	54	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Styrene	ND		35	7.3	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Tetrachloroethene	ND		35	14	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Toluene	ND		35	34	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
trans-1,2-Dichloroethene	ND		35	8.7	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
trans-1,3-Dichloropropene	ND		35	15	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Trichloroethene	ND		35	20	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Trichlorofluoromethane	ND		35	19	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125
Vinyl chloride	54		1.4	0.69	mg/Kg	✱	02/20/23 14:17	02/23/23 16:22	5
Xylenes, Total	ND		70	13	mg/Kg	✱	02/20/23 14:17	02/23/23 12:13	125

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Date Collected: 02/17/23 15:10

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/23/23 12:13	125
Toluene-d8 (Surr)	103		56 - 125	02/20/23 14:17	02/23/23 16:22	5
Dibromofluoromethane (Surr)	101		41 - 138	02/20/23 14:17	02/23/23 12:13	125
Dibromofluoromethane (Surr)	88		41 - 138	02/20/23 14:17	02/23/23 16:22	5
4-Bromofluorobenzene (Surr)	108		41 - 143	02/20/23 14:17	02/23/23 12:13	125
4-Bromofluorobenzene (Surr)	101		41 - 143	02/20/23 14:17	02/23/23 16:22	5
1,2-Dichloroethane-d4 (Surr)	112		58 - 125	02/20/23 14:17	02/23/23 12:13	125
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/20/23 14:17	02/23/23 16:22	5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
bis (2-chloroisopropyl) ether	ND		2.4	0.24	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,4-Dimethylphenol	ND		3.7	0.98	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,4-Dinitrophenol	ND		8.1	3.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,4-Dinitrotoluene	ND		4.9	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2,6-Dinitrotoluene	ND		4.9	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2-Chloronaphthalene	ND		1.2	0.34	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2-Chlorophenol	ND		1.2	0.24	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2-Methylnaphthalene	0.24		0.37	0.048	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2-Methylphenol	ND		4.9	0.76	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2-Nitroaniline	ND		4.9	0.98	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
3,3'-Dichlorobenzidine	ND		2.4	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
3-Nitroaniline	ND		4.9	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4,6-Dinitro-2-methylphenol	ND		8.1	2.0	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4-Bromophenyl phenyl ether	ND		1.2	0.34	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4-Chloroaniline	ND		3.7	0.73	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4-Chlorophenyl phenyl ether	ND		1.2	0.34	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4-Nitroaniline	ND		4.9	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
4-Nitrophenol	ND		8.1	2.3	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Acenaphthene	0.27	J	0.37	0.070	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Acenaphthylene	0.25	J	0.37	0.098	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Acetophenone	ND		2.4	0.27	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Anthracene	0.32	J	0.37	0.059	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Atrazine	ND	*+	4.9	0.88	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Benzaldehyde	ND		2.4	0.56	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Benzo[a]anthracene	0.50		0.37	0.084	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Benzo[a]pyrene	0.35	J	0.37	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Benzo[b]fluoranthene	0.57		0.37	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Benzo[g,h,i]perylene	0.31	J	0.37	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Benzo[k]fluoranthene	0.25	J	0.37	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Bis(2-chloroethoxy)methane	ND		2.4	0.29	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Bis(2-chloroethyl)ether	ND		2.4	0.29	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Butyl benzyl phthalate	ND		1.7	0.54	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Date Collected: 02/17/23 15:10

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.1	1.8	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Carbazole	ND		1.2	0.47	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Chrysene	0.72		0.37	0.036	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Dibenzofuran	0.66	J	1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Diethyl phthalate	ND		1.7	0.76	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Dimethyl phthalate	ND		1.7	0.34	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Di-n-butyl phthalate	ND		1.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Di-n-octyl phthalate	ND		1.7	0.69	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Fluoranthene	1.1		0.37	0.11	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Fluorene	0.34	J	0.37	0.067	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Hexachlorobenzene	ND		0.37	0.070	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Hexachlorobutadiene	ND		1.2	0.29	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Hexachlorocyclopentadiene	ND		8.1	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Indeno[1,2,3-cd]pyrene	0.25	J	0.37	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Isophorone	ND		1.2	0.29	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
N-Nitrosodiphenylamine	ND		1.2	0.29	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Naphthalene	1.9		0.37	0.059	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Nitrobenzene	ND		2.4	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Phenanthrene	1.9		0.37	0.055	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Phenol	ND		1.2	0.20	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
Pyrene	0.98		0.37	0.052	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20
3 & 4 Methylphenol	ND		9.8	0.71	mg/Kg	☼	02/18/23 10:21	02/21/23 12:39	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	57		46 - 137	02/18/23 10:21	02/21/23 12:39	20
Phenol-d5 (Surr)	53		26 - 120	02/18/23 10:21	02/21/23 12:39	20
Nitrobenzene-d5 (Surr)	42		25 - 120	02/18/23 10:21	02/21/23 12:39	20
2-Fluorophenol (Surr)	48		20 - 120	02/18/23 10:21	02/21/23 12:39	20
2-Fluorobiphenyl (Surr)	57		34 - 120	02/18/23 10:21	02/21/23 12:39	20
2,4,6-Tribromophenol (Surr)	89		10 - 120	02/18/23 10:21	02/21/23 12:39	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0060	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 12:44	1
Barium	0.38	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 12:44	1
Cadmium	0.00078	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 12:44	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 12:44	1
Lead	0.012	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 12:44	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 12:44	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 12:44	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:35	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Date Collected: 02/17/23 15:10

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.2		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	18.8		0.1	0.1	%			02/18/23 10:23	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Date Collected: 02/17/23 15:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		83	26	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,1,2,2-Tetrachloroethane	ND		83	50	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		83	22	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,1,2-Trichloroethane	ND		83	19	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,1-Dichloroethane	ND		83	16	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,1-Dichloroethene	ND		83	27	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,2,4-Trichlorobenzene	ND		83	44	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,2-Dibromo-3-Chloropropane	ND		170	74	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Ethylene Dibromide	ND		83	26	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,2-Dichlorobenzene	ND		83	40	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,2-Dichloroethane	ND		83	16	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,2-Dichloropropane	ND		83	12	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,3-Dichlorobenzene	ND		83	15	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
1,4-Dichlorobenzene	ND		83	18	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
2-Butanone (MEK)	ND		330	52	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
2-Hexanone	ND		330	88	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
4-Methyl-2-pentanone (MIBK)	ND		330	79	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Acetone	84	J B	330	81	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Benzene	ND		83	14	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Dichlorobromomethane	ND		83	20	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Bromoform	ND		83	76	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Bromomethane	ND		83	55	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Carbon disulfide	ND		83	36	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Carbon tetrachloride	ND		83	34	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Chlorobenzene	ND		83	12	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Chloroethane	ND		83	50	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Chloroform	ND		83	18	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3
Chloromethane	ND		83	22	mg/Kg	✱	02/20/23 14:17	02/23/23 00:51	333.333 3

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Date Collected: 02/17/23 15:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		83	13	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
cis-1,3-Dichloropropene	ND		83	41	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Cyclohexane	ND		170	54	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Chlorodibromomethane	ND		83	39	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Dichlorodifluoromethane	ND		83	18	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Ethylbenzene	ND		83	16	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Isopropylbenzene	ND		83	13	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Methyl acetate	ND		420	56	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Methyl tert-butyl ether	ND		83	12	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Methylcyclohexane	ND		170	22	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Methylene Chloride	ND		170	130	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Styrene	ND		83	17	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Tetrachloroethene	ND		83	32	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Toluene	ND		83	80	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
trans-1,2-Dichloroethene	ND		83	21	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
trans-1,3-Dichloropropene	ND		83	35	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Trichloroethene	ND		83	48	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Trichlorofluoromethane	ND		83	46	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3
Vinyl chloride	23		0.25	0.12	mg/Kg	☼	02/20/23 14:17	02/23/23 11:53	1
Xylenes, Total	ND		170	30	mg/Kg	☼	02/20/23 14:17	02/23/23 00:51	333.333 3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/20/23 14:17	02/23/23 00:51	333.333 3
Toluene-d8 (Surr)	105		56 - 125	02/20/23 14:17	02/23/23 11:53	1
Dibromofluoromethane (Surr)	102		41 - 138	02/20/23 14:17	02/23/23 00:51	333.333 3
Dibromofluoromethane (Surr)	90		41 - 138	02/20/23 14:17	02/23/23 11:53	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/20/23 14:17	02/23/23 00:51	333.333 3
4-Bromofluorobenzene (Surr)	96		41 - 143	02/20/23 14:17	02/23/23 11:53	1
1,2-Dichloroethane-d4 (Surr)	108		58 - 125	02/20/23 14:17	02/23/23 00:51	333.333 3
1,2-Dichloroethane-d4 (Surr)	97		58 - 125	02/20/23 14:17	02/23/23 11:53	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Date Collected: 02/17/23 15:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
bis (2-chloroisopropyl) ether	ND		2.4	0.24	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,4-Dimethylphenol	ND		3.5	0.94	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,4-Dinitrophenol	ND		7.8	3.3	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2-Chlorophenol	ND		1.2	0.24	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2-Methylnaphthalene	2.4		0.35	0.046	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2-Methylphenol	ND		4.7	0.73	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2-Nitroaniline	ND		4.7	0.94	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
2-Nitrophenol	ND		1.2	0.31	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
3,3'-Dichlorobenzidine	ND		2.4	1.0	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
3-Nitroaniline	ND		4.7	1.2	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4,6-Dinitro-2-methylphenol	ND		7.8	1.9	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4-Chloroaniline	ND		3.5	0.71	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
4-Nitrophenol	ND		7.8	2.2	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Acenaphthene	0.35		0.35	0.067	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Acenaphthylene	0.30 J		0.35	0.094	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Acetophenone	ND		2.4	0.26	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Anthracene	0.49		0.35	0.057	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Atrazine	ND	*+	4.7	0.85	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Benzaldehyde	ND		2.4	0.54	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Benzo[a]anthracene	0.65		0.35	0.080	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Benzo[a]pyrene	0.38		0.35	0.22	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Benzo[b]fluoranthene	0.71		0.35	0.15	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Benzo[g,h,i]perylene	0.30 J		0.35	0.17	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Benzo[k]fluoranthene	0.22 J		0.35	0.16	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Bis(2-chloroethoxy)methane	ND		2.4	0.28	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Bis(2-chloroethyl)ether	ND		2.4	0.28	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Butyl benzyl phthalate	ND		1.6	0.52	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Caprolactam	ND		7.8	1.8	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Carbazole	ND		1.2	0.45	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Chrysene	0.87		0.35	0.035	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Dibenzofuran	0.79 J		1.2	0.31	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Diethyl phthalate	ND		1.6	0.73	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Di-n-octyl phthalate	ND		1.6	0.66	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Fluoranthene	1.9		0.35	0.10	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Date Collected: 02/17/23 15:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	0.42		0.35	0.064	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Hexachlorocyclopentadiene	ND		7.8	1.5	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Indeno[1,2,3-cd]pyrene	0.23	J	0.35	0.17	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Isophorone	ND		1.2	0.28	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Naphthalene	1.8		0.35	0.057	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Nitrobenzene	ND		2.4	0.31	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Phenanthrene	2.7		0.35	0.052	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Phenol	ND		1.2	0.19	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
Pyrene	1.4		0.35	0.050	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20
3 & 4 Methylphenol	ND		9.4	0.68	mg/Kg	✱	02/18/23 10:21	02/21/23 13:03	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	67		46 - 137	02/18/23 10:21	02/21/23 13:03	20
Phenol-d5 (Surr)	60		26 - 120	02/18/23 10:21	02/21/23 13:03	20
Nitrobenzene-d5 (Surr)	49		25 - 120	02/18/23 10:21	02/21/23 13:03	20
2-Fluorophenol (Surr)	56		20 - 120	02/18/23 10:21	02/21/23 13:03	20
2-Fluorobiphenyl (Surr)	67		34 - 120	02/18/23 10:21	02/21/23 13:03	20
2,4,6-Tribromophenol (Surr)	106		10 - 120	02/18/23 10:21	02/21/23 13:03	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0046	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 12:48	1
Barium	0.40	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 12:48	1
Cadmium	0.00094	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 12:48	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 12:48	1
Lead	0.011	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 12:48	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 12:48	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 12:48	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.5		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	15.5		0.1	0.1	%			02/18/23 10:23	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Date Collected: 02/17/23 15:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		58	18	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,1,2,2-Tetrachloroethane	ND		58	35	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		58	15	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,1,2-Trichloroethane	ND		58	13	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,1-Dichloroethane	ND		58	11	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,1-Dichloroethene	ND		58	19	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,2,4-Trichlorobenzene	ND		58	31	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,2-Dibromo-3-Chloropropane	ND		120	51	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Ethylene Dibromide	ND		58	18	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,2-Dichlorobenzene	ND		58	28	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,2-Dichloroethane	ND		58	11	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,2-Dichloropropane	ND		58	8.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,3-Dichlorobenzene	ND		58	11	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
1,4-Dichlorobenzene	ND		58	13	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
2-Butanone (MEK)	ND		230	36	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
2-Hexanone	ND		230	61	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
4-Methyl-2-pentanone (MIBK)	ND		230	55	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Acetone	65	J B	230	56	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Benzene	ND		58	9.7	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Dichlorobromomethane	ND		58	14	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Bromoform	ND		58	53	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Bromomethane	ND		58	38	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Carbon disulfide	ND		58	25	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Carbon tetrachloride	ND		58	24	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Chlorobenzene	ND		58	8.1	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Chloroethane	ND		58	35	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Chloroform	ND		58	12	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Chloromethane	ND		58	15	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
cis-1,2-Dichloroethene	ND		58	9.2	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
cis-1,3-Dichloropropene	ND		58	29	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Cyclohexane	ND		120	38	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Chlorodibromomethane	ND		58	27	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Dichlorodifluoromethane	ND		58	12	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Ethylbenzene	ND		58	11	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Isopropylbenzene	ND		58	8.8	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Methyl acetate	ND		290	39	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Methyl tert-butyl ether	ND		58	8.6	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Methylcyclohexane	ND		120	15	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Methylene Chloride	ND		120	89	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Styrene	ND		58	12	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Tetrachloroethene	ND		58	22	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Toluene	ND		58	55	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
trans-1,2-Dichloroethene	ND		58	14	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
trans-1,3-Dichloropropene	ND		58	24	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Trichloroethene	ND		58	33	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Trichlorofluoromethane	ND		58	32	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200
Vinyl chloride	3.2		0.29	0.14	mg/Kg	✱	02/20/23 14:17	02/23/23 12:18	1
Xylenes, Total	ND		120	21	mg/Kg	✱	02/20/23 14:17	02/23/23 12:39	200

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Date Collected: 02/17/23 15:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/23/23 12:18	1
Toluene-d8 (Surr)	108		56 - 125	02/20/23 14:17	02/23/23 12:39	200
Dibromofluoromethane (Surr)	88		41 - 138	02/20/23 14:17	02/23/23 12:18	1
Dibromofluoromethane (Surr)	101		41 - 138	02/20/23 14:17	02/23/23 12:39	200
4-Bromofluorobenzene (Surr)	95		41 - 143	02/20/23 14:17	02/23/23 12:18	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/20/23 14:17	02/23/23 12:39	200
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	02/20/23 14:17	02/23/23 12:18	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/20/23 14:17	02/23/23 12:39	200

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,4-Dimethylphenol	ND		3.5	0.93	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,4-Dinitrotoluene	ND		4.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2-Methylnaphthalene	2.6		0.35	0.046	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2-Methylphenol	ND		4.7	0.72	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2-Nitroaniline	ND		4.7	0.93	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
2-Nitrophenol	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
3-Nitroaniline	ND		4.7	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4-Chloro-3-methylphenol	ND		3.5	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4-Chloroaniline	ND		3.5	0.70	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
4-Nitrophenol	ND		7.7	2.2	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Acenaphthene	0.52		0.35	0.067	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Acenaphthylene	0.23	J	0.35	0.094	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Acetophenone	ND		2.3	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Anthracene	0.56		0.35	0.056	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Atrazine	ND	+	4.7	0.84	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Benzaldehyde	ND		2.3	0.54	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Benzo[a]anthracene	0.84		0.35	0.080	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Benzo[a]pyrene	0.57		0.35	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Benzo[b]fluoranthene	0.95		0.35	0.15	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Benzo[g,h,i]perylene	0.43		0.35	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Benzo[k]fluoranthene	0.33	J	0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Butyl benzyl phthalate	ND		1.6	0.51	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Date Collected: 02/17/23 15:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.7	1.7	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Carbazole	ND		1.2	0.44	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Chrysene	1.1		0.35	0.035	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Dibenzofuran	0.88	J	1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Diethyl phthalate	ND		1.6	0.72	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Di-n-octyl phthalate	ND		1.6	0.65	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Fluoranthene	2.2		0.35	0.10	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Fluorene	0.50		0.35	0.064	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Hexachlorobenzene	ND		0.35	0.066	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Hexachlorocyclopentadiene	ND		7.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Indeno[1,2,3-cd]pyrene	0.37		0.35	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Isophorone	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Naphthalene	1.8		0.35	0.056	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Nitrobenzene	ND		2.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Phenanthrene	2.8		0.35	0.052	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Phenol	ND		1.2	0.19	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
Pyrene	1.7		0.35	0.050	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20
3 & 4 Methylphenol	ND		9.3	0.68	mg/Kg	☼	02/18/23 10:21	02/21/23 13:27	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	66		46 - 137	02/18/23 10:21	02/21/23 13:27	20
Phenol-d5 (Surr)	68		26 - 120	02/18/23 10:21	02/21/23 13:27	20
Nitrobenzene-d5 (Surr)	46		25 - 120	02/18/23 10:21	02/21/23 13:27	20
2-Fluorophenol (Surr)	57		20 - 120	02/18/23 10:21	02/21/23 13:27	20
2-Fluorobiphenyl (Surr)	62		34 - 120	02/18/23 10:21	02/21/23 13:27	20
2,4,6-Tribromophenol (Surr)	111		10 - 120	02/18/23 10:21	02/21/23 13:27	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0071	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 12:52	1
Barium	0.52	B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 12:52	1
Cadmium	0.0015	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 12:52	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 12:52	1
Lead	0.011	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 12:52	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 12:52	1
Silver	0.00066	J	0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 12:52	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:39	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Date Collected: 02/17/23 15:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.5		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	15.5		0.1	0.1	%			02/18/23 10:23	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/19/23 14:31	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/19/23 14:31	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/19/23 14:31	1
Benzene	0.011	J	0.025	0.00042	mg/L			02/19/23 14:31	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/19/23 14:31	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/19/23 14:31	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/19/23 14:31	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/19/23 14:31	1
Vinyl chloride	0.28		0.025	0.00045	mg/L			02/19/23 14:31	1
Chloroform	ND		0.025	0.00047	mg/L			02/19/23 14:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	96		80 - 120					02/19/23 14:31	1
<i>Dibromofluoromethane (Surr)</i>	106		71 - 121					02/19/23 14:31	1
<i>4-Bromofluorobenzene (Surr)</i>	116		80 - 120					02/19/23 14:31	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		76 - 120					02/19/23 14:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND	F1	0.040	0.0033	mg/L		02/20/23 08:50	02/21/23 15:28	10
2,4,5-Trichlorophenol	ND	F1	0.040	0.020	mg/L		02/20/23 08:50	02/21/23 15:28	10
2,4,6-Trichlorophenol	ND	F1	0.040	0.018	mg/L		02/20/23 08:50	02/21/23 15:28	10
2,4-Dinitrotoluene	ND	F1	0.040	0.021	mg/L		02/20/23 08:50	02/21/23 15:28	10
Hexachlorobenzene	ND	F1	0.0080	0.0016	mg/L		02/20/23 08:50	02/21/23 15:28	10
Hexachlorobutadiene	ND	F1	0.040	0.0054	mg/L		02/20/23 08:50	02/21/23 15:28	10
Hexachloroethane	ND	F1	0.040	0.0040	mg/L		02/20/23 08:50	02/21/23 15:28	10
2-Methylphenol	ND	F1	0.040	0.0021	mg/L		02/20/23 08:50	02/21/23 15:28	10
3 & 4 Methylphenol	ND	F1	0.040	0.0019	mg/L		02/20/23 08:50	02/21/23 15:28	10
Nitrobenzene	ND	F1	0.040	0.0051	mg/L		02/20/23 08:50	02/21/23 15:28	10
Pentachlorophenol	ND		0.16	0.031	mg/L		02/20/23 08:50	02/21/23 15:28	10
Pyridine	ND		0.040	0.0036	mg/L		02/20/23 08:50	02/21/23 15:28	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	96		46 - 137				02/20/23 08:50	02/21/23 15:28	10
<i>Phenol-d5 (Surr)</i>	59		26 - 120				02/20/23 08:50	02/21/23 15:28	10
<i>Nitrobenzene-d5 (Surr)</i>	73		24 - 120				02/20/23 08:50	02/21/23 15:28	10
<i>2-Fluorophenol (Surr)</i>	65		19 - 120				02/20/23 08:50	02/21/23 15:28	10
<i>2-Fluorobiphenyl (Surr)</i>	80		33 - 120				02/20/23 08:50	02/21/23 15:28	10
<i>2,4,6-Tribromophenol (Surr)</i>	76		10 - 120				02/20/23 08:50	02/21/23 15:28	10

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/20/23 08:53	02/20/23 14:56	1
Endrin	ND		0.00050	0.0000065	mg/L		02/20/23 08:53	02/20/23 14:56	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/20/23 08:53	02/20/23 14:56	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/20/23 08:53	02/20/23 14:56	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/20/23 08:53	02/20/23 14:56	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/20/23 08:53	02/20/23 14:56	1
Toxaphene	ND		0.020	0.000058	mg/L		02/20/23 08:53	02/20/23 14:56	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	100		10 - 145	02/20/23 08:53	02/20/23 14:56	1
DCB Decachlorobiphenyl	97		10 - 145	02/20/23 08:53	02/20/23 14:56	1
Tetrachloro-m-xylene	77		10 - 123	02/20/23 08:53	02/20/23 14:56	1
Tetrachloro-m-xylene	78		10 - 123	02/20/23 08:53	02/20/23 14:56	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 07:45	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 07:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	62		26 - 136	02/21/23 20:16	02/22/23 07:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.8		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	13.2		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 86.8

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		60	30	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1221	ND		60	36	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1232	ND		60	25	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1242	ND		60	23	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1248	ND		60	20	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1254	ND		60	25	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1260	ND		60	25	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1262	ND		60	26	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Aroclor-1268	ND		60	19	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1
Polychlorinated biphenyls, Total	ND		60	36	ug/Kg	✳	02/20/23 08:20	02/21/23 00:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	49		10 - 149	02/20/23 08:20	02/21/23 00:09	1
DCB Decachlorobiphenyl	43		10 - 174	02/20/23 08:20	02/21/23 00:09	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	0.36	J	0.68	0.23	ng/g	✳	02/21/23 12:53	02/21/23 17:11	1
Perfluorooctanesulfonic acid	0.44	J	0.68	0.23	ng/g	✳	02/21/23 12:53	02/21/23 17:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	80		26 - 159	02/21/23 12:53	02/21/23 17:11	1
13C8 PFOS	88		41 - 154	02/21/23 12:53	02/21/23 17:11	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Date Collected: 02/17/23 16:17

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 85.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		29	8.9	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,1,2,2-Tetrachloroethane	ND		29	17	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		29	7.7	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,1,2-Trichloroethane	ND		29	6.5	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,1-Dichloroethane	ND		29	5.5	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,1-Dichloroethene	ND		29	9.4	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,2,4-Trichlorobenzene	ND		29	15	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,2-Dibromo-3-Chloropropane	ND		57	25	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Ethylene Dibromide	ND		29	9.1	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,2-Dichlorobenzene	ND		29	14	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,2-Dichloroethane	ND		29	5.4	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,2-Dichloropropane	ND		29	4.2	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,3-Dichlorobenzene	ND		29	5.3	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
1,4-Dichlorobenzene	ND		29	6.3	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
2-Butanone (MEK)	ND		110	18	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
2-Hexanone	ND		110	30	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
4-Methyl-2-pentanone (MIBK)	ND		110	27	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Acetone	ND		110	28	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Benzene	ND		29	4.8	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Dichlorobromomethane	ND		29	7.0	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Bromoform	ND		29	26	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Bromomethane	ND		29	19	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Carbon disulfide	ND		29	12	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Carbon tetrachloride	ND		29	12	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Chlorobenzene	ND		29	4.0	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Chloroethane	ND		29	17	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Chloroform	ND		29	6.2	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Chloromethane	ND		29	7.6	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
cis-1,2-Dichloroethene	ND		29	4.6	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
cis-1,3-Dichloropropene	ND		29	14	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Cyclohexane	ND		57	19	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Chlorodibromomethane	ND		29	13	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Dichlorodifluoromethane	ND		29	6.1	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Ethylbenzene	ND		29	5.4	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Isopropylbenzene	ND		29	4.4	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Methyl acetate	ND		140	19	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Methyl tert-butyl ether	ND		29	4.2	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Methylcyclohexane	ND		57	7.6	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Methylene Chloride	ND		57	44	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Styrene	ND		29	6.0	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Tetrachloroethene	ND		29	11	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Toluene	ND		29	28	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
trans-1,2-Dichloroethene	ND		29	7.1	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
trans-1,3-Dichloropropene	ND		29	12	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Trichloroethene	ND		29	16	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Trichlorofluoromethane	ND		29	16	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11
Vinyl chloride	3.1		0.26	0.13	mg/Kg	✱	02/20/23 14:17	02/23/23 12:42	1
Xylenes, Total	ND		57	10	mg/Kg	✱	02/20/23 14:17	02/23/23 15:10	111.11

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Date Collected: 02/17/23 16:17

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 85.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/20/23 14:17	02/23/23 12:42	1
Toluene-d8 (Surr)	106		56 - 125	02/20/23 14:17	02/23/23 15:10	111.11
Dibromofluoromethane (Surr)	86		41 - 138	02/20/23 14:17	02/23/23 12:42	1
Dibromofluoromethane (Surr)	100		41 - 138	02/20/23 14:17	02/23/23 15:10	111.11
4-Bromofluorobenzene (Surr)	95		41 - 143	02/20/23 14:17	02/23/23 12:42	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/20/23 14:17	02/23/23 15:10	111.11
1,2-Dichloroethane-d4 (Surr)	91		58 - 125	02/20/23 14:17	02/23/23 12:42	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/20/23 14:17	02/23/23 15:10	111.11

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.39	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,4-Dimethylphenol	ND		3.5	0.93	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,4-Dinitrotoluene	ND		4.6	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2,6-Dinitrotoluene	ND		4.6	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2-Chloronaphthalene	ND		1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2-Methylnaphthalene	0.24		0.35	0.045	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2-Methylphenol	ND		4.6	0.72	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2-Nitroaniline	ND		4.6	0.93	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
2-Nitrophenol	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
3-Nitroaniline	ND		4.6	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4-Bromophenyl phenyl ether	ND		1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4-Chloro-3-methylphenol	ND		3.5	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4-Chloroaniline	ND		3.5	0.70	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4-Chlorophenyl phenyl ether	ND		1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4-Nitroaniline	ND		4.6	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
4-Nitrophenol	ND		7.7	2.2	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Acenaphthene	0.36		0.35	0.066	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Acenaphthylene	0.21	J	0.35	0.093	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Acetophenone	ND		2.3	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Anthracene	0.48		0.35	0.056	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Atrazine	ND	+	4.6	0.84	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Benzaldehyde	ND		2.3	0.53	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Benzo[a]anthracene	0.83		0.35	0.079	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Benzo[a]pyrene	0.56		0.35	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Benzo[b]fluoranthene	1.0		0.35	0.15	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Benzo[g,h,i]perylene	0.42		0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Benzo[k]fluoranthene	0.23	J	0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Butyl benzyl phthalate	ND		1.6	0.51	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Date Collected: 02/17/23 16:17

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 85.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.7	1.7	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Carbazole	ND		1.2	0.44	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Chrysene	1.1		0.35	0.035	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Dibenzofuran	0.73	J	1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Diethyl phthalate	ND		1.6	0.72	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Dimethyl phthalate	ND		1.6	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Di-n-octyl phthalate	ND		1.6	0.65	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Fluoranthene	2.1		0.35	0.10	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Fluorene	0.37		0.35	0.064	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Hexachlorobenzene	ND		0.35	0.066	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Hexachlorocyclopentadiene	ND		7.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Indeno[1,2,3-cd]pyrene	0.33	J	0.35	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Isophorone	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Naphthalene	1.7		0.35	0.056	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Nitrobenzene	ND		2.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Pentachlorophenol	ND		3.5	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Phenanthrene	2.3		0.35	0.052	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Phenol	ND		1.2	0.19	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
Pyrene	1.6		0.35	0.050	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20
3 & 4 Methylphenol	ND		9.3	0.67	mg/Kg	☼	02/18/23 10:21	02/21/23 13:51	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	53		46 - 137	02/18/23 10:21	02/21/23 13:51	20
Phenol-d5 (Surr)	40		26 - 120	02/18/23 10:21	02/21/23 13:51	20
Nitrobenzene-d5 (Surr)	42		25 - 120	02/18/23 10:21	02/21/23 13:51	20
2-Fluorophenol (Surr)	59		20 - 120	02/18/23 10:21	02/21/23 13:51	20
2-Fluorobiphenyl (Surr)	54		34 - 120	02/18/23 10:21	02/21/23 13:51	20
2,4,6-Tribromophenol (Surr)	102		10 - 120	02/18/23 10:21	02/21/23 13:51	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0054	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 12:57	1
Barium	0.50	B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 12:57	1
Cadmium	0.0018	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 12:57	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 12:57	1
Lead	0.014	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 12:57	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 12:57	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 12:57	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:46	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Date Collected: 02/17/23 16:17

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 85.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.1		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	14.9		0.1	0.1	%			02/18/23 10:23	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Date Collected: 02/17/23 16:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		86	27	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,1,2,2-Tetrachloroethane	ND		86	51	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		86	23	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,1,2-Trichloroethane	ND		86	20	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,1-Dichloroethane	ND		86	16	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,1-Dichloroethene	ND		86	28	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,2,4-Trichlorobenzene	ND		86	46	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,2-Dibromo-3-Chloropropane	ND		170	76	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Ethylene Dibromide	ND		86	27	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,2-Dichlorobenzene	ND		86	41	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,2-Dichloroethane	ND		86	16	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,2-Dichloropropane	ND		86	13	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,3-Dichlorobenzene	ND		86	16	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
1,4-Dichlorobenzene	ND		86	19	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
2-Butanone (MEK)	ND		340	54	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
2-Hexanone	ND		340	90	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
4-Methyl-2-pentanone (MIBK)	ND		340	81	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Acetone	83	J B	340	83	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Benzene	ND		86	14	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Dichlorobromomethane	ND		86	21	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Bromoform	ND		86	78	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Bromomethane	ND		86	57	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Carbon disulfide	ND		86	37	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Carbon tetrachloride	ND		86	35	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Chlorobenzene	ND		86	12	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Chloroethane	ND		86	51	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Chloroform	ND		86	18	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3
Chloromethane	ND		86	23	mg/Kg	✱	02/20/23 14:17	02/23/23 14:19	333.333 3

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Date Collected: 02/17/23 16:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		86	14	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
cis-1,3-Dichloropropene	ND		86	42	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Cyclohexane	ND		170	56	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Chlorodibromomethane	ND		86	40	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Dichlorodifluoromethane	ND		86	18	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Ethylbenzene	ND		86	16	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Isopropylbenzene	ND		86	13	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Methyl acetate	ND		430	57	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Methyl tert-butyl ether	ND		86	13	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Methylcyclohexane	ND		170	23	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Methylene Chloride	ND		170	130	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Styrene	ND		86	18	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Tetrachloroethene	ND		86	33	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Toluene	ND		86	82	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
trans-1,2-Dichloroethene	ND		86	21	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
trans-1,3-Dichloropropene	ND		86	36	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Trichloroethene	ND		86	49	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Trichlorofluoromethane	ND		86	47	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3
Vinyl chloride	42		1.0	0.50	mg/Kg	☼	02/20/23 14:17	02/23/23 16:46	4
Xylenes, Total	ND		170	31	mg/Kg	☼	02/20/23 14:17	02/23/23 14:19	333.333 3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/23/23 14:19	333.333 3
Toluene-d8 (Surr)	105		56 - 125	02/20/23 14:17	02/23/23 16:46	4
Dibromofluoromethane (Surr)	103		41 - 138	02/20/23 14:17	02/23/23 14:19	333.333 3
Dibromofluoromethane (Surr)	88		41 - 138	02/20/23 14:17	02/23/23 16:46	4
4-Bromofluorobenzene (Surr)	107		41 - 143	02/20/23 14:17	02/23/23 14:19	333.333 3
4-Bromofluorobenzene (Surr)	100		41 - 143	02/20/23 14:17	02/23/23 16:46	4
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/20/23 14:17	02/23/23 14:19	333.333 3
1,2-Dichloroethane-d4 (Surr)	93		58 - 125	02/20/23 14:17	02/23/23 16:46	4

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Date Collected: 02/17/23 16:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,4-Dimethylphenol	ND		3.5	0.94	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2-Methylnaphthalene	3.0		0.35	0.046	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2-Methylphenol	ND		4.7	0.73	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2-Nitroaniline	ND		4.7	0.94	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
2-Nitrophenol	ND		1.2	0.31	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
3-Nitroaniline	ND		4.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4-Chloroaniline	ND		3.5	0.70	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
4-Nitrophenol	ND		7.7	2.2	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Acenaphthene	0.42		0.35	0.067	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Acenaphthylene	0.44		0.35	0.094	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Acetophenone	ND		2.3	0.26	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Anthracene	0.53		0.35	0.057	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Atrazine	ND	*+	4.7	0.85	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Benzaldehyde	ND		2.3	0.54	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Benzo[a]anthracene	0.83		0.35	0.080	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Benzo[a]pyrene	0.48		0.35	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Benzo[b]fluoranthene	0.97		0.35	0.15	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Benzo[g,h,i]perylene	0.39		0.35	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Benzo[k]fluoranthene	0.22 J		0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Butyl benzyl phthalate	ND		1.6	0.52	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Caprolactam	ND		7.7	1.8	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Carbazole	ND		1.2	0.45	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Chrysene	1.1		0.35	0.035	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Dibenzofuran	0.88 J		1.2	0.31	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Diethyl phthalate	ND		1.6	0.73	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Di-n-octyl phthalate	ND		1.6	0.66	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20
Fluoranthene	2.2		0.35	0.10	mg/Kg	☼	02/18/23 10:21	02/21/23 14:15	20

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Date Collected: 02/17/23 16:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	0.44		0.35	0.064	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Hexachlorocyclopentadiene	ND		7.7	1.5	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Indeno[1,2,3-cd]pyrene	0.34	J	0.35	0.17	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Isophorone	ND		1.2	0.28	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Naphthalene	2.5		0.35	0.057	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Nitrobenzene	ND		2.3	0.31	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Phenanthrene	2.6		0.35	0.052	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Phenol	ND		1.2	0.19	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Pyrene	1.7		0.35	0.050	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
3 & 4 Methylphenol	ND		9.4	0.68	mg/Kg	✳	02/18/23 10:21	02/21/23 14:15	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	60		46 - 137				02/18/23 10:21	02/21/23 14:15	20
<i>Phenol-d5 (Surr)</i>	53		26 - 120				02/18/23 10:21	02/21/23 14:15	20
<i>Nitrobenzene-d5 (Surr)</i>	45		25 - 120				02/18/23 10:21	02/21/23 14:15	20
<i>2-Fluorophenol (Surr)</i>	49		20 - 120				02/18/23 10:21	02/21/23 14:15	20
<i>2-Fluorobiphenyl (Surr)</i>	59		34 - 120				02/18/23 10:21	02/21/23 14:15	20
<i>2,4,6-Tribromophenol (Surr)</i>	111		10 - 120				02/18/23 10:21	02/21/23 14:15	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0062	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 13:01	1
Barium	0.40	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 13:01	1
Cadmium	0.0010	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 13:01	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 13:01	1
Lead	0.011	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 13:01	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 13:01	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 13:01	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.2		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	15.8		0.1	0.1	%			02/18/23 10:23	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Date Collected: 02/17/23 16:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		88	27	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,1,2,2-Tetrachloroethane	ND		88	53	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		88	23	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,1,2-Trichloroethane	ND		88	20	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,1-Dichloroethane	ND		88	17	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,1-Dichloroethene	ND		88	29	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,2,4-Trichlorobenzene	ND		88	47	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,2-Dibromo-3-Chloropropane	ND		180	77	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Ethylene Dibromide	ND		88	28	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,2-Dichlorobenzene	ND		88	42	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,2-Dichloroethane	ND		88	16	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,2-Dichloropropane	ND		88	13	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,3-Dichlorobenzene	ND		88	16	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
1,4-Dichlorobenzene	ND		88	19	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
2-Butanone (MEK)	ND		350	55	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
2-Hexanone	ND		350	92	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
4-Methyl-2-pentanone (MIBK)	ND		350	83	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Acetone	96	J B	350	85	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Benzene	ND		88	15	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Dichlorobromomethane	ND		88	21	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Bromoform	ND		88	80	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Bromomethane	ND		88	58	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Carbon disulfide	ND		88	38	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Carbon tetrachloride	ND		88	36	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Chlorobenzene	ND		88	12	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Chloroethane	ND		88	53	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Chloroform	ND		88	19	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3
Chloromethane	ND		88	23	mg/Kg	✱	02/20/23 14:17	02/23/23 14:45	333.333 3

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Date Collected: 02/17/23 16:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		88	14	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
cis-1,3-Dichloropropene	ND		88	43	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Cyclohexane	ND		180	57	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Chlorodibromomethane	ND		88	41	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Dichlorodifluoromethane	ND		88	19	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Ethylbenzene	ND		88	16	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Isopropylbenzene	ND		88	13	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Methyl acetate	ND		440	59	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Methyl tert-butyl ether	ND		88	13	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Methylcyclohexane	ND		180	23	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Methylene Chloride	ND		180	130	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Styrene	ND		88	18	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Tetrachloroethene	ND		88	34	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Toluene	ND		88	84	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
trans-1,2-Dichloroethene	ND		88	22	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
trans-1,3-Dichloropropene	ND		88	37	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Trichloroethene	ND		88	50	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Trichlorofluoromethane	ND		88	48	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3
Vinyl chloride	20		0.26	0.13	mg/Kg	☼	02/20/23 14:17	02/23/23 13:31	1
Xylenes, Total	ND		180	32	mg/Kg	☼	02/20/23 14:17	02/23/23 14:45	333.333 3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/20/23 14:17	02/23/23 13:31	1
Toluene-d8 (Surr)	108		56 - 125	02/20/23 14:17	02/23/23 14:45	333.333 3
Dibromofluoromethane (Surr)	89		41 - 138	02/20/23 14:17	02/23/23 13:31	1
Dibromofluoromethane (Surr)	103		41 - 138	02/20/23 14:17	02/23/23 14:45	333.333 3
4-Bromofluorobenzene (Surr)	97		41 - 143	02/20/23 14:17	02/23/23 13:31	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/20/23 14:17	02/23/23 14:45	333.333 3
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/20/23 14:17	02/23/23 13:31	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/20/23 14:17	02/23/23 14:45	333.333 3

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Date Collected: 02/17/23 16:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,4-Dimethylphenol	ND		3.7	0.99	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,4-Dinitrophenol	ND		8.1	3.5	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,4-Dinitrotoluene	ND		4.9	1.5	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2,6-Dinitrotoluene	ND		4.9	1.4	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2-Chloronaphthalene	ND		1.2	0.35	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2-Chlorophenol	ND		1.2	0.25	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2-Methylnaphthalene	3.6		0.37	0.048	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2-Methylphenol	ND		4.9	0.77	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2-Nitroaniline	ND		4.9	0.99	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
3-Nitroaniline	ND		4.9	1.2	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4,6-Dinitro-2-methylphenol	ND		8.1	2.0	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4-Bromophenyl phenyl ether	ND		1.2	0.35	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4-Chloroaniline	ND		3.7	0.74	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4-Chlorophenyl phenyl ether	ND		1.2	0.35	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4-Nitroaniline	ND		4.9	1.5	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
4-Nitrophenol	ND		8.1	2.3	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Acenaphthene	0.25	J	0.37	0.071	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Acenaphthylene	0.24	J	0.37	0.099	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Acetophenone	ND		2.5	0.27	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Anthracene	0.24	J	0.37	0.059	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Atrazine	ND	*+	4.9	0.89	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Benzaldehyde	ND		2.5	0.57	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Benzo[a]anthracene	0.52		0.37	0.084	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Benzo[a]pyrene	0.34	J	0.37	0.23	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Benzo[b]fluoranthene	0.50		0.37	0.16	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Benzo[g,h,i]perylene	0.24	J	0.37	0.18	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Benzo[k]fluoranthene	0.20	J	0.37	0.17	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.3	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Butyl benzyl phthalate	ND		1.7	0.54	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Caprolactam	ND		8.1	1.9	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Carbazole	ND		1.2	0.47	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Chrysene	0.67		0.37	0.037	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Dibenzofuran	0.98	J	1.2	0.32	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Diethyl phthalate	ND		1.7	0.77	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Dimethyl phthalate	ND		1.7	0.35	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Di-n-butyl phthalate	ND		1.7	1.2	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Di-n-octyl phthalate	ND		1.7	0.69	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20
Fluoranthene	0.99		0.37	0.11	mg/Kg	✱	02/18/23 10:21	02/21/23 14:39	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Date Collected: 02/17/23 16:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	0.27	J	0.37	0.068	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Hexachlorobenzene	ND		0.37	0.070	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Hexachlorobutadiene	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Hexachlorocyclopentadiene	ND		8.1	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Indeno[1,2,3-cd]pyrene	0.20	J	0.37	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Isophorone	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
N-Nitrosodiphenylamine	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Naphthalene	2.7		0.37	0.059	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Nitrobenzene	ND		2.5	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Phenanthrene	2.0		0.37	0.055	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Phenol	ND		1.2	0.20	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Pyrene	0.88		0.37	0.053	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
3 & 4 Methylphenol	ND		9.9	0.72	mg/Kg	☼	02/18/23 10:21	02/21/23 14:39	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	66		46 - 137				02/18/23 10:21	02/21/23 14:39	20
<i>Phenol-d5 (Surr)</i>	59		26 - 120				02/18/23 10:21	02/21/23 14:39	20
<i>Nitrobenzene-d5 (Surr)</i>	53		25 - 120				02/18/23 10:21	02/21/23 14:39	20
<i>2-Fluorophenol (Surr)</i>	56		20 - 120				02/18/23 10:21	02/21/23 14:39	20
<i>2-Fluorobiphenyl (Surr)</i>	68		34 - 120				02/18/23 10:21	02/21/23 14:39	20
<i>2,4,6-Tribromophenol (Surr)</i>	111		10 - 120				02/18/23 10:21	02/21/23 14:39	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0057	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 13:06	1
Barium	0.36	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 13:06	1
Cadmium	0.00087	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 13:06	1
Chromium	0.013	J	0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 13:06	1
Lead	0.011	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 13:06	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 13:06	1
Silver	0.00063	J	0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 13:06	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.5		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	18.5		0.1	0.1	%			02/18/23 10:23	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Date Collected: 02/17/23 16:43

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 80.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		17	5.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,1,2,2-Tetrachloroethane	ND		17	10	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		17	4.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,1,2-Trichloroethane	ND		17	3.9	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,1-Dichloroethane	ND		17	3.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,1-Dichloroethene	ND		17	5.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,2,4-Trichlorobenzene	ND		17	9.1	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,2-Dibromo-3-Chloropropane	ND		34	15	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Ethylene Dibromide	ND		17	5.4	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,2-Dichlorobenzene	ND		17	8.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,2-Dichloroethane	ND		17	3.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,2-Dichloropropane	ND		17	2.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,3-Dichlorobenzene	ND		17	3.1	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
1,4-Dichlorobenzene	ND		17	3.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
2-Butanone (MEK)	ND		68	11	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
2-Hexanone	ND		68	18	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
4-Methyl-2-pentanone (MIBK)	ND		68	16	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Acetone	17	J B	68	17	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Benzene	ND		17	2.9	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Dichlorobromomethane	ND		17	4.1	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Bromoform	ND		17	16	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Bromomethane	ND		17	11	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Carbon disulfide	ND		17	7.4	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Carbon tetrachloride	ND		17	6.9	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Chlorobenzene	ND		17	2.4	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Chloroethane	ND		17	10	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Chloroform	ND		17	3.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Chloromethane	ND		17	4.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
cis-1,2-Dichloroethene	ND		17	2.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
cis-1,3-Dichloropropene	ND		17	8.4	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Cyclohexane	ND		34	11	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Chlorodibromomethane	ND		17	8.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Dichlorodifluoromethane	ND		17	3.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Ethylbenzene	ND		17	3.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Isopropylbenzene	ND		17	2.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Methyl acetate	ND		85	11	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Methyl tert-butyl ether	ND		17	2.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Methylcyclohexane	ND		34	4.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Methylene Chloride	ND		34	26	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Styrene	ND		17	3.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Tetrachloroethene	ND		17	6.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Toluene	ND		17	16	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
trans-1,2-Dichloroethene	ND		17	4.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
trans-1,3-Dichloropropene	ND		17	7.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Trichloroethene	ND		17	9.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Trichlorofluoromethane	ND		17	9.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666
Vinyl chloride	19		0.26	0.13	mg/Kg	✱	02/20/23 14:17	02/23/23 13:56	1
Xylenes, Total	ND		34	6.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:04	66.6666

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Date Collected: 02/17/23 16:43

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 80.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/20/23 14:17	02/23/23 13:04	66.6666
Toluene-d8 (Surr)	106		56 - 125	02/20/23 14:17	02/23/23 13:56	1
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/23/23 15:35	125
Dibromofluoromethane (Surr)	100		41 - 138	02/20/23 14:17	02/23/23 13:04	66.6666
Dibromofluoromethane (Surr)	89		41 - 138	02/20/23 14:17	02/23/23 13:56	1
Dibromofluoromethane (Surr)	103		41 - 138	02/20/23 14:17	02/23/23 15:35	125
4-Bromofluorobenzene (Surr)	104		41 - 143	02/20/23 14:17	02/23/23 13:04	66.6666
4-Bromofluorobenzene (Surr)	98		41 - 143	02/20/23 14:17	02/23/23 13:56	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/20/23 14:17	02/23/23 15:35	125
1,2-Dichloroethane-d4 (Surr)	105		58 - 125	02/20/23 14:17	02/23/23 13:04	66.6666
1,2-Dichloroethane-d4 (Surr)	93		58 - 125	02/20/23 14:17	02/23/23 13:56	1
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/20/23 14:17	02/23/23 15:35	125

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,4-Dimethylphenol	ND		3.7	0.99	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,4-Dinitrophenol	ND		8.1	3.5	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,4-Dinitrotoluene	ND		4.9	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2,6-Dinitrotoluene	ND		4.9	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2-Chloronaphthalene	ND		1.2	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2-Chlorophenol	ND		1.2	0.25	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2-Methylnaphthalene	3.4		0.37	0.048	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2-Methylphenol	ND		4.9	0.77	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2-Nitroaniline	ND		4.9	0.99	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
3-Nitroaniline	ND		4.9	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4,6-Dinitro-2-methylphenol	ND		8.1	2.0	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4-Bromophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4-Chloroaniline	ND		3.7	0.74	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4-Chlorophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4-Nitroaniline	ND		4.9	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
4-Nitrophenol	ND		8.1	2.3	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Acenaphthene	0.45		0.37	0.071	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Acenaphthylene	0.44		0.37	0.099	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Acetophenone	ND		2.5	0.27	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Anthracene	0.55		0.37	0.059	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Atrazine	ND	+	4.9	0.89	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Benzaldehyde	ND		2.5	0.57	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Benzo[a]anthracene	0.99		0.37	0.084	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Benzo[a]pyrene	0.63		0.37	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Benzo[b]fluoranthene	1.1		0.37	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Benzo[g,h,i]perylene	0.48		0.37	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Benzo[k]fluoranthene	0.41		0.37	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Date Collected: 02/17/23 16:43

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 80.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Butyl benzyl phthalate	ND		1.7	0.54	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Caprolactam	ND		8.1	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Carbazole	ND		1.2	0.47	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Chrysene	1.3		0.37	0.037	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Dibenzofuran	1.1 J		1.2	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Diethyl phthalate	ND		1.7	0.77	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Dimethyl phthalate	ND		1.7	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Di-n-butyl phthalate	ND		1.7	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Di-n-octyl phthalate	ND		1.7	0.69	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Fluoranthene	2.4		0.37	0.11	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Fluorene	0.51		0.37	0.068	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Hexachlorobenzene	ND		0.37	0.070	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Hexachlorobutadiene	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Hexachlorocyclopentadiene	ND		8.1	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Indeno[1,2,3-cd]pyrene	0.42		0.37	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Isophorone	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
N-Nitrosodiphenylamine	ND		1.2	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Naphthalene	2.8		0.37	0.059	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Nitrobenzene	ND		2.5	0.32	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Phenanthrene	3.1		0.37	0.055	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Phenol	ND		1.2	0.20	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
Pyrene	1.8		0.37	0.053	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20
3 & 4 Methylphenol	ND		9.9	0.72	mg/Kg	☼	02/18/23 10:21	02/21/23 16:16	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	61		46 - 137	02/18/23 10:21	02/21/23 16:16	20
Phenol-d5 (Surr)	54		26 - 120	02/18/23 10:21	02/21/23 16:16	20
Nitrobenzene-d5 (Surr)	44		25 - 120	02/18/23 10:21	02/21/23 16:16	20
2-Fluorophenol (Surr)	52		20 - 120	02/18/23 10:21	02/21/23 16:16	20
2-Fluorobiphenyl (Surr)	64		34 - 120	02/18/23 10:21	02/21/23 16:16	20
2,4,6-Tribromophenol (Surr)	118		10 - 120	02/18/23 10:21	02/21/23 16:16	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0047	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 13:10	1
Barium	0.63	B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 13:10	1
Cadmium	0.00093	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 13:10	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 13:10	1
Lead	0.011	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 13:10	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 13:10	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 13:10	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Date Collected: 02/17/23 16:43

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 80.9

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.9		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	19.1		0.1	0.1	%			02/18/23 10:23	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Date Collected: 02/17/23 16:51

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		12	3.8	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,1,2,2-Tetrachloroethane	ND		12	7.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		12	3.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,1,2-Trichloroethane	ND		12	2.8	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,1-Dichloroethane	ND		12	2.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,1-Dichloroethene	ND		12	4.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,2,4-Trichlorobenzene	ND		12	6.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,2-Dibromo-3-Chloropropane	ND		24	11	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Ethylene Dibromide	ND		12	3.8	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,2-Dichlorobenzene	ND		12	5.8	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,2-Dichloroethane	ND		12	2.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,2-Dichloropropane	ND		12	1.8	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,3-Dichlorobenzene	ND		12	2.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
1,4-Dichlorobenzene	ND		12	2.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
2-Butanone (MEK)	ND		49	7.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
2-Hexanone	ND		49	13	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
4-Methyl-2-pentanone (MIBK)	ND		49	12	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Acetone	17	J B	49	12	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Benzene	ND		12	2.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Dichlorobromomethane	ND		12	3.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Bromoform	ND		12	11	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Bromomethane	ND		12	8.1	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Carbon disulfide	ND		12	5.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Carbon tetrachloride	ND		12	5.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Chlorobenzene	ND		12	1.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Chloroethane	ND		12	7.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Chloroform	ND		12	2.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Chloromethane	ND		12	3.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
cis-1,2-Dichloroethene	ND		12	1.9	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
cis-1,3-Dichloropropene	ND		12	6.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Cyclohexane	ND		24	7.9	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Chlorodibromomethane	ND		12	5.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Dichlorodifluoromethane	ND		12	2.6	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Ethylbenzene	ND		12	2.3	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Isopropylbenzene	ND		12	1.9	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Methyl acetate	ND		61	8.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Methyl tert-butyl ether	ND		12	1.8	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Methylcyclohexane	ND		24	3.2	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Methylene Chloride	ND		24	19	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Styrene	ND		12	2.5	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Tetrachloroethene	ND		12	4.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Toluene	ND		12	12	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
trans-1,2-Dichloroethene	ND		12	3.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
trans-1,3-Dichloropropene	ND		12	5.1	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Trichloroethene	ND		12	7.0	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Trichlorofluoromethane	ND		12	6.7	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40
Vinyl chloride	1.3	F1	0.30	0.15	mg/Kg	✱	02/20/23 14:17	02/23/23 14:20	1
Xylenes, Total	ND		24	4.4	mg/Kg	✱	02/20/23 14:17	02/23/23 13:29	40

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Date Collected: 02/17/23 16:51

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		56 - 125	02/20/23 14:17	02/23/23 13:29	40
Toluene-d8 (Surr)	103		56 - 125	02/20/23 14:17	02/23/23 14:20	1
Dibromofluoromethane (Surr)	99		41 - 138	02/20/23 14:17	02/23/23 13:29	40
Dibromofluoromethane (Surr)	89		41 - 138	02/20/23 14:17	02/23/23 14:20	1
4-Bromofluorobenzene (Surr)	104		41 - 143	02/20/23 14:17	02/23/23 13:29	40
4-Bromofluorobenzene (Surr)	98		41 - 143	02/20/23 14:17	02/23/23 14:20	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/20/23 14:17	02/23/23 13:29	40
1,2-Dichloroethane-d4 (Surr)	91		58 - 125	02/20/23 14:17	02/23/23 14:20	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND	F1	1.3	0.43	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
bis (2-chloroisopropyl) ether	ND	F1	2.5	0.25	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,4,5-Trichlorophenol	ND		3.8	1.7	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,4,6-Trichlorophenol	ND		3.8	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,4-Dichlorophenol	ND		3.8	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,4-Dimethylphenol	ND		3.8	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,4-Dinitrophenol	ND		8.3	3.6	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,4-Dinitrotoluene	ND		5.0	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2,6-Dinitrotoluene	ND		5.0	1.4	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2-Chloronaphthalene	ND		1.3	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2-Chlorophenol	ND		1.3	0.25	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2-Methylnaphthalene	5.0		0.38	0.049	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2-Methylphenol	ND	F1	5.0	0.78	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2-Nitroaniline	ND		5.0	1.0	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
2-Nitrophenol	ND		1.3	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
3,3'-Dichlorobenzidine	ND	F1	2.5	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
3-Nitroaniline	ND		5.0	1.2	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4,6-Dinitro-2-methylphenol	ND		8.3	2.0	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4-Bromophenyl phenyl ether	ND		1.3	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4-Chloro-3-methylphenol	ND		3.8	1.1	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4-Chloroaniline	ND	F1	3.8	0.76	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4-Chlorophenyl phenyl ether	ND		1.3	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4-Nitroaniline	ND		5.0	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
4-Nitrophenol	ND		8.3	2.4	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Acenaphthene	0.15	J	0.38	0.072	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Acenaphthylene	0.22	J	0.38	0.10	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Acetophenone	ND		2.5	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Anthracene	0.22	J	0.38	0.061	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Atrazine	ND	*+	5.0	0.91	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Benzaldehyde	ND	F1	2.5	0.58	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Benzo[a]anthracene	0.60		0.38	0.086	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Benzo[a]pyrene	0.49		0.38	0.24	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Benzo[b]fluoranthene	0.77		0.38	0.16	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Benzo[g,h,i]perylene	0.44		0.38	0.18	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Benzo[k]fluoranthene	0.28	J	0.38	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Bis(2-chloroethyl)ether	ND	F1	2.5	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Bis(2-ethylhexyl) phthalate	1.9	F1	1.8	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Butyl benzyl phthalate	ND	F1	1.8	0.55	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Date Collected: 02/17/23 16:51

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.3	1.9	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Carbazole	ND		1.3	0.48	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Chrysene	0.95		0.38	0.038	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Dibenz(a,h)anthracene	ND		0.38	0.17	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Dibenzofuran	1.3		1.3	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Diethyl phthalate	ND	F1	1.8	0.78	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Dimethyl phthalate	ND		1.8	0.35	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Di-n-octyl phthalate	ND	F1	1.8	0.70	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Fluoranthene	0.86		0.38	0.11	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Fluorene	0.16	J	0.38	0.069	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Hexachlorobenzene	ND		0.38	0.072	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Hexachlorobutadiene	ND		1.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Hexachlorocyclopentadiene	ND		8.3	1.6	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Hexachloroethane	ND		1.3	0.23	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Indeno[1,2,3-cd]pyrene	0.34	J	0.38	0.19	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Isophorone	ND		1.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
N-Nitrosodiphenylamine	ND		1.3	0.30	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Naphthalene	3.1	F1	0.38	0.061	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Nitrobenzene	ND		2.5	0.33	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Pentachlorophenol	ND	F1	3.8	1.5	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Phenanthrene	2.4	F1	0.38	0.056	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Phenol	ND		1.3	0.20	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
Pyrene	0.84		0.38	0.054	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20
3 & 4 Methylphenol	ND	F1	10	0.73	mg/Kg	☼	02/18/23 10:21	02/21/23 15:04	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	02/18/23 10:21	02/21/23 15:04	20
Phenol-d5 (Surr)	76		26 - 120	02/18/23 10:21	02/21/23 15:04	20
Nitrobenzene-d5 (Surr)	69		25 - 120	02/18/23 10:21	02/21/23 15:04	20
2-Fluorophenol (Surr)	69		20 - 120	02/18/23 10:21	02/21/23 15:04	20
2-Fluorobiphenyl (Surr)	86		34 - 120	02/18/23 10:21	02/21/23 15:04	20
2,4,6-Tribromophenol (Surr)	135	S1+	10 - 120	02/18/23 10:21	02/21/23 15:04	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0055	J	0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 13:15	1
Barium	0.40	J B	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 13:15	1
Cadmium	0.00077	J	0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 13:15	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 13:15	1
Lead	0.011	J B	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 13:15	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 13:15	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 13:15	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:54	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Date Collected: 02/17/23 16:51

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.5		0.1	0.1	%			02/18/23 10:23	1
Percent Moisture (EPA Moisture)	21.5		0.1	0.1	%			02/18/23 10:23	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/19/23 14:54	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/19/23 14:54	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/19/23 14:54	1
Benzene	0.017	J	0.025	0.00042	mg/L			02/19/23 14:54	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/19/23 14:54	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/19/23 14:54	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/19/23 14:54	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/19/23 14:54	1
Vinyl chloride	0.83		0.025	0.00045	mg/L			02/19/23 14:54	1
Chloroform	ND		0.025	0.00047	mg/L			02/19/23 14:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	93		80 - 120					02/19/23 14:54	1
Dibromofluoromethane (Surr)	107		71 - 121					02/19/23 14:54	1
4-Bromofluorobenzene (Surr)	113		80 - 120					02/19/23 14:54	1
1,2-Dichloroethane-d4 (Surr)	101		76 - 120					02/19/23 14:54	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.040	0.0033	mg/L		02/20/23 08:50	02/21/23 16:16	10
2,4,5-Trichlorophenol	ND		0.040	0.020	mg/L		02/20/23 08:50	02/21/23 16:16	10
2,4,6-Trichlorophenol	ND		0.040	0.018	mg/L		02/20/23 08:50	02/21/23 16:16	10
2,4-Dinitrotoluene	ND		0.040	0.021	mg/L		02/20/23 08:50	02/21/23 16:16	10
Hexachlorobenzene	ND		0.0080	0.0016	mg/L		02/20/23 08:50	02/21/23 16:16	10
Hexachlorobutadiene	ND		0.040	0.0054	mg/L		02/20/23 08:50	02/21/23 16:16	10
Hexachloroethane	ND		0.040	0.0040	mg/L		02/20/23 08:50	02/21/23 16:16	10
2-Methylphenol	ND		0.040	0.0021	mg/L		02/20/23 08:50	02/21/23 16:16	10
3 & 4 Methylphenol	ND		0.040	0.0019	mg/L		02/20/23 08:50	02/21/23 16:16	10
Nitrobenzene	ND		0.040	0.0051	mg/L		02/20/23 08:50	02/21/23 16:16	10
Pentachlorophenol	ND		0.16	0.031	mg/L		02/20/23 08:50	02/21/23 16:16	10
Pyridine	ND		0.040	0.0036	mg/L		02/20/23 08:50	02/21/23 16:16	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137				02/20/23 08:50	02/21/23 16:16	10
Phenol-d5 (Surr)	69		26 - 120				02/20/23 08:50	02/21/23 16:16	10
Nitrobenzene-d5 (Surr)	82		24 - 120				02/20/23 08:50	02/21/23 16:16	10
2-Fluorophenol (Surr)	67		19 - 120				02/20/23 08:50	02/21/23 16:16	10
2-Fluorobiphenyl (Surr)	90		33 - 120				02/20/23 08:50	02/21/23 16:16	10
2,4,6-Tribromophenol (Surr)	66		10 - 120				02/20/23 08:50	02/21/23 16:16	10

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/20/23 08:53	02/20/23 15:12	1
Endrin	ND		0.00050	0.0000065	mg/L		02/20/23 08:53	02/20/23 15:12	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/20/23 08:53	02/20/23 15:12	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/20/23 08:53	02/20/23 15:12	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/20/23 08:53	02/20/23 15:12	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/20/23 08:53	02/20/23 15:12	1
Toxaphene	ND		0.020	0.000058	mg/L		02/20/23 08:53	02/20/23 15:12	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	90		10 - 145	02/20/23 08:53	02/20/23 15:12	1
DCB Decachlorobiphenyl	90		10 - 145	02/20/23 08:53	02/20/23 15:12	1
Tetrachloro-m-xylene	72		10 - 123	02/20/23 08:53	02/20/23 15:12	1
Tetrachloro-m-xylene	72		10 - 123	02/20/23 08:53	02/20/23 15:12	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 08:13	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 08:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	02/21/23 20:16	02/22/23 08:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.9		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	16.1		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 83.9

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		60	30	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1221	ND		60	36	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1232	ND		60	25	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1242	ND		60	23	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1248	ND		60	20	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1254	ND		60	25	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1260	ND		60	25	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1262	ND		60	26	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Aroclor-1268	ND		60	19	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1
Polychlorinated biphenyls, Total	ND		60	36	ug/Kg	✳	02/20/23 08:20	02/21/23 00:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	75		10 - 149	02/20/23 08:20	02/21/23 00:25	1
DCB Decachlorobiphenyl	91		10 - 174	02/20/23 08:20	02/21/23 00:25	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	0.32	J	0.69	0.23	ng/g	✳	02/21/23 12:53	02/21/23 17:22	1
Perfluorooctanesulfonic acid	0.36	J	0.69	0.23	ng/g	✳	02/21/23 12:53	02/21/23 17:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	77		26 - 159	02/21/23 12:53	02/21/23 17:22	1
13C8 PFOS	87		41 - 154	02/21/23 12:53	02/21/23 17:22	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180588-1	WC-WS1-A1 (2-3)	108	100	108	108
240-180588-1	WC-WS1-A1 (2-3)	106	85	95	96
240-180588-2	WC-WS1-A2 (2.5-3.5)	105	101	104	104
240-180588-2	WC-WS1-A2 (2.5-3.5)	107	101	108	111
240-180588-2	WC-WS1-A2 (2.5-3.5)	107	88	95	95
240-180588-3	WC-WS1-A3 (3-4)	107	101	108	112
240-180588-3	WC-WS1-A3 (3-4)	103	88	101	92
240-180588-4	WC-WS1-A4 (5-6)	106	102	107	108
240-180588-4	WC-WS1-A4 (5-6)	105	90	96	97
240-180588-5	WC-WS1-A5 (1-2)	108	101	106	109
240-180588-5	WC-WS1-A5 (1-2)	107	88	95	94
240-180588-7	WC-WS1-A6 (3-4)	106	100	106	109
240-180588-7	WC-WS1-A6 (3-4)	105	86	95	91
240-180588-8	WC-WS1-A7 (2-3)	107	103	107	111
240-180588-8	WC-WS1-A7 (2-3)	105	88	100	93
240-180588-9	WC-WS1-A8 (4-5)	108	103	105	109
240-180588-9	WC-WS1-A8 (4-5)	106	89	97	92
240-180588-10	WC-WS1-A9 (3-4)	105	100	104	105
240-180588-10	WC-WS1-A9 (3-4)	107	103	106	110
240-180588-10	WC-WS1-A9 (3-4)	106	89	98	93
240-180588-11	WC-WS1-A10 (2-3)	104	99	104	109
240-180588-11	WC-WS1-A10 (2-3)	103	89	98	91
240-180588-11 MS	WC-WS1-A10 (2-3)	106	89	96	92
240-180588-11 MSD	WC-WS1-A10 (2-3)	105	88	97	94
LCS 240-562767/2-A	Lab Control Sample	109	106	108	106
LCS 240-562767/2-A	Lab Control Sample	100	91	97	100
MB 240-562767/1-A	Method Blank	107	96	106	106
MB 240-562767/1-A	Method Blank	99	88	97	98

Surrogate Legend

- TOL = Toluene-d8 (Surr)
- DBFM = Dibromofluoromethane (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-562573/10	Lab Control Sample	94	109	111	100

Surrogate Legend

- TOL = Toluene-d8 (Surr)
- DBFM = Dibromofluoromethane (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-180588-6	WC-WS1-COMP (A1-A5)	96	106	116	101
240-180588-12	WC-WS1-COMP (A6-A10)	93	107	113	101
240-180588-12 MS	WC-WS1-COMP (A6-A10)	95	109	113	102
240-180588-12 MSD	WC-WS1-COMP (A6-A10)	97	106	114	93
LB 240-562552/1-A MB	Method Blank	94	104	110	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180588-1	WC-WS1-A1 (2-3)	79	66	53	64	77	125 S1+
240-180588-2	WC-WS1-A2 (2.5-3.5)	84	68	54	57	76	126 S1+
240-180588-3	WC-WS1-A3 (3-4)	57	53	42	48	57	89
240-180588-4	WC-WS1-A4 (5-6)	67	60	49	56	67	106
240-180588-5	WC-WS1-A5 (1-2)	66	68	46	57	62	111
240-180588-7	WC-WS1-A6 (3-4)	53	40	42	59	54	102
240-180588-8	WC-WS1-A7 (2-3)	60	53	45	49	59	111
240-180588-9	WC-WS1-A8 (4-5)	66	59	53	56	68	111
240-180588-10	WC-WS1-A9 (3-4)	61	54	44	52	64	118
240-180588-11	WC-WS1-A10 (2-3)	94	76	69	69	86	135 S1+
240-180588-11 MS	WC-WS1-A10 (2-3)	91	73	52	65	84	128 S1+
240-180588-11 MSD	WC-WS1-A10 (2-3)	85	68	64	72	81	133 S1+
LCS 240-562526/23-A	Lab Control Sample	127	71	65	69	90	104
LCS 240-562526/24-A	Lab Control Sample	111	33	32	26	44	12
MB 240-562526/22-A	Method Blank	107	58	55	52	74	26

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-562656/5-A	Lab Control Sample	113	74	99	77	96	84
MB 240-562656/4-A	Method Blank	119	83	103	89	106	91

Surrogate Legend

Surrogate Summary

Client: Norfolk Southern Corporation

Job ID: 240-180588-1

Project/Site: NS East Palestine

- TPHL = Terphenyl-d14 (Surr)
- PHL = Phenol-d5 (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- 2FP = 2-Fluorophenol (Surr)
- FBP = 2-Fluorobiphenyl (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180588-6	WC-WS1-COMP (A1-A5)	96	59	73	65	80	76
240-180588-6 MS	WC-WS1-COMP (A1-A5)	216 S1+	161 S1+	182 S1+	164 S1+	177 S1+	164 S1+
240-180588-12	WC-WS1-COMP (A6-A10)	106	69	82	67	90	66

Surrogate Legend

- TPHL = Terphenyl-d14 (Surr)
- PHL = Phenol-d5 (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- 2FP = 2-Fluorophenol (Surr)
- FBP = 2-Fluorobiphenyl (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-562657/5-A	Lab Control Sample	84	87	65	74
MB 240-562657/4-A	Method Blank	81	85	68	78

Surrogate Legend

- DCBP = DCB Decachlorobiphenyl
- TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-180588-6	WC-WS1-COMP (A1-A5)	100	97	77	78
240-180588-12	WC-WS1-COMP (A6-A10)	90	90	72	72
240-180588-12 MS	WC-WS1-COMP (A6-A10)	86	89	71	71

Surrogate Legend

- DCBP = DCB Decachlorobiphenyl
- TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (10-149)	DCBP2 (10-174)
240-180588-6	WC-WS1-COMP (A1-A5)	49	43

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (10-149)	DCBP2 (10-174)
240-180588-12	WC-WS1-COMP (A6-A10)	75	91
LCS 240-562650/2-A	Lab Control Sample	94	123
MB 240-562650/1-A	Method Blank	53	93

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)
LCS 410-346721/6-A	Lab Control Sample	68
MB 410-346721/1-A	Method Blank	60
MB 410-346721/2-A	Method Blank	55
MB 410-346721/4-A	Method Blank	57
MB 410-346721/5-A	Method Blank	58

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA2 (26-136)
MB 410-346721/3-A	Method Blank	57

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA2 (26-136)
240-180588-6	WC-WS1-COMP (A1-A5)	62

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)
240-180588-12	WC-WS1-COMP (A6-A10)	61

Surrogate Legend

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Surrogate Summary

Client: Norfolk Southern Corporation

Project/Site: NS East Palestine

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Job ID: 240-180588-1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: LCS 240-562573/10

Matrix: Solid

Analysis Batch: 562573

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	0.963		mg/L		96	74 - 127
1,2-Dichloroethane	1.00	0.890		mg/L		89	72 - 120
2-Butanone (MEK)	2.00	1.66		mg/L		83	68 - 130
Benzene	1.00	0.948		mg/L		95	80 - 121
Carbon tetrachloride	1.00	0.918		mg/L		92	69 - 120
Chlorobenzene	1.00	0.897		mg/L		90	80 - 120
Chloroform	1.00	0.992		mg/L		99	75 - 120
Tetrachloroethene	1.00	0.907		mg/L		91	74 - 120
Trichloroethene	1.00	0.906		mg/L		91	75 - 120
Vinyl chloride	1.00	0.958		mg/L		96	53 - 147

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	109		71 - 121
4-Bromofluorobenzene (Surr)	111		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		76 - 120

Lab Sample ID: MB 240-562767/1-A

Matrix: Solid

Analysis Batch: 563073

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562767

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Acetone	1.05		1.0	0.24	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Benzene	ND		0.25	0.042	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Bromoform	ND		0.25	0.23	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/20/23 14:17	02/22/23 22:45	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562767/1-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562767

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloroform	ND		0.25	0.054	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Styrene	ND		0.25	0.052	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Toluene	ND		0.25	0.24	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/20/23 14:17	02/22/23 22:45	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/20/23 14:17	02/22/23 22:45	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	107		56 - 125	02/20/23 14:17	02/22/23 22:45	1
Dibromofluoromethane (Surr)	96		41 - 138	02/20/23 14:17	02/22/23 22:45	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/20/23 14:17	02/22/23 22:45	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125	02/20/23 14:17	02/22/23 22:45	1

Lab Sample ID: MB 240-562767/1-A
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562767

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/20/23 14:17	02/23/23 10:11	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	99		56 - 125	02/20/23 14:17	02/23/23 10:11	1
Dibromofluoromethane (Surr)	88		41 - 138	02/20/23 14:17	02/23/23 10:11	1
4-Bromofluorobenzene (Surr)	97		41 - 143	02/20/23 14:17	02/23/23 10:11	1
1,2-Dichloroethane-d4 (Surr)	98		58 - 125	02/20/23 14:17	02/23/23 10:11	1

Lab Sample ID: LCS 240-562767/2-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562767/2-A

Matrix: Solid

Analysis Batch: 563073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
1,1,2,2-Tetrachloroethane	1.25	1.17		mg/Kg		94	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.22		mg/Kg		97	64 - 148
1,1,2-Trichloroethane	1.25	1.28		mg/Kg		102	79 - 120
1,1-Dichloroethane	1.25	1.20		mg/Kg		96	74 - 121
1,1-Dichloroethene	1.25	1.15		mg/Kg		92	68 - 141
1,2,4-Trichlorobenzene	1.25	1.19		mg/Kg		95	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.871		mg/Kg		70	52 - 133
Ethylene Dibromide	1.25	1.23		mg/Kg		98	80 - 121
1,2-Dichlorobenzene	1.25	1.30		mg/Kg		104	73 - 120
1,2-Dichloroethane	1.25	1.23		mg/Kg		98	71 - 123
1,2-Dichloropropane	1.25	1.21		mg/Kg		97	76 - 126
1,3-Dichlorobenzene	1.25	1.27		mg/Kg		101	73 - 120
1,4-Dichlorobenzene	1.25	1.27		mg/Kg		102	74 - 120
2-Butanone (MEK)	2.50	2.36		mg/Kg		95	63 - 142
2-Hexanone	2.50	2.38		mg/Kg		95	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.37		mg/Kg		95	62 - 142
Acetone	2.50	2.66		mg/Kg		106	58 - 160
Benzene	1.25	1.25		mg/Kg		100	76 - 121
Dichlorobromomethane	1.25	1.07		mg/Kg		85	71 - 138
Bromoform	1.25	0.874		mg/Kg		70	57 - 140
Bromomethane	1.25	0.653		mg/Kg		52	10 - 171
Carbon disulfide	1.25	0.844		mg/Kg		68	43 - 152
Carbon tetrachloride	1.25	0.980		mg/Kg		78	64 - 144
Chlorobenzene	1.25	1.27		mg/Kg		102	80 - 120
Chloroethane	1.25	0.595		mg/Kg		48	11 - 164
Chloroform	1.25	1.22		mg/Kg		97	78 - 120
Chloromethane	1.25	1.41		mg/Kg		113	41 - 142
cis-1,2-Dichloroethene	1.25	1.26		mg/Kg		101	78 - 124
cis-1,3-Dichloropropene	1.25	1.13		mg/Kg		90	70 - 133
Cyclohexane	1.25	1.24		mg/Kg		99	65 - 137
Chlorodibromomethane	1.25	0.985		mg/Kg		79	68 - 131
Dichlorodifluoromethane	1.25	1.56		mg/Kg		125	21 - 150
Ethylbenzene	1.25	1.30		mg/Kg		104	80 - 120
Isopropylbenzene	1.25	1.32		mg/Kg		106	80 - 130
Methyl acetate	2.50	2.34		mg/Kg		93	60 - 133
Methyl tert-butyl ether	1.25	1.21		mg/Kg		96	70 - 130
Methylcyclohexane	1.25	1.24		mg/Kg		99	70 - 138
Methylene Chloride	1.25	1.35		mg/Kg		108	71 - 124
Styrene	1.25	1.31		mg/Kg		105	75 - 140
Tetrachloroethene	1.25	1.34		mg/Kg		107	76 - 127
Toluene	1.25	1.26		mg/Kg		101	80 - 120
trans-1,2-Dichloroethene	1.25	1.18		mg/Kg		94	76 - 130
trans-1,3-Dichloropropene	1.25	1.14		mg/Kg		92	61 - 121
Trichloroethene	1.25	1.27		mg/Kg		102	74 - 130
Trichlorofluoromethane	1.25	1.03		mg/Kg		82	50 - 154
Vinyl chloride	1.25	1.42		mg/Kg		113	49 - 146
Xylenes, Total	2.50	2.57		mg/Kg		103	80 - 122
m-Xylene & p-Xylene	1.25	1.29		mg/Kg		103	80 - 122

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562767/2-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	1.25	1.28		mg/Kg		103	80 - 124
Surrogate							
	%Recovery	LCS	Qualifier	Limits			
Toluene-d8 (Surr)	109			56 - 125			
Dibromofluoromethane (Surr)	106			41 - 138			
4-Bromofluorobenzene (Surr)	108			41 - 143			
1,2-Dichloroethane-d4 (Surr)	106			58 - 125			

Lab Sample ID: LCS 240-562767/2-A
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562767

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.00	1.27		mg/Kg		127	49 - 146
Surrogate							
	%Recovery	LCS	Qualifier	Limits			
Toluene-d8 (Surr)	100			56 - 125			
Dibromofluoromethane (Surr)	91			41 - 138			
4-Bromofluorobenzene (Surr)	97			41 - 143			
1,2-Dichloroethane-d4 (Surr)	100			58 - 125			

Lab Sample ID: 240-180588-11 MS
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: WC-WS1-A10 (2-3)
Prep Type: Total/NA
Prep Batch: 562767

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.3	F1	1.22	4.49	F1	mg/Kg	⊛	261	32 - 163
Surrogate									
	%Recovery	MS	Qualifier	Limits					
Toluene-d8 (Surr)	106			56 - 125					
Dibromofluoromethane (Surr)	89			41 - 138					
4-Bromofluorobenzene (Surr)	96			41 - 143					
1,2-Dichloroethane-d4 (Surr)	92			58 - 125					

Lab Sample ID: 240-180588-11 MSD
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: WC-WS1-A10 (2-3)
Prep Type: Total/NA
Prep Batch: 562767

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Vinyl chloride	1.3	F1	1.22	4.70	F1	mg/Kg	⊛	279	32 - 163	5	38
Surrogate											
	%Recovery	MSD	Qualifier	Limits							
Toluene-d8 (Surr)	105			56 - 125							
Dibromofluoromethane (Surr)	88			41 - 138							
4-Bromofluorobenzene (Surr)	97			41 - 143							
1,2-Dichloroethane-d4 (Surr)	94			58 - 125							

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 240-562552/1-A MB

Matrix: Solid

Analysis Batch: 562573

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/19/23 13:44	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/19/23 13:44	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/19/23 13:44	1
Benzene	ND		0.025	0.00042	mg/L			02/19/23 13:44	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/19/23 13:44	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/19/23 13:44	1
Chloroform	ND		0.025	0.00047	mg/L			02/19/23 13:44	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/19/23 13:44	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/19/23 13:44	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/19/23 13:44	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	94		80 - 120		02/19/23 13:44	1
Dibromofluoromethane (Surr)	104		71 - 121		02/19/23 13:44	1
4-Bromofluorobenzene (Surr)	110		80 - 120		02/19/23 13:44	1
1,2-Dichloroethane-d4 (Surr)	100		76 - 120		02/19/23 13:44	1

Lab Sample ID: 240-180588-12 MS

Matrix: Solid

Analysis Batch: 562573

Client Sample ID: WC-WS1-COMP (A6-A10)

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
1,1-Dichloroethene	ND		1.00	0.955		mg/L		96	72 - 127	
1,2-Dichloroethane	ND		1.00	0.912		mg/L		91	70 - 120	
2-Butanone (MEK)	ND		2.00	1.76		mg/L		88	76 - 127	
Benzene	0.017	J	1.00	0.970		mg/L		95	80 - 124	
Carbon tetrachloride	ND		1.00	0.921		mg/L		92	63 - 120	
Chlorobenzene	ND		1.00	0.896		mg/L		90	80 - 120	
Chloroform	ND		1.00	0.997		mg/L		100	75 - 121	
Tetrachloroethene	ND		1.00	0.871		mg/L		87	68 - 120	
Trichloroethene	ND		1.00	0.913		mg/L		91	70 - 120	
Vinyl chloride	0.83		1.00	1.75		mg/L		93	55 - 144	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	109		71 - 121
4-Bromofluorobenzene (Surr)	113		80 - 120
1,2-Dichloroethane-d4 (Surr)	102		76 - 120

Lab Sample ID: 240-180588-12 MSD

Matrix: Solid

Analysis Batch: 562573

Client Sample ID: WC-WS1-COMP (A6-A10)

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD	Limit
	Result	Qualifier		Result	Qualifier							
1,1-Dichloroethene	ND		1.00	0.992		mg/L		99	72 - 127	4	11	
1,2-Dichloroethane	ND		1.00	0.881		mg/L		88	70 - 120	3	10	
2-Butanone (MEK)	ND		2.00	1.82		mg/L		91	76 - 127	4	17	
Benzene	0.017	J	1.00	1.01		mg/L		100	80 - 124	4	10	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180588-12 MSD

Matrix: Solid

Analysis Batch: 562573

Client Sample ID: WC-WS1-COMP (A6-A10)

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Carbon tetrachloride	ND		1.00	0.909		mg/L		91	63 - 120	1	11
Chlorobenzene	ND		1.00	0.954		mg/L		95	80 - 120	6	10
Chloroform	ND		1.00	1.01		mg/L		101	75 - 121	1	10
Tetrachloroethene	ND		1.00	0.912		mg/L		91	68 - 120	5	10
Trichloroethene	ND		1.00	0.919		mg/L		92	70 - 120	1	10
Vinyl chloride	0.83		1.00	1.95		mg/L		113	55 - 144	11	11
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
Toluene-d8 (Surr)	97		80 - 120								
Dibromofluoromethane (Surr)	106		71 - 121								
4-Bromofluorobenzene (Surr)	114		80 - 120								
1,2-Dichloroethane-d4 (Surr)	93		76 - 120								

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-562526/22-A

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562526

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
Acetophenone	ND		0.10	0.011	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
Anthracene	ND		0.015	0.0024	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	
Atrazine	ND		0.20	0.036	mg/Kg		02/18/23 10:21	02/21/23 10:16	1	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562526/22-A

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562526

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Carbazole	ND		0.050	0.019	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Isophorone	ND		0.050	0.012	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Phenol	ND		0.050	0.0080	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/18/23 10:21	02/21/23 10:16	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/18/23 10:21	02/21/23 10:16	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	107		46 - 137	02/18/23 10:21	02/21/23 10:16	1
Phenol-d5 (Surr)	58		26 - 120	02/18/23 10:21	02/21/23 10:16	1
Nitrobenzene-d5 (Surr)	55		25 - 120	02/18/23 10:21	02/21/23 10:16	1
2-Fluorophenol (Surr)	52		20 - 120	02/18/23 10:21	02/21/23 10:16	1
2-Fluorobiphenyl (Surr)	74		34 - 120	02/18/23 10:21	02/21/23 10:16	1
2,4,6-Tribromophenol (Surr)	26		10 - 120	02/18/23 10:21	02/21/23 10:16	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562526/23-A

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.566		mg/Kg		85	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.368		mg/Kg		55	38 - 120
2,4,5-Trichlorophenol	0.667	0.698		mg/Kg		105	50 - 120
2,4,6-Trichlorophenol	0.667	0.688		mg/Kg		103	50 - 120
2,4-Dichlorophenol	0.667	0.625		mg/Kg		94	50 - 120
2,4-Dimethylphenol	0.667	0.421		mg/Kg		63	24 - 120
2,4-Dinitrophenol	1.33	1.11		mg/Kg		83	19 - 132
2,4-Dinitrotoluene	0.667	0.671		mg/Kg		101	64 - 120
2,6-Dinitrotoluene	0.667	0.759		mg/Kg		114	62 - 120
2-Chloronaphthalene	0.667	0.558		mg/Kg		84	51 - 120
2-Chlorophenol	0.667	0.486		mg/Kg		73	47 - 120
2-Methylnaphthalene	0.667	0.521		mg/Kg		78	38 - 120
2-Methylphenol	0.667	0.452		mg/Kg		68	45 - 120
2-Nitroaniline	0.667	0.558		mg/Kg		84	57 - 120
2-Nitrophenol	0.667	0.625		mg/Kg		94	51 - 120
3,3'-Dichlorobenzidine	1.33	1.34		mg/Kg		101	27 - 199
3-Nitroaniline	0.667	0.574		mg/Kg		86	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.21		mg/Kg		90	46 - 126
4-Bromophenyl phenyl ether	0.667	0.696		mg/Kg		104	65 - 120
4-Chloro-3-methylphenol	0.667	0.602		mg/Kg		90	51 - 120
4-Chloroaniline	0.667	0.460		mg/Kg		69	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.630		mg/Kg		95	59 - 120
4-Nitroaniline	0.667	0.695		mg/Kg		104	48 - 128
4-Nitrophenol	1.33	1.09		mg/Kg		82	43 - 120
Acenaphthene	0.667	0.586		mg/Kg		88	52 - 120
Acenaphthylene	0.667	0.650		mg/Kg		98	52 - 120
Acetophenone	0.667	0.434		mg/Kg		65	47 - 120
Anthracene	0.667	0.712		mg/Kg		107	64 - 120
Atrazine	1.33	1.72	*+	mg/Kg		129	71 - 125
Benzaldehyde	1.33	0.837		mg/Kg		63	42 - 120
Benzo[a]anthracene	0.667	0.775		mg/Kg		116	70 - 120
Benzo[a]pyrene	0.667	0.699		mg/Kg		105	63 - 125
Benzo[b]fluoranthene	0.667	0.666		mg/Kg		100	64 - 121
Benzo[g,h,i]perylene	0.667	0.691		mg/Kg		104	62 - 120
Benzo[k]fluoranthene	0.667	0.692		mg/Kg		104	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.456		mg/Kg		68	50 - 120
Bis(2-chloroethyl)ether	0.667	0.382		mg/Kg		57	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.709		mg/Kg		106	63 - 133
Butyl benzyl phthalate	0.667	0.697		mg/Kg		105	66 - 127
Caprolactam	1.33	1.40		mg/Kg		105	67 - 120
Carbazole	0.667	0.691		mg/Kg		104	61 - 129
Chrysene	0.667	0.733		mg/Kg		110	67 - 120
Dibenz(a,h)anthracene	0.667	0.722		mg/Kg		108	62 - 120
Dibenzofuran	0.667	0.573		mg/Kg		86	55 - 120
Diethyl phthalate	0.667	0.635		mg/Kg		95	61 - 120
Dimethyl phthalate	0.667	0.652		mg/Kg		98	64 - 120
Di-n-butyl phthalate	0.667	0.734		mg/Kg		110	70 - 129
Di-n-octyl phthalate	0.667	0.575		mg/Kg		86	64 - 129

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562526/23-A

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoranthene	0.667	0.735		mg/Kg		110	71 - 124
Fluorene	0.667	0.640		mg/Kg		96	58 - 120
Hexachlorobenzene	0.667	0.678		mg/Kg		102	59 - 120
Hexachlorobutadiene	0.667	0.525		mg/Kg		79	45 - 120
Hexachlorocyclopentadiene	0.667	0.418		mg/Kg		63	10 - 120
Hexachloroethane	0.667	0.421		mg/Kg		63	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.730		mg/Kg		109	65 - 122
Isophorone	0.667	0.456		mg/Kg		68	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.418		mg/Kg		63	48 - 120
N-Nitrosodiphenylamine	0.667	0.647		mg/Kg		97	64 - 120
Naphthalene	0.667	0.492		mg/Kg		74	34 - 120
Nitrobenzene	0.667	0.438		mg/Kg		66	48 - 120
Pentachlorophenol	1.33	0.766		mg/Kg		57	10 - 120
Phenanthrene	0.667	0.656		mg/Kg		98	60 - 120
Phenol	0.667	0.420		mg/Kg		63	48 - 120
Pyrene	0.667	0.773		mg/Kg		116	67 - 120
3 & 4 Methylphenol	0.667	0.468		mg/Kg		70	49 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	127		46 - 137
Phenol-d5 (Surr)	71		26 - 120
Nitrobenzene-d5 (Surr)	65		25 - 120
2-Fluorophenol (Surr)	69		20 - 120
2-Fluorobiphenyl (Surr)	90		34 - 120
2,4,6-Tribromophenol (Surr)	104		10 - 120

Lab Sample ID: LCS 240-562526/24-A

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562526

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	111		46 - 137
Phenol-d5 (Surr)	33		26 - 120
Nitrobenzene-d5 (Surr)	32		25 - 120
2-Fluorophenol (Surr)	26		20 - 120
2-Fluorobiphenyl (Surr)	44		34 - 120
2,4,6-Tribromophenol (Surr)	12		10 - 120

Lab Sample ID: 240-180588-11 MS

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: WC-WS1-A10 (2-3)

Prep Type: Total/NA

Prep Batch: 562526

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
1,1'-Biphenyl	ND	F1	0.847	1.05	J F1	mg/Kg	☼	124	29 - 120
bis (2-chloroisopropyl) ether	ND	F1	0.847	ND	F1	mg/Kg	☼	0	10 - 120
2,4,5-Trichlorophenol	ND		0.847	ND		mg/Kg	☼	NC	35 - 120
2,4,6-Trichlorophenol	ND		0.847	ND		mg/Kg	☼	NC	18 - 120
2,4-Dichlorophenol	ND		0.847	ND		mg/Kg	☼	NC	21 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180588-11 MS

Client Sample ID: WC-WS1-A10 (2-3)

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 562828

Prep Batch: 562526

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
2,4-Dimethylphenol	ND		0.847	ND		mg/Kg	☼	NC	10 - 120
2,4-Dinitrophenol	ND		1.69	ND		mg/Kg	☼	NC	10 - 126
2,4-Dinitrotoluene	ND		0.847	ND		mg/Kg	☼	NC	46 - 120
2,6-Dinitrotoluene	ND		0.847	ND		mg/Kg	☼	NC	44 - 120
2-Chloronaphthalene	ND		0.847	0.644	J	mg/Kg	☼	76	33 - 120
2-Chlorophenol	ND		0.847	0.595	J	mg/Kg	☼	70	19 - 120
2-Methylnaphthalene	5.0		0.847	5.59	4	mg/Kg	☼	64	13 - 122
2-Methylphenol	ND	F1	0.847	ND	F1	mg/Kg	☼	0	12 - 120
2-Nitroaniline	ND		0.847	ND		mg/Kg	☼	NC	36 - 122
2-Nitrophenol	ND		0.847	0.593	J	mg/Kg	☼	70	28 - 120
3,3'-Dichlorobenzidine	ND	F1	1.69	ND	F1	mg/Kg	☼	0	10 - 179
3-Nitroaniline	ND		0.847	ND		mg/Kg	☼	NC	10 - 123
4,6-Dinitro-2-methylphenol	ND		1.69	3.02	J	mg/Kg	☼	NC	11 - 120
4-Bromophenyl phenyl ether	ND		0.847	0.718	J	mg/Kg	☼	85	49 - 120
4-Chloro-3-methylphenol	ND		0.847	ND		mg/Kg	☼	NC	35 - 120
4-Chloroaniline	ND	F1	0.847	ND	F1	mg/Kg	☼	0	10 - 120
4-Chlorophenyl phenyl ether	ND		0.847	0.654	J	mg/Kg	☼	77	45 - 120
4-Nitroaniline	ND		0.847	ND		mg/Kg	☼	NC	13 - 129
4-Nitrophenol	ND		1.69	ND		mg/Kg	☼	NC	28 - 123
Acenaphthene	0.15	J	0.847	0.854		mg/Kg	☼	83	33 - 120
Acenaphthylene	0.22	J	0.847	0.971		mg/Kg	☼	89	39 - 120
Acetophenone	ND		0.847	0.883	J	mg/Kg	☼	104	11 - 120
Anthracene	0.22	J	0.847	0.926		mg/Kg	☼	83	30 - 127
Atrazine	ND	*+	1.69	1.73	J	mg/Kg	☼	102	52 - 126
Benzaldehyde	ND	F1	1.69	ND	F1	mg/Kg	☼	0	13 - 120
Benzo[a]anthracene	0.60		0.847	1.46		mg/Kg	☼	102	24 - 137
Benzo[a]pyrene	0.49		0.847	1.13		mg/Kg	☼	75	28 - 136
Benzo[b]fluoranthene	0.77		0.847	1.48		mg/Kg	☼	84	21 - 142
Benzo[g,h,i]perylene	0.44		0.847	1.09		mg/Kg	☼	77	10 - 144
Benzo[k]fluoranthene	0.28	J	0.847	0.895		mg/Kg	☼	73	36 - 135
Bis(2-chloroethoxy)methane	ND		0.847	0.493	J	mg/Kg	☼	58	25 - 120
Bis(2-chloroethyl)ether	ND	F1	0.847	ND	F1	mg/Kg	☼	0	16 - 120
Bis(2-ethylhexyl) phthalate	1.9	F1	0.847	1.31	J F1	mg/Kg	☼	-64	37 - 143
Butyl benzyl phthalate	ND	F1	0.847	1.22	J F1	mg/Kg	☼	144	49 - 130
Caprolactam	ND		1.69	2.36	J	mg/Kg	☼	NC	37 - 127
Carbazole	ND		0.847	0.883	J	mg/Kg	☼	104	33 - 132
Chrysene	0.95		0.847	1.71		mg/Kg	☼	89	28 - 129
Dibenz(a,h)anthracene	ND		0.847	0.707		mg/Kg	☼	83	10 - 132
Dibenzofuran	1.3		0.847	2.03		mg/Kg	☼	88	33 - 120
Diethyl phthalate	ND	F1	0.847	ND	F1	mg/Kg	☼	0	48 - 120
Dimethyl phthalate	ND		0.847	0.714	J	mg/Kg	☼	84	45 - 120
Di-n-butyl phthalate	ND		0.847	ND		mg/Kg	☼	NC	40 - 137
Di-n-octyl phthalate	ND	F1	0.847	1.71	J F1	mg/Kg	☼	201	34 - 152
Fluoranthene	0.86		0.847	1.71		mg/Kg	☼	100	31 - 140
Fluorene	0.16	J	0.847	0.866		mg/Kg	☼	84	43 - 120
Hexachlorobenzene	ND		0.847	0.689		mg/Kg	☼	81	44 - 120
Hexachlorobutadiene	ND		0.847	0.489	J	mg/Kg	☼	58	13 - 120
Hexachlorocyclopentadiene	ND		0.847	ND		mg/Kg	☼	NC	10 - 120
Hexachloroethane	ND		0.847	0.485	J	mg/Kg	☼	57	10 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180588-11 MS

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: WC-WS1-A10 (2-3)

Prep Type: Total/NA

Prep Batch: 562526

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Indeno[1,2,3-cd]pyrene	0.34	J	0.847	0.953		mg/Kg	☼	72	10 - 139	
Isophorone	ND		0.847	0.504	J	mg/Kg	☼	59	27 - 120	
N-Nitrosodi-n-propylamine	ND		0.847	0.410	J	mg/Kg	☼	48	23 - 120	
N-Nitrosodiphenylamine	ND		0.847	0.977	J	mg/Kg	☼	115	30 - 128	
Naphthalene	3.1	F1	0.847	3.29		mg/Kg	☼	23	10 - 120	
Nitrobenzene	ND		0.847	0.444	J	mg/Kg	☼	52	19 - 120	
Pentachlorophenol	ND	F1	1.69	2.53	J F1	mg/Kg	☼	149	10 - 120	
Phenanthrene	2.4	F1	0.847	3.36		mg/Kg	☼	109	36 - 120	
Phenol	ND		0.847	0.551	J	mg/Kg	☼	65	10 - 120	
Pyrene	0.84		0.847	1.69		mg/Kg	☼	100	31 - 134	
3 & 4 Methylphenol	ND	F1	0.847	ND	F1	mg/Kg	☼	0	10 - 122	
MS MS										
Surrogate	%Recovery	Qualifier	Limits							
Terphenyl-d14 (Surr)	91		46 - 137							
Phenol-d5 (Surr)	73		26 - 120							
Nitrobenzene-d5 (Surr)	52		25 - 120							
2-Fluorophenol (Surr)	65		20 - 120							
2-Fluorobiphenyl (Surr)	84		34 - 120							
2,4,6-Tribromophenol (Surr)	128	S1+	10 - 120							

Lab Sample ID: 240-180588-11 MSD

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: WC-WS1-A10 (2-3)

Prep Type: Total/NA

Prep Batch: 562526

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier		Result	Qualifier						Limit	Limit
1,1'-Biphenyl	ND	F1	0.837	1.03	J F1	mg/Kg	☼	123	29 - 120	2	45	
bis (2-chloroisopropyl) ether	ND	F1	0.837	ND	F1	mg/Kg	☼	0	10 - 120	NC	45	
2,4,5-Trichlorophenol	ND		0.837	ND		mg/Kg	☼	NC	35 - 120	NC	39	
2,4,6-Trichlorophenol	ND		0.837	ND		mg/Kg	☼	NC	18 - 120	NC	45	
2,4-Dichlorophenol	ND		0.837	ND		mg/Kg	☼	NC	21 - 120	NC	44	
2,4-Dimethylphenol	ND		0.837	ND		mg/Kg	☼	NC	10 - 120	NC	45	
2,4-Dinitrophenol	ND		1.67	ND		mg/Kg	☼	NC	10 - 126	NC	45	
2,4-Dinitrotoluene	ND		0.837	ND		mg/Kg	☼	NC	46 - 120	NC	45	
2,6-Dinitrotoluene	ND		0.837	ND		mg/Kg	☼	NC	44 - 120	NC	45	
2-Chloronaphthalene	ND		0.837	0.634	J	mg/Kg	☼	76	33 - 120	2	45	
2-Chlorophenol	ND		0.837	0.614	J	mg/Kg	☼	73	19 - 120	3	45	
2-Methylnaphthalene	5.0		0.837	4.60	4	mg/Kg	☼	-53	13 - 122	19	45	
2-Methylphenol	ND	F1	0.837	ND	F1	mg/Kg	☼	0	12 - 120	NC	45	
2-Nitroaniline	ND		0.837	ND		mg/Kg	☼	NC	36 - 122	NC	42	
2-Nitrophenol	ND		0.837	0.679	J	mg/Kg	☼	81	28 - 120	13	45	
3,3'-Dichlorobenzidine	ND	F1	1.67	ND	F1	mg/Kg	☼	0	10 - 179	NC	45	
3-Nitroaniline	ND		0.837	ND		mg/Kg	☼	NC	10 - 123	NC	45	
4,6-Dinitro-2-methylphenol	ND		1.67	2.97	J	mg/Kg	☼	NC	11 - 120	2	40	
4-Bromophenyl phenyl ether	ND		0.837	0.631	J	mg/Kg	☼	75	49 - 120	13	42	
4-Chloro-3-methylphenol	ND		0.837	ND		mg/Kg	☼	NC	35 - 120	NC	42	
4-Chloroaniline	ND	F1	0.837	ND	F1	mg/Kg	☼	0	10 - 120	NC	45	
4-Chlorophenyl phenyl ether	ND		0.837	0.642	J	mg/Kg	☼	77	45 - 120	2	44	
4-Nitroaniline	ND		0.837	ND		mg/Kg	☼	NC	13 - 129	NC	38	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180588-11 MSD

Client Sample ID: WC-WS1-A10 (2-3)

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 562828

Prep Batch: 562526

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
4-Nitrophenol	ND		1.67	ND		mg/Kg	☼	NC	28 - 123	NC	45
Acenaphthene	0.15	J	0.837	0.705		mg/Kg	☼	66	33 - 120	19	45
Acenaphthylene	0.22	J	0.837	0.913		mg/Kg	☼	83	39 - 120	6	45
Acetophenone	ND		0.837	0.940	J	mg/Kg	☼	112	11 - 120	6	45
Anthracene	0.22	J	0.837	0.825		mg/Kg	☼	72	30 - 127	12	45
Atrazine	ND	*+	1.67	1.45	J	mg/Kg	☼	87	52 - 126	17	34
Benzaldehyde	ND	F1	1.67	4.89	F1	mg/Kg	☼	292	13 - 120	NC	45
Benzo[a]anthracene	0.60		0.837	1.24		mg/Kg	☼	76	24 - 137	16	42
Benzo[a]pyrene	0.49		0.837	1.00		mg/Kg	☼	61	28 - 136	12	41
Benzo[b]fluoranthene	0.77		0.837	1.29		mg/Kg	☼	62	21 - 142	14	42
Benzo[g,h,i]perylene	0.44		0.837	0.965		mg/Kg	☼	63	10 - 144	12	40
Benzo[k]fluoranthene	0.28	J	0.837	0.794		mg/Kg	☼	62	36 - 135	12	44
Bis(2-chloroethoxy)methane	ND		0.837	0.566	J	mg/Kg	☼	68	25 - 120	14	45
Bis(2-chloroethyl)ether	ND	F1	0.837	0.401	J	mg/Kg	☼	48	16 - 120	NC	45
Bis(2-ethylhexyl) phthalate	1.9	F1	0.837	ND	F1	mg/Kg	☼	0	37 - 143	NC	38
Butyl benzyl phthalate	ND	F1	0.837	1.12	J F1	mg/Kg	☼	134	49 - 130	9	41
Caprolactam	ND		1.67	2.11	J	mg/Kg	☼	NC	37 - 127	11	45
Carbazole	ND		0.837	0.773	J	mg/Kg	☼	92	33 - 132	13	45
Chrysene	0.95		0.837	1.41		mg/Kg	☼	54	28 - 129	19	42
Dibenz(a,h)anthracene	ND		0.837	0.653		mg/Kg	☼	78	10 - 132	8	37
Dibenzofuran	1.3		0.837	1.76		mg/Kg	☼	57	33 - 120	14	43
Diethyl phthalate	ND	F1	0.837	ND	F1	mg/Kg	☼	0	48 - 120	NC	38
Dimethyl phthalate	ND		0.837	0.670	J	mg/Kg	☼	80	45 - 120	6	43
Di-n-butyl phthalate	ND		0.837	ND		mg/Kg	☼	NC	40 - 137	NC	42
Di-n-octyl phthalate	ND	F1	0.837	1.67	J F1	mg/Kg	☼	199	34 - 152	2	39
Fluoranthene	0.86		0.837	1.44		mg/Kg	☼	69	31 - 140	17	45
Fluorene	0.16	J	0.837	0.750		mg/Kg	☼	71	43 - 120	14	39
Hexachlorobenzene	ND		0.837	0.581		mg/Kg	☼	69	44 - 120	17	39
Hexachlorobutadiene	ND		0.837	0.565	J	mg/Kg	☼	67	13 - 120	14	45
Hexachlorocyclopentadiene	ND		0.837	ND		mg/Kg	☼	NC	10 - 120	NC	45
Hexachloroethane	ND		0.837	0.664	J	mg/Kg	☼	79	10 - 120	31	45
Indeno[1,2,3-cd]pyrene	0.34	J	0.837	0.866		mg/Kg	☼	62	10 - 139	10	41
Isophorone	ND		0.837	0.560	J	mg/Kg	☼	67	27 - 120	11	45
N-Nitrosodi-n-propylamine	ND		0.837	0.514	J	mg/Kg	☼	61	23 - 120	23	45
N-Nitrosodiphenylamine	ND		0.837	0.837	J	mg/Kg	☼	100	30 - 128	15	44
Naphthalene	3.1	F1	0.837	2.99	F1	mg/Kg	☼	-13	10 - 120	10	45
Nitrobenzene	ND		0.837	0.489	J	mg/Kg	☼	58	19 - 120	10	45
Pentachlorophenol	ND	F1	1.67	2.45	J F1	mg/Kg	☼	146	10 - 120	3	45
Phenanthrene	2.4	F1	0.837	2.70	F1	mg/Kg	☼	32	36 - 120	22	41
Phenol	ND		0.837	0.547	J	mg/Kg	☼	65	10 - 120	1	45
Pyrene	0.84		0.837	1.49		mg/Kg	☼	77	31 - 134	13	43
3 & 4 Methylphenol	ND	F1	0.837	ND	F1	mg/Kg	☼	0	10 - 122	NC	45

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	85		46 - 137
Phenol-d5 (Surr)	68		26 - 120
Nitrobenzene-d5 (Surr)	64		25 - 120
2-Fluorophenol (Surr)	72		20 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180588-11 MSD

Matrix: Solid

Analysis Batch: 562828

Client Sample ID: WC-WS1-A10 (2-3)

Prep Type: Total/NA

Prep Batch: 562526

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
2-Fluorobiphenyl (Surr)	81		34 - 120
2,4,6-Tribromophenol (Surr)	133	S1+	10 - 120

Lab Sample ID: MB 240-562656/4-A

Matrix: Solid

Analysis Batch: 562830

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562656

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/20/23 08:50	02/21/23 09:44	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/20/23 08:50	02/21/23 09:44	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/20/23 08:50	02/21/23 09:44	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/20/23 08:50	02/21/23 09:44	1
Pyridine	ND		0.0040	0.00036	mg/L		02/20/23 08:50	02/21/23 09:44	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/20/23 08:50	02/21/23 09:44	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/20/23 08:50	02/21/23 09:44	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/20/23 08:50	02/21/23 09:44	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/20/23 08:50	02/21/23 09:44	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/20/23 08:50	02/21/23 09:44	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/20/23 08:50	02/21/23 09:44	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/20/23 08:50	02/21/23 09:44	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	119		46 - 137	02/20/23 08:50	02/21/23 09:44	1
Phenol-d5 (Surr)	83		26 - 120	02/20/23 08:50	02/21/23 09:44	1
Nitrobenzene-d5 (Surr)	103		24 - 120	02/20/23 08:50	02/21/23 09:44	1
2-Fluorophenol (Surr)	89		19 - 120	02/20/23 08:50	02/21/23 09:44	1
2-Fluorobiphenyl (Surr)	106		33 - 120	02/20/23 08:50	02/21/23 09:44	1
2,4,6-Tribromophenol (Surr)	91		10 - 120	02/20/23 08:50	02/21/23 09:44	1

Lab Sample ID: LCS 240-562656/5-A

Matrix: Solid

Analysis Batch: 562830

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562656

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,4-Dichlorobenzene	0.0800	0.0520		mg/L		65	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0713		mg/L		89	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0716		mg/L		89	51 - 120
2,4-Dinitrotoluene	0.0800	0.0776		mg/L		97	58 - 125
Pyridine	0.160	0.0630		mg/L		39	10 - 120
2-Methylphenol	0.0800	0.0704		mg/L		88	45 - 120
Hexachlorobenzene	0.0800	0.0647		mg/L		81	55 - 120
Hexachlorobutadiene	0.0800	0.0580		mg/L		73	41 - 120
Hexachloroethane	0.0800	0.0611		mg/L		76	39 - 120
Nitrobenzene	0.0800	0.0721		mg/L		90	47 - 120
Pentachlorophenol	0.160	0.125		mg/L		78	19 - 132
3 & 4 Methylphenol	0.0800	0.0655		mg/L		82	40 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562656/5-A

Matrix: Solid

Analysis Batch: 562830

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562656

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	113		46 - 137
Phenol-d5 (Surr)	74		26 - 120
Nitrobenzene-d5 (Surr)	99		24 - 120
2-Fluorophenol (Surr)	77		19 - 120
2-Fluorobiphenyl (Surr)	96		33 - 120
2,4,6-Tribromophenol (Surr)	84		10 - 120

Lab Sample ID: 240-180588-6 MS

Matrix: Solid

Analysis Batch: 562830

Client Sample ID: WC-WS1-COMP (A1-A5)

Prep Type: TCLP

Prep Batch: 562656

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
1,4-Dichlorobenzene	ND	F1	0.0800	0.107	F1	mg/L		133	37 - 120
2,4,5-Trichlorophenol	ND	F1	0.0800	0.147	F1	mg/L		183	25 - 128
2,4,6-Trichlorophenol	ND	F1	0.0800	0.144	F1	mg/L		181	23 - 122
2,4-Dinitrotoluene	ND	F1	0.0800	0.154	F1	mg/L		192	27 - 127
Pyridine	ND		0.160	0.170		mg/L		106	10 - 120
2-Methylphenol	ND	F1	0.0800	0.141	F1	mg/L		177	22 - 120
Hexachlorobenzene	ND	F1	0.0800	0.114	F1	mg/L		143	18 - 123
Hexachlorobutadiene	ND	F1	0.0800	0.123	F1	mg/L		154	10 - 120
Hexachloroethane	ND	F1	0.0800	0.125	F1	mg/L		157	10 - 120
Nitrobenzene	ND	F1	0.0800	0.146	F1	mg/L		183	26 - 120
Pentachlorophenol	ND		0.160	0.195		mg/L		122	10 - 132
3 & 4 Methylphenol	ND	F1	0.0800	0.142	F1	mg/L		178	16 - 123

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	216	S1+	46 - 137
Phenol-d5 (Surr)	161	S1+	26 - 120
Nitrobenzene-d5 (Surr)	182	S1+	24 - 120
2-Fluorophenol (Surr)	164	S1+	19 - 120
2-Fluorobiphenyl (Surr)	177	S1+	33 - 120
2,4,6-Tribromophenol (Surr)	164	S1+	10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-562657/4-A

Matrix: Solid

Analysis Batch: 562736

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562657

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/20/23 08:53	02/20/23 14:24	1
Endrin	ND		0.00050	0.0000065	mg/L		02/20/23 08:53	02/20/23 14:24	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/20/23 08:53	02/20/23 14:24	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/20/23 08:53	02/20/23 14:24	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/20/23 08:53	02/20/23 14:24	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/20/23 08:53	02/20/23 14:24	1
Toxaphene	ND		0.020	0.000058	mg/L		02/20/23 08:53	02/20/23 14:24	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 240-562657/4-A
Matrix: Solid
Analysis Batch: 562736

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562657

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	81		10 - 145	02/20/23 08:53	02/20/23 14:24	1
DCB Decachlorobiphenyl	85		10 - 145	02/20/23 08:53	02/20/23 14:24	1
Tetrachloro-m-xylene	68		10 - 123	02/20/23 08:53	02/20/23 14:24	1
Tetrachloro-m-xylene	78		10 - 123	02/20/23 08:53	02/20/23 14:24	1

Lab Sample ID: LCS 240-562657/5-A
Matrix: Solid
Analysis Batch: 562736

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562657

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Endrin	0.00100	0.000924		mg/L		92	36 - 120
Heptachlor	0.00100	0.000830		mg/L		83	29 - 120
Heptachlor epoxide	0.00100	0.000875		mg/L		87	36 - 120
gamma-BHC (Lindane)	0.00100	0.000794		mg/L		79	23 - 120
Methoxychlor	0.00100	0.00110		mg/L		110	23 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	84		10 - 145
DCB Decachlorobiphenyl	87		10 - 145
Tetrachloro-m-xylene	65		10 - 123
Tetrachloro-m-xylene	74		10 - 123

Lab Sample ID: 240-180588-12 MS
Matrix: Solid
Analysis Batch: 562736

Client Sample ID: WC-WS1-COMP (A6-A10)
Prep Type: TCLP
Prep Batch: 562657

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Endrin	ND		0.00100	0.00109		mg/L		109	58 - 120
Heptachlor	ND		0.00100	0.000952		mg/L		95	42 - 120
Heptachlor epoxide	ND		0.00100	0.000992		mg/L		99	54 - 120
gamma-BHC (Lindane)	ND		0.00100	0.000891		mg/L		89	32 - 120
Methoxychlor	ND		0.00100	0.00126		mg/L		126	11 - 159

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	86		10 - 145
DCB Decachlorobiphenyl	89		10 - 145
Tetrachloro-m-xylene	71		10 - 123
Tetrachloro-m-xylene	71		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-562650/1-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562650

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1221	ND		50	30	ug/Kg		02/20/23 08:20	02/20/23 19:48	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 240-562650/1-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562650

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1232	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1242	ND		50	19	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1248	ND		50	17	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1254	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1260	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1262	ND		50	22	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1268	ND		50	16	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Polychlorinated biphenyls, Total	ND		50	30	ug/Kg		02/20/23 08:20	02/20/23 19:48	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	53		10 - 149	02/20/23 08:20	02/20/23 19:48	1
DCB Decachlorobiphenyl	93		10 - 174	02/20/23 08:20	02/20/23 19:48	1

Lab Sample ID: LCS 240-562650/2-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562650

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Aroclor-1016	1000	780		ug/Kg		78	28 - 140
Aroclor-1260	1000	955		ug/Kg		96	39 - 153

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	94		10 - 149
DCB Decachlorobiphenyl	123		10 - 174

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-346721/1-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 04:58	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 04:58	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136	02/21/23 20:16	02/22/23 04:58	1

Lab Sample ID: MB 410-346721/2-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 05:26	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 05:26	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid (Surr)	55		26 - 136	02/21/23 20:16	02/22/23 05:26	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-346721/3-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 05:54	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 05:54	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136				02/21/23 20:16	02/22/23 05:54	1

Lab Sample ID: MB 410-346721/4-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 06:22	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 06:22	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136				02/21/23 20:16	02/22/23 06:22	1

Lab Sample ID: MB 410-346721/5-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 06:49	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 06:49	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	58		26 - 136				02/21/23 20:16	02/22/23 06:49	1

Lab Sample ID: LCS 410-346721/6-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-D	0.0502	0.0389	J	mg/L		78	42 - 147
	LCS	LCS					
Surrogate	%Recovery	Qualifier	Limits				
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136				

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-346502/1-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346502

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		02/21/23 12:53	02/21/23 16:49	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-346502/1-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346502

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		02/21/23 12:53	02/21/23 16:49	1
Isotope Dilution									
	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
13C8 PFOA	74		26 - 159				02/21/23 12:53	02/21/23 16:49	1
13C8 PFOS	89		41 - 154				02/21/23 12:53	02/21/23 16:49	1

Lab Sample ID: LCS 410-346502/2-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346502

Analyte			Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier						
Perfluorooctanoic acid			25.0	20.9		ng/g		84	59 - 131
Perfluorooctanesulfonic acid			23.1	20.9		ng/g		90	61 - 126
Isotope Dilution									
	LCS	LCS	Limits			D	%Rec	%Rec Limits	
	%Recovery	Qualifier							
13C8 PFOA	85		26 - 159						
13C8 PFOS	91		41 - 154						

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-562589/2-A
Matrix: Solid
Analysis Batch: 562756

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562589

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 11:48	1
Barium	ND		0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 11:48	1
Cadmium	ND		0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 11:48	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 11:48	1
Lead	ND		0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 11:48	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 11:48	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 11:48	1

Lab Sample ID: LCS 240-562589/3-A
Matrix: Solid
Analysis Batch: 562756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562589

Analyte			Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier						
Arsenic	2.00	2.00		2.00		mg/L		100	50 - 150
Barium	2.00	1.88		1.88		mg/L		94	50 - 150
Cadmium	1.00	0.978		0.978		mg/L		98	50 - 150
Chromium	1.00	0.946		0.946		mg/L		95	50 - 150
Lead	1.00	0.928		0.928		mg/L		93	50 - 150
Selenium	2.00	2.02		2.02		mg/L		101	50 - 150
Silver	0.100	0.102		0.102		mg/L		102	50 - 150

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 240-562550/1-B
Matrix: Solid
Analysis Batch: 562756

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562589

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/19/23 13:00	02/20/23 11:44	1
Barium	0.00266	J	0.50	0.0013	mg/L		02/19/23 13:00	02/20/23 11:44	1
Cadmium	ND		0.050	0.00020	mg/L		02/19/23 13:00	02/20/23 11:44	1
Chromium	ND		0.050	0.0040	mg/L		02/19/23 13:00	02/20/23 11:44	1
Lead	0.00336	J	0.050	0.0028	mg/L		02/19/23 13:00	02/20/23 11:44	1
Selenium	ND		0.050	0.0060	mg/L		02/19/23 13:00	02/20/23 11:44	1
Silver	ND		0.050	0.00062	mg/L		02/19/23 13:00	02/20/23 11:44	1

Lab Sample ID: 240-180588-1 MS
Matrix: Solid
Analysis Batch: 562756

Client Sample ID: WC-WS1-A1 (2-3)
Prep Type: TCLP
Prep Batch: 562589

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Arsenic	0.0062	J	5.00	5.12		mg/L		102	75 - 125
Barium	0.48	J B	50.0	48.9		mg/L		97	75 - 125
Cadmium	0.0015	J	1.00	1.03		mg/L		103	75 - 125
Chromium	ND		5.00	4.81		mg/L		96	75 - 125
Lead	0.012	J B	5.00	4.89		mg/L		98	75 - 125
Selenium	ND		1.00	1.06		mg/L		106	75 - 125
Silver	ND		1.00	0.996		mg/L		100	75 - 125

Lab Sample ID: 240-180588-1 MSD
Matrix: Solid
Analysis Batch: 562756

Client Sample ID: WC-WS1-A1 (2-3)
Prep Type: TCLP
Prep Batch: 562589

Analyte	Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
Arsenic	0.0062	J	5.00	5.02		mg/L		100	75 - 125	2	20
Barium	0.48	J B	50.0	48.5		mg/L		96	75 - 125	1	20
Cadmium	0.0015	J	1.00	1.00		mg/L		100	75 - 125	3	20
Chromium	ND		5.00	4.77		mg/L		95	75 - 125	1	20
Lead	0.012	J B	5.00	4.79		mg/L		95	75 - 125	2	20
Selenium	ND		1.00	1.00		mg/L		100	75 - 125	5	20
Silver	ND		1.00	0.987		mg/L		99	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-562590/2-A
Matrix: Solid
Analysis Batch: 562766

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562590

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:21	1

Lab Sample ID: LCS 240-562590/3-A
Matrix: Solid
Analysis Batch: 562766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562590

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Mercury	0.00500	0.00548		mg/L		110	80 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LB 240-562550/1-C
Matrix: Solid
Analysis Batch: 562766

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562590

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		02/19/23 13:00	02/20/23 13:19	1

Lab Sample ID: 240-180588-1 MS
Matrix: Solid
Analysis Batch: 562766

Client Sample ID: WC-WS1-A1 (2-3)
Prep Type: TCLP
Prep Batch: 562590

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Mercury	ND		0.00500	0.00528		mg/L		106	80 - 120

Lab Sample ID: 240-180588-1 MSD
Matrix: Solid
Analysis Batch: 562766

Client Sample ID: WC-WS1-A1 (2-3)
Prep Type: TCLP
Prep Batch: 562590

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
Mercury	ND		0.00500	0.00538		mg/L		108	80 - 120	2	20

Method: Moisture - Percent Moisture

Lab Sample ID: 240-180588-1 DU
Matrix: Solid
Analysis Batch: 562527

Client Sample ID: WC-WS1-A1 (2-3)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Solids	78.4		89.3		%		13	20
Percent Moisture	21.6		10.7	F3	%		67	20

Lab Sample ID: 240-180588-11 DU
Matrix: Solid
Analysis Batch: 562527

Client Sample ID: WC-WS1-A10 (2-3)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU DU		Unit	D	RPD	RPD Limit
			Result	Qualifier				
Percent Solids	78.5		85.8		%		9	20
Percent Moisture	21.5		14.2	F3	%		40	20

QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

GC/MS VOA

Composite Batch: 562549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	Composite	
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	Composite	
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	Composite	
240-180588-12 MSD	WC-WS1-COMP (A6-A10)	TCLP	Solid	Composite	

Leach Batch: 562552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	1311	562549
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	562549
LB 240-562552/1-A MB	Method Blank	TCLP	Solid	1311	
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	562549
240-180588-12 MSD	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	562549

Analysis Batch: 562573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	8260D	562552
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	8260D	562552
LB 240-562552/1-A MB	Method Blank	TCLP	Solid	8260D	562552
LCS 240-562573/10	Lab Control Sample	Total/NA	Solid	8260D	
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	8260D	562552
240-180588-12 MSD	WC-WS1-COMP (A6-A10)	TCLP	Solid	8260D	562552

Prep Batch: 562767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	Total/NA	Solid	5035	
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	5035	
240-180588-3	WC-WS1-A3 (3-4)	Total/NA	Solid	5035	
240-180588-4	WC-WS1-A4 (5-6)	Total/NA	Solid	5035	
240-180588-5	WC-WS1-A5 (1-2)	Total/NA	Solid	5035	
240-180588-7	WC-WS1-A6 (3-4)	Total/NA	Solid	5035	
240-180588-8	WC-WS1-A7 (2-3)	Total/NA	Solid	5035	
240-180588-9	WC-WS1-A8 (4-5)	Total/NA	Solid	5035	
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	5035	
240-180588-11	WC-WS1-A10 (2-3)	Total/NA	Solid	5035	
MB 240-562767/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562767/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-180588-11 MS	WC-WS1-A10 (2-3)	Total/NA	Solid	5035	
240-180588-11 MSD	WC-WS1-A10 (2-3)	Total/NA	Solid	5035	

Analysis Batch: 563073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	8260D	562767
240-180588-4	WC-WS1-A4 (5-6)	Total/NA	Solid	8260D	562767
MB 240-562767/1-A	Method Blank	Total/NA	Solid	8260D	562767
LCS 240-562767/2-A	Lab Control Sample	Total/NA	Solid	8260D	562767

Analysis Batch: 563092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	Total/NA	Solid	8260D	562767
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	8260D	562767
240-180588-3	WC-WS1-A3 (3-4)	Total/NA	Solid	8260D	562767

QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

GC/MS VOA (Continued)

Analysis Batch: 563092 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-5	WC-WS1-A5 (1-2)	Total/NA	Solid	8260D	562767
240-180588-7	WC-WS1-A6 (3-4)	Total/NA	Solid	8260D	562767
240-180588-8	WC-WS1-A7 (2-3)	Total/NA	Solid	8260D	562767
240-180588-9	WC-WS1-A8 (4-5)	Total/NA	Solid	8260D	562767
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	8260D	562767
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	8260D	562767
240-180588-11	WC-WS1-A10 (2-3)	Total/NA	Solid	8260D	562767

Analysis Batch: 563099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	Total/NA	Solid	8260D	562767
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	8260D	562767
240-180588-3	WC-WS1-A3 (3-4)	Total/NA	Solid	8260D	562767
240-180588-4	WC-WS1-A4 (5-6)	Total/NA	Solid	8260D	562767
240-180588-5	WC-WS1-A5 (1-2)	Total/NA	Solid	8260D	562767
240-180588-7	WC-WS1-A6 (3-4)	Total/NA	Solid	8260D	562767
240-180588-8	WC-WS1-A7 (2-3)	Total/NA	Solid	8260D	562767
240-180588-9	WC-WS1-A8 (4-5)	Total/NA	Solid	8260D	562767
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	8260D	562767
240-180588-11	WC-WS1-A10 (2-3)	Total/NA	Solid	8260D	562767
MB 240-562767/1-A	Method Blank	Total/NA	Solid	8260D	562767
LCS 240-562767/2-A	Lab Control Sample	Total/NA	Solid	8260D	562767
240-180588-11 MS	WC-WS1-A10 (2-3)	Total/NA	Solid	8260D	562767
240-180588-11 MSD	WC-WS1-A10 (2-3)	Total/NA	Solid	8260D	562767

GC/MS Semi VOA

Prep Batch: 562526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	Total/NA	Solid	3540C	
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	3540C	
240-180588-3	WC-WS1-A3 (3-4)	Total/NA	Solid	3540C	
240-180588-4	WC-WS1-A4 (5-6)	Total/NA	Solid	3540C	
240-180588-5	WC-WS1-A5 (1-2)	Total/NA	Solid	3540C	
240-180588-7	WC-WS1-A6 (3-4)	Total/NA	Solid	3540C	
240-180588-8	WC-WS1-A7 (2-3)	Total/NA	Solid	3540C	
240-180588-9	WC-WS1-A8 (4-5)	Total/NA	Solid	3540C	
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	3540C	
240-180588-11	WC-WS1-A10 (2-3)	Total/NA	Solid	3540C	
MB 240-562526/22-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-562526/23-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562526/24-A	Lab Control Sample	Total/NA	Solid	3540C	
240-180588-11 MS	WC-WS1-A10 (2-3)	Total/NA	Solid	3540C	
240-180588-11 MSD	WC-WS1-A10 (2-3)	Total/NA	Solid	3540C	

Composite Batch: 562549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	Composite	
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	Composite	
240-180588-6 MS	WC-WS1-COMP (A1-A5)	TCLP	Solid	Composite	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

GC/MS Semi VOA

Leach Batch: 562551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	1311	562549
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	562549
240-180588-6 MS	WC-WS1-COMP (A1-A5)	TCLP	Solid	1311	562549

Prep Batch: 562656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	3510C	562551
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	3510C	562551
MB 240-562656/4-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-562656/5-A	Lab Control Sample	Total/NA	Solid	3510C	
240-180588-6 MS	WC-WS1-COMP (A1-A5)	TCLP	Solid	3510C	562551

Analysis Batch: 562828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	Total/NA	Solid	8270E	562526
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	8270E	562526
240-180588-3	WC-WS1-A3 (3-4)	Total/NA	Solid	8270E	562526
240-180588-4	WC-WS1-A4 (5-6)	Total/NA	Solid	8270E	562526
240-180588-5	WC-WS1-A5 (1-2)	Total/NA	Solid	8270E	562526
240-180588-7	WC-WS1-A6 (3-4)	Total/NA	Solid	8270E	562526
240-180588-8	WC-WS1-A7 (2-3)	Total/NA	Solid	8270E	562526
240-180588-9	WC-WS1-A8 (4-5)	Total/NA	Solid	8270E	562526
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	8270E	562526
240-180588-11	WC-WS1-A10 (2-3)	Total/NA	Solid	8270E	562526
MB 240-562526/22-A	Method Blank	Total/NA	Solid	8270E	562526
LCS 240-562526/23-A	Lab Control Sample	Total/NA	Solid	8270E	562526
LCS 240-562526/24-A	Lab Control Sample	Total/NA	Solid	8270E	562526
240-180588-11 MS	WC-WS1-A10 (2-3)	Total/NA	Solid	8270E	562526
240-180588-11 MSD	WC-WS1-A10 (2-3)	Total/NA	Solid	8270E	562526

Analysis Batch: 562830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	8270E	562656
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	8270E	562656
MB 240-562656/4-A	Method Blank	Total/NA	Solid	8270E	562656
LCS 240-562656/5-A	Lab Control Sample	Total/NA	Solid	8270E	562656
240-180588-6 MS	WC-WS1-COMP (A1-A5)	TCLP	Solid	8270E	562656

GC Semi VOA

Leach Batch: 346494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	1311	
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	

Prep Batch: 346721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	8151A	346494
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	8151A	346494
MB 410-346721/1-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/2-A	Method Blank	Total/NA	Solid	8151A	

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QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

GC Semi VOA (Continued)

Prep Batch: 346721 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-346721/3-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/4-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/5-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-346721/6-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 346737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	8151A	346721
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	8151A	346721
MB 410-346721/1-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/2-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/3-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/4-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/5-A	Method Blank	Total/NA	Solid	8151A	346721
LCS 410-346721/6-A	Lab Control Sample	Total/NA	Solid	8151A	346721

Composite Batch: 562549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	Composite	
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	Composite	
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	Composite	

Leach Batch: 562551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	1311	562549
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	562549
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	1311	562549

Composite Batch: 562586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	Composite	
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	Composite	

Prep Batch: 562650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	3546	562586
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	3546	562586
MB 240-562650/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-562650/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 562657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	3510C	562551
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	3510C	562551
MB 240-562657/4-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-562657/5-A	Lab Control Sample	Total/NA	Solid	3510C	
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	3510C	562551

Analysis Batch: 562736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	TCLP	Solid	8081B	562657

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

GC Semi VOA (Continued)

Analysis Batch: 562736 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-12	WC-WS1-COMP (A6-A10)	TCLP	Solid	8081B	562657
MB 240-562657/4-A	Method Blank	Total/NA	Solid	8081B	562657
LCS 240-562657/5-A	Lab Control Sample	Total/NA	Solid	8081B	562657
240-180588-12 MS	WC-WS1-COMP (A6-A10)	TCLP	Solid	8081B	562657

Analysis Batch: 562759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	8082A	562650
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	8082A	562650
MB 240-562650/1-A	Method Blank	Total/NA	Solid	8082A	562650
LCS 240-562650/2-A	Lab Control Sample	Total/NA	Solid	8082A	562650

LCMS

Prep Batch: 346502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	537 (mod)	
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	537 (mod)	
MB 410-346502/1-B	Method Blank	Total/NA	Solid	537 (mod)	
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	537 (mod)	

Cleanup Batch: 346507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	Extract Aliquot	346502
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	Extract Aliquot	346502
MB 410-346502/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	346502
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	346502

Analysis Batch: 346558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	537 IDA	346507
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	537 IDA	346507
MB 410-346502/1-B	Method Blank	Total/NA	Solid	537 IDA	346507
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	346507

Metals

Leach Batch: 562550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	TCLP	Solid	1311	
240-180588-2	WC-WS1-A2 (2.5-3.5)	TCLP	Solid	1311	
240-180588-3	WC-WS1-A3 (3-4)	TCLP	Solid	1311	
240-180588-4	WC-WS1-A4 (5-6)	TCLP	Solid	1311	
240-180588-5	WC-WS1-A5 (1-2)	TCLP	Solid	1311	
240-180588-7	WC-WS1-A6 (3-4)	TCLP	Solid	1311	
240-180588-8	WC-WS1-A7 (2-3)	TCLP	Solid	1311	
240-180588-9	WC-WS1-A8 (4-5)	TCLP	Solid	1311	
240-180588-10	WC-WS1-A9 (3-4)	TCLP	Solid	1311	
240-180588-11	WC-WS1-A10 (2-3)	TCLP	Solid	1311	
LB 240-562550/1-B	Method Blank	TCLP	Solid	1311	
LB 240-562550/1-C	Method Blank	TCLP	Solid	1311	
240-180588-1 MS	WC-WS1-A1 (2-3)	TCLP	Solid	1311	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Metals (Continued)

Leach Batch: 562550 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1 MSD	WC-WS1-A1 (2-3)	TCLP	Solid	1311	

Prep Batch: 562589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	TCLP	Solid	3010A	562550
240-180588-2	WC-WS1-A2 (2.5-3.5)	TCLP	Solid	3010A	562550
240-180588-3	WC-WS1-A3 (3-4)	TCLP	Solid	3010A	562550
240-180588-4	WC-WS1-A4 (5-6)	TCLP	Solid	3010A	562550
240-180588-5	WC-WS1-A5 (1-2)	TCLP	Solid	3010A	562550
240-180588-7	WC-WS1-A6 (3-4)	TCLP	Solid	3010A	562550
240-180588-8	WC-WS1-A7 (2-3)	TCLP	Solid	3010A	562550
240-180588-9	WC-WS1-A8 (4-5)	TCLP	Solid	3010A	562550
240-180588-10	WC-WS1-A9 (3-4)	TCLP	Solid	3010A	562550
240-180588-11	WC-WS1-A10 (2-3)	TCLP	Solid	3010A	562550
LB 240-562550/1-B	Method Blank	TCLP	Solid	3010A	562550
MB 240-562589/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-562589/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180588-1 MS	WC-WS1-A1 (2-3)	TCLP	Solid	3010A	562550
240-180588-1 MSD	WC-WS1-A1 (2-3)	TCLP	Solid	3010A	562550

Prep Batch: 562590

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	TCLP	Solid	7470A	562550
240-180588-2	WC-WS1-A2 (2.5-3.5)	TCLP	Solid	7470A	562550
240-180588-3	WC-WS1-A3 (3-4)	TCLP	Solid	7470A	562550
240-180588-4	WC-WS1-A4 (5-6)	TCLP	Solid	7470A	562550
240-180588-5	WC-WS1-A5 (1-2)	TCLP	Solid	7470A	562550
240-180588-7	WC-WS1-A6 (3-4)	TCLP	Solid	7470A	562550
240-180588-8	WC-WS1-A7 (2-3)	TCLP	Solid	7470A	562550
240-180588-9	WC-WS1-A8 (4-5)	TCLP	Solid	7470A	562550
240-180588-10	WC-WS1-A9 (3-4)	TCLP	Solid	7470A	562550
240-180588-11	WC-WS1-A10 (2-3)	TCLP	Solid	7470A	562550
LB 240-562550/1-C	Method Blank	TCLP	Solid	7470A	562550
MB 240-562590/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-562590/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180588-1 MS	WC-WS1-A1 (2-3)	TCLP	Solid	7470A	562550
240-180588-1 MSD	WC-WS1-A1 (2-3)	TCLP	Solid	7470A	562550

Analysis Batch: 562756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	TCLP	Solid	6010D	562589
240-180588-2	WC-WS1-A2 (2.5-3.5)	TCLP	Solid	6010D	562589
240-180588-3	WC-WS1-A3 (3-4)	TCLP	Solid	6010D	562589
240-180588-4	WC-WS1-A4 (5-6)	TCLP	Solid	6010D	562589
240-180588-5	WC-WS1-A5 (1-2)	TCLP	Solid	6010D	562589
240-180588-7	WC-WS1-A6 (3-4)	TCLP	Solid	6010D	562589
240-180588-8	WC-WS1-A7 (2-3)	TCLP	Solid	6010D	562589
240-180588-9	WC-WS1-A8 (4-5)	TCLP	Solid	6010D	562589
240-180588-10	WC-WS1-A9 (3-4)	TCLP	Solid	6010D	562589
240-180588-11	WC-WS1-A10 (2-3)	TCLP	Solid	6010D	562589
LB 240-562550/1-B	Method Blank	TCLP	Solid	6010D	562589

QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-1

Metals (Continued)

Analysis Batch: 562756 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-562589/2-A	Method Blank	Total/NA	Solid	6010D	562589
LCS 240-562589/3-A	Lab Control Sample	Total/NA	Solid	6010D	562589
240-180588-1 MS	WC-WS1-A1 (2-3)	TCLP	Solid	6010D	562589
240-180588-1 MSD	WC-WS1-A1 (2-3)	TCLP	Solid	6010D	562589

Analysis Batch: 562766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	TCLP	Solid	7470A	562590
240-180588-2	WC-WS1-A2 (2.5-3.5)	TCLP	Solid	7470A	562590
240-180588-3	WC-WS1-A3 (3-4)	TCLP	Solid	7470A	562590
240-180588-4	WC-WS1-A4 (5-6)	TCLP	Solid	7470A	562590
240-180588-5	WC-WS1-A5 (1-2)	TCLP	Solid	7470A	562590
240-180588-7	WC-WS1-A6 (3-4)	TCLP	Solid	7470A	562590
240-180588-8	WC-WS1-A7 (2-3)	TCLP	Solid	7470A	562590
240-180588-9	WC-WS1-A8 (4-5)	TCLP	Solid	7470A	562590
240-180588-10	WC-WS1-A9 (3-4)	TCLP	Solid	7470A	562590
240-180588-11	WC-WS1-A10 (2-3)	TCLP	Solid	7470A	562590
LB 240-562550/1-C	Method Blank	TCLP	Solid	7470A	562590
MB 240-562590/2-A	Method Blank	Total/NA	Solid	7470A	562590
LCS 240-562590/3-A	Lab Control Sample	Total/NA	Solid	7470A	562590
240-180588-1 MS	WC-WS1-A1 (2-3)	TCLP	Solid	7470A	562590
240-180588-1 MSD	WC-WS1-A1 (2-3)	TCLP	Solid	7470A	562590

General Chemistry

Analysis Batch: 562527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-1	WC-WS1-A1 (2-3)	Total/NA	Solid	Moisture	
240-180588-2	WC-WS1-A2 (2.5-3.5)	Total/NA	Solid	Moisture	
240-180588-3	WC-WS1-A3 (3-4)	Total/NA	Solid	Moisture	
240-180588-4	WC-WS1-A4 (5-6)	Total/NA	Solid	Moisture	
240-180588-5	WC-WS1-A5 (1-2)	Total/NA	Solid	Moisture	
240-180588-7	WC-WS1-A6 (3-4)	Total/NA	Solid	Moisture	
240-180588-8	WC-WS1-A7 (2-3)	Total/NA	Solid	Moisture	
240-180588-9	WC-WS1-A8 (4-5)	Total/NA	Solid	Moisture	
240-180588-10	WC-WS1-A9 (3-4)	Total/NA	Solid	Moisture	
240-180588-11	WC-WS1-A10 (2-3)	Total/NA	Solid	Moisture	
240-180588-1 DU	WC-WS1-A1 (2-3)	Total/NA	Solid	Moisture	
240-180588-11 DU	WC-WS1-A10 (2-3)	Total/NA	Solid	Moisture	

Analysis Batch: 562608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	Moisture	
240-180588-12	WC-WS1-COMP (A6-A10)	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Date Collected: 02/17/23 14:47

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 11:57
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:25
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A1 (2-3)

Lab Sample ID: 240-180588-1

Date Collected: 02/17/23 14:47

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 10:35
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		200	563092	CS	EET CAN	02/23/23 11:22
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 11:50

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Date Collected: 02/17/23 14:57

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 12:39
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:33
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A2 (2.5-3.5)

Lab Sample ID: 240-180588-2

Date Collected: 02/17/23 14:57

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 11:00
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		100	563073	SAM	EET CAN	02/23/23 00:01
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		200	563092	CS	EET CAN	02/23/23 11:48
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 12:15

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Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Date Collected: 02/17/23 15:10

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 12:44
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:35
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A3 (3-4)

Lab Sample ID: 240-180588-3

Date Collected: 02/17/23 15:10

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		5	563099	SAM	EET CAN	02/23/23 16:22
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		125	563092	CS	EET CAN	02/23/23 12:13
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 12:39

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Date Collected: 02/17/23 15:27

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 12:48
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:37
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A4 (5-6)

Lab Sample ID: 240-180588-4

Date Collected: 02/17/23 15:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 11:53
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		333.333 3	563073	SAM	EET CAN	02/23/23 00:51
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 13:03

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Date Collected: 02/17/23 15:37

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 12:52
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:39
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A5 (1-2)

Lab Sample ID: 240-180588-5

Date Collected: 02/17/23 15:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 12:18
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		200	563092	CS	EET CAN	02/23/23 12:39
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 13:27

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562549	KLE	EET CAN	02/18/23 13:11
TCLP	Leach	1311			562552	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Analysis	8260D		1	562573	HMB	EET CAN	02/19/23 14:31
TCLP	Composite	Composite			562549	KLE	EET CAN	02/18/23 13:11
TCLP	Leach	1311			562551	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3510C			562656	SDE	EET CAN	02/20/23 08:50
TCLP	Analysis	8270E		10	562830	JMG	EET CAN	02/21/23 15:28
TCLP	Composite	Composite			562549	KLE	EET CAN	02/18/23 13:11
TCLP	Leach	1311			562551	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3510C			562657	SDE	EET CAN	02/20/23 08:53
TCLP	Analysis	8081B		1	562736	BPM	EET CAN	02/20/23 14:56
TCLP	Leach	1311			346494	UNWS	ELLE	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	8151A			346721	UKL2	ELLE	02/21/23 20:16
TCLP	Analysis	8151A		1	346737	UAMZ	ELLE	02/22/23 07:45
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 86.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562586	DRJ	EET CAN	02/18/23 13:11
Total/NA	Prep	3546			562650	AJ	EET CAN	02/20/23 08:20
Total/NA	Analysis	8082A		1	562759	MBB	EET CAN	02/21/23 00:09
Total/NA	Prep	537 (mod)			346502	Q5YX	ELLE	02/21/23 12:53
Total/NA	Cleanup	Extract Aliquot			346507	Q5YX	ELLE	02/21/23 13:13
Total/NA	Analysis	537 IDA		1	346558	UUV6	ELLE	02/21/23 17:11

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Date Collected: 02/17/23 16:17

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 12:57
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:46
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A6 (3-4)

Lab Sample ID: 240-180588-7

Date Collected: 02/17/23 16:17

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 12:42
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		111.11	563092	CS	EET CAN	02/23/23 15:10
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 13:51

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Date Collected: 02/17/23 16:27

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 13:01
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:48
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A7 (2-3)

Lab Sample ID: 240-180588-8

Date Collected: 02/17/23 16:27

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		4	563099	SAM	EET CAN	02/23/23 16:46
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		333.333 3	563092	CS	EET CAN	02/23/23 14:19
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 14:15

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Date Collected: 02/17/23 16:37

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 13:06
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:50
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A8 (4-5)

Lab Sample ID: 240-180588-9

Date Collected: 02/17/23 16:37

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 81.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 13:31
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		333.333 3	563092	CS	EET CAN	02/23/23 14:45
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 14:39

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Date Collected: 02/17/23 16:43

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 13:10
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:52
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-A9 (3-4)

Lab Sample ID: 240-180588-10

Date Collected: 02/17/23 16:43

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 13:56
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		66.6666	563092	CS	EET CAN	02/23/23 13:04
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		125	563092	CS	EET CAN	02/23/23 15:35
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 16:16

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Date Collected: 02/17/23 16:51

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3010A			562589	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	6010D		1	562756	KLC	EET CAN	02/20/23 13:15
TCLP	Leach	1311			562550	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	7470A			562590	AJC	EET CAN	02/19/23 13:00
TCLP	Analysis	7470A		1	562766	DSH	EET CAN	02/20/23 13:54
Total/NA	Analysis	Moisture		1	562527	MED	EET CAN	02/18/23 10:23

Client Sample ID: WC-WS1-A10 (2-3)

Lab Sample ID: 240-180588-11

Date Collected: 02/17/23 16:51

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 78.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 14:20
Total/NA	Prep	5035			562767	LAM	EET CAN	02/20/23 14:17
Total/NA	Analysis	8260D		40	563092	CS	EET CAN	02/23/23 13:29
Total/NA	Prep	3540C			562526	BMB	EET CAN	02/18/23 10:21
Total/NA	Analysis	8270E		20	562828	JMG	EET CAN	02/21/23 15:04

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562549	KLE	EET CAN	02/18/23 13:11
TCLP	Leach	1311			562552	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Analysis	8260D		1	562573	HMB	EET CAN	02/19/23 14:54
TCLP	Composite	Composite			562549	KLE	EET CAN	02/18/23 13:11
TCLP	Leach	1311			562551	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3510C			562656	SDE	EET CAN	02/20/23 08:50
TCLP	Analysis	8270E		10	562830	JMG	EET CAN	02/21/23 16:16

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562549	KLE	EET CAN	02/18/23 13:11
TCLP	Leach	1311			562551	KLE	EET CAN	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	3510C			562657	SDE	EET CAN	02/20/23 08:53
TCLP	Analysis	8081B		1	562736	BPM	EET CAN	02/20/23 15:12
TCLP	Leach	1311			346494	UNWS	ELLE	02/18/23 14:25 - 02/19/23 08:20 ¹
TCLP	Prep	8151A			346721	UKL2	ELLE	02/21/23 20:16
TCLP	Analysis	8151A		1	346737	UAMZ	ELLE	02/22/23 08:13
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-COMP (A6-A10)

Lab Sample ID: 240-180588-12

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 83.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562586	DRJ	EET CAN	02/18/23 13:11
Total/NA	Prep	3546			562650	AJ	EET CAN	02/20/23 08:20
Total/NA	Analysis	8082A		1	562759	MBB	EET CAN	02/21/23 00:25
Total/NA	Prep	537 (mod)			346502	Q5YX	ELLE	02/21/23 12:53
Total/NA	Cleanup	Extract Aliquot			346507	Q5YX	ELLE	02/21/23 13:13
Total/NA	Analysis	537 IDA		1	346558	UUV6	ELLE	02/21/23 17:22

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-23 *
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

5-4/5.5

Address: _____

TAL-8210

Regulatory Program: DW NPDES RCRA Other: _____

Client Contact
 Company Name: Arcadis - Carolina Bryogen
 Address: 7575 Hawthorne Park Dr
 City/State/Zip: COLUMBUS OH
 Phone: 614-271-6586
 Fax: _____
 Project Name: NS EAST PALESTONE OH
 Site: _____
 PO# 30169678

Project Manager: John Artrip
Tel/Email: Carolee.groves@arcadis.com
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below RUSH
 2 weeks
 1 week
 2 days
 1 day

Site Contact: Michelle Clynch **Date:** 2-17-23
Lab Contact: Mike Delmonico **Carrier:** _____

COC No: _____ of _____ COCs
 Sampler: _____
 For Lab Use Only:
 Walk-in Client: _____
 Lab Sampling: _____
 Job / SDG No.: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Total VOC	Total SVOC	TCLP Metals	DFA5/PFA	TCLP VOC	TCLP SVOC	TCLP PEST	TCLP HERBS	TOTAL PBS	
						Y	N	Y	N										
WC-WS1-A1 (2-3)	2/17/23	1447	G	S	7	X		X		X									
WC-WS1-A2 (2.5-3.5)	2/17/23	1457	G	S	7	X		X		X									
WC-WS1-A3 (3-4)	2/17/23	1510	G	S	7	X		X		X									
WC-WS1-A4 (5.6)	2/17/23	1527	G	S	7	X		X		X									
WC-WS1-A5 (1-2)	2/17/23	1537	G	S	7	X		X		X									
WC-WS1-COMP(A1-A5)	2/17/23	-	LAB Comp	S	X														
WC-WS1-A6 (3-4)	2/17/23	1617	G	S	7	X		X		X									
WC-WS1-A7 (2-3)	2/17/23	1627	G	S	7	X		X		X									
WC-WS1-AB (4-5)	2/17/23	1637	G	S	7	X		X		X									
WC-WS1-A9 (3-4)	2/17/23	1643	G	S	7	X		X		X									
WC-WS1-A10 (2-3)	2/17/23	1657	G	S	7	X		X		X									
WC-WS1-COMP (A6-A10)	2/17/23	-	LAB Comp	S	X														

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. LD43 VINYL CHLORIDE

Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
LAB TO GERATE COMPOSITE SAMPLES CONTAINING 5 GRAB SAMPLES EACH

Custody Seal No.: _____
 Relinquished by: Michelle Clynch **Date/Time:** 2/17/23 1424
 Relinquished by: Arcadis **Date/Time:** 2/17/23 2100
 Relinquished by: _____ **Date/Time:** _____
 Relinquished by: _____ **Date/Time:** _____

Received by: [Signature] **Date/Time:** _____
 Received by: _____ **Date/Time:** _____
 Received in Laboratory by: _____ **Date/Time:** _____

Company: Arcadis **Company:** EFTNC
 Company: _____ **Company:** _____

Therm ID No.: _____
 Cooler Temp. (°C): _____
 Obs'd: _____
 Corr'd: _____



Client Arcadis Site Name NSRR-ER Cooler unpacked by: [Signature]
 Cooler Received on 2-17-23 Opened on 2-17-23
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courtes Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
 If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA ← Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 0110901H Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
 VOAs
 Oil and Grease
 TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form						
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
EC Client Box Other	IR-13 IR-16 IR-17	5.7	5.5	Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17	4.8	4.6	Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice	Blue Ice	Dry Ice
EC Client Box Other	IR-13 IR-16 IR-17			Water	None	None

See Temperature Excursion Form

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:		Lab PM: DelMonico, Michael		Carrier Tracking No(s):		COC No: 240-164099.1																					
Client Contact: Shipping/Receiving		Phone:		E-Mail: Michael.DelMonico@et.eurofinsus.com		State of Origin: Ohio		Page: Page 1 of 1																					
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):				Job #: 240-180588-1																					
Address: 2425 New Holland Pike,		Due Date Requested: 2/20/2023		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)																			
City: Lancaster		TAT Requested (days):																											
State, Zip: PA, 17601		PO #:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		PFC_IDA/Shake_SonicBath PFOA, PFOS		8151A/1311_T TCLP Analyte List		Total Number of containers																	
Phone: 717-656-2300(Tel)		WO #:																											
Email:		Project #: 24030745		Special Instructions/Note:		Preservation Code:		X X		3		Composite sample using plastic jars only																	
Project Name: NS East Palestine		SSOW#:																											
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		PFC_IDA/Shake_SonicBath PFOA, PFOS		8151A/1311_T TCLP Analyte List		Total Number of containers											
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		PFC_IDA/Shake_SonicBath PFOA, PFOS		8151A/1311_T TCLP Analyte List		Total Number of containers											
WC-WS1-COMP (A1-A5) (240-180588-6)		2/17/23		Eastern		Solid		Solid		X		X		X		X		3											
WC-WS1-COMP (A6-A10) (240-180588-12)		2/17/23		Eastern		Solid		Solid		X		X		X		X		2											
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.																													
Possible Hazard Identification										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																			
Unconfirmed										<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																			
Deliverable Requested: I, II, III, IV, Other (specify)					Primary Deliverable Rank: 2					Special Instructions/QC Requirements:																			
Empty Kit Relinquished by:					Date:					Time:					Method of Shipment:														
Relinquished by: <i>[Signature]</i>					Date/Time: 2/20/23 1500					Company: <i>EE/TC</i>					Received by: <i>[Signature]</i>					Date/Time: _____					Company: _____				
Relinquished by: _____					Date/Time: _____					Company: _____					Received by: _____					Date/Time: _____					Company: _____				
Relinquished by: _____					Date/Time: _____					Company: _____					Received by: <i>[Signature]</i>					Date/Time: 2/21/23 0920					Company: <i>TC/CO</i>				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No					Custody Seal No.:					Cooler Temperature(s) °C and Other Remarks: 2-1																			



Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180588-1

Login Number: 180588

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/21/23 09:17 AM

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	C8PFOA	C8PFOS
		(26-159)	(41-154)
240-180588-6	WC-WS1-COMP (A1-A5)	80	88
240-180588-12	WC-WS1-COMP (A6-A10)	77	87
LCS 410-346502/2-B	Lab Control Sample	85	91
MB 410-346502/1-B	Method Blank	74	89

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/10/2023 9:30:14 AM Revision 1

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180588-2

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Authorized for release by
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(330)497-9396

Generated
3/10/2023 9:30:14 AM
Revision 1



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Job ID: 240-180588-2

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-180588-2**

Receipt

The samples were received on 2/17/2023 9:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 4.6°C and 5.5°C

Report revised on 3/10/2023 to report Total Dioxins calculations.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Method	Method Description	Protocol	Laboratory
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180588-6	WC-WS1-COMP (A1-A5)	Solid	02/17/23 00:00	02/17/23 21:00

1

2

3

4

5

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14

15

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-2

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	220		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	180		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	27		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	78		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	44		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	42		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	66		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	28		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	51		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	33		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	33		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	52		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	57		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	5.0		1.1	0.23	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	23		1.1	0.23	ng/Kg	1	✳	8290A	Total/NA
OCDD	1100		11	2.3	ng/Kg	1	✳	8290A	Total/NA
OCDF	220		11	2.3	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	290		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	480		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	520		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	320		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	170	I	5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	450		5.7	2.3	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	81	I	1.1	0.23	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	490	I	1.1	0.23	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 86.8

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	220		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,4,6,7,8-HpCDF	180		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,4,7,8-HxCDD	27		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,4,7,8-HxCDF	78		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,4,7,8,9-HpCDF	44		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,6,7,8-HxCDD	42		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,6,7,8-HxCDF	66		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,7,8-PeCDD	28		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,7,8-PeCDF	51		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,7,8,9-HxCDD	33		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
1,2,3,7,8,9-HxCDF	33		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
2,3,4,6,7,8-HxCDF	52		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
2,3,4,7,8-PeCDF	57		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
2,3,7,8-TCDD	5.0		1.1	0.23	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
2,3,7,8-TCDF	23		1.1	0.23	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
OCDD	1100		11	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
OCDF	220		11	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total HxCDD	290		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total HxCDF	480		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total HpCDD	520		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total HpCDF	320		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total PeCDD	170	I	5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total PeCDF	450		5.7	2.3	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total TCDD	81	I	1.1	0.23	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1
Total TCDF	490	I	1.1	0.23	ng/Kg	✱	03/06/23 12:43	03/08/23 00:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	51		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-OCDD	51		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-2,3,7,8-TCDF	54		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-2,3,7,8-TCDD	56		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-2,3,4,7,8-PeCDF	54		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-2,3,4,6,7,8-HxCDF	48		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,7,8,9-HxCDF	51		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,7,8,9-HxCDD	53		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,7,8-PeCDF	58		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,7,8-PeCDD	55		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,6,7,8-HxCDF	60		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,6,7,8-HxCDD	57		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,4,7,8,9-HpCDF	55		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,4,7,8-HxCDF	60		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,4,7,8-HxCDD	56		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,4,6,7,8-HpCDF	60		40 - 135	03/06/23 12:43	03/08/23 00:18	1
13C-1,2,3,4,6,7,8-HpCDD	56		40 - 135	03/06/23 12:43	03/08/23 00:18	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-350542/1-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,6,7,8-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDD	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDF	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	89		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-OCDD	88		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDD	68		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,7,8-PeCDF	76		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,6,7,8-HxCDF	81		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDF	82		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDD	83		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDD	69		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDF	84		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDD	80		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8,9-HpCDF	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDF	85		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDD	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-350542/2-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3,4,6,7,8-HpCDD	100	93.6		ng/Kg		94	77 - 127
1,2,3,4,6,7,8-HpCDF	100	94.3		ng/Kg		94	77 - 127
1,2,3,4,7,8-HxCDD	100	98.7		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDF	100	97.8		ng/Kg		98	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.8		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	103		ng/Kg		103	76 - 127
1,2,3,6,7,8-HxCDF	100	97.3		ng/Kg		97	77 - 129
1,2,3,7,8-PeCDD	100	105		ng/Kg		105	77 - 127
1,2,3,7,8-PeCDF	100	101		ng/Kg		101	75 - 129
1,2,3,7,8,9-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,7,8,9-HxCDF	100	97.4		ng/Kg		97	76 - 126
2,3,4,6,7,8-HxCDF	100	94.2		ng/Kg		94	78 - 128
2,3,4,7,8-PeCDF	100	104		ng/Kg		104	75 - 131
2,3,7,8-TCDD	20.0	19.9		ng/Kg		99	68 - 142
2,3,7,8-TCDF	20.0	17.7		ng/Kg		88	70 - 133
OCDD	200	202		ng/Kg		101	77 - 125
OCDF	200	199		ng/Kg		99	75 - 128

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-OCDF	91		40 - 135
13C-OCDD	92		40 - 135
13C-2,3,7,8-TCDF	75		40 - 135
13C-2,3,7,8-TCDD	72		40 - 135
13C-2,3,4,7,8-PeCDF	77		40 - 135
13C-2,3,4,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDD	89		40 - 135
13C-1,2,3,7,8-PeCDF	76		40 - 135
13C-1,2,3,7,8-PeCDD	70		40 - 135
13C-1,2,3,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,6,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	92		40 - 135
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,4,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	91		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	90		40 - 135

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Specialty Organics

Prep Batch: 350542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-350542/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 350921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-350542/1-A	Method Blank	Total/NA	Solid	8290A	350542
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	8290A	350542

Analysis Batch: 351132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180588-6	WC-WS1-COMP (A1-A5)	Total/NA	Solid	8290A	350542

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Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Client Sample ID: WC-WS1-COMP (A1-A5)

Lab Sample ID: 240-180588-6

Date Collected: 02/17/23 00:00

Matrix: Solid

Date Received: 02/17/23 21:00

Percent Solids: 86.8

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	HRMS-Soxtherm			350542	RGA5	ELLE	03/06/23 12:43
Total/NA	Analysis	8290A		1	351132	DZ6A	ELLE	03/08/23 00:18

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180588-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	03-08-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	0001.01	11-30-24

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Chain of Custody Record

645235

eurolfins
Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
Company Name: Arcadis - Carolina Bryogen
Address: 7575 Hawthorne Park Dr
City/State/Zip: COLUMBUS OH
Phone: 614-271-6586
Fax:
Project Name: NS EAST PALESTONE OH
Site:
PO# 30169678

Project Manager: John Artrip
Tel/Email: Carolee Brogan@arcadis
Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
TAT if different from Below RUSH
 2 weeks
 1 week
 2 days
 1 day

Site Contact: Michelle Layton Date: 2-17-23
Lab Contact: Mike Delmonico Carrier:
COC No: 1 of 1 COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Total VOC	Total SVOC	TCP Metals	TCP VOC	TCP SVOC	TCP PEST	TCP HERBS	TOTAL PBS
						Y	N	Y	N								
WC-WS1-A1 (2-3)	2/17/23	1447	G	S	7	X		X		X							
WC-WS1-A2 (2.5-3.5)	2/17/23	1457	G	S	7	X		X		X							
WC-WS1-A3 (3-4)	2/17/23	1510	G	S	7	X		X		X							
WC-WS1-A4 (5.6)	2/17/23	1527	G	S	7	X		X		X							
WC-WS1-A5 (1-2)	2/17/23	1537	G	S	7	X		X		X							
WC-WS1-COMP(A1-A5)	2/17/23	-	LAB Comp	S	X												
WC-WS1-A6 (3-4)	2/17/23	1617	G	S	7	X		X		X							
WC-WS1-A7 (2-3)	2/17/23	1627	G	S	7	X		X		X							
WC-WS1-AB (4-5)	2/17/23	1637	G	S	7	X		X		X							
WC-WS1-A9 (3-4)	2/17/23	1643	G	S	7	X		X		X							
WC-WS1-A10 (2-3)	2/17/23	1657	G	S	7	X		X		X							
WC-WS1-COMP (A6-A10)	2/17/23	-	LAB Comp	S	X												

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other

Possible Hazard Identification: LD43 VINYL CHLORIDE

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments:
LAB TO GERATE COMPOSITE SAMPLES CONTAINING 5 GRAB SAMPLES EACH

Custody Seal No.:
Company: Arcadis
Date/Time: 2/17/23 1424

Received by: Michelle Clyb
Date/Time: 2/17/23 2100

Company: EFTNC
Date/Time: 2-17-23 2100

Received in Laboratory by:
Date/Time:



Eurofins - Canton Sample Receipt Form/Narrative Login # : 180588
Barberton Facility


Client Arcadis Site Name NSRR-ER Cooler unpacked by: [Signature]
Cooler Received on 2-17-23 Opened on 2-17-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courtes Other _____
Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01109014 Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 180588

Eurofins - Canton Sample Receipt Multiple Cooler Form											
Cooler Description (Circle)				IR Gun # (Circle)			Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
<u>EC</u>	Client	Box	Other	<u>IR-13</u>	IR-16	IR-17	5.7	5.5	<u>Wet Ice</u>	Blue Ice	Dry Ice
									Water	None	
<u>EC</u>	Client	Box	Other	<u>IR-13</u>	IR-16	IR-17	4.8	4.6	<u>Wet Ice</u>	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
									Water	None	
<input type="checkbox"/> See Temperature Excursion Form											

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Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180588-2

Login Number: 180588

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/21/23 09:17 AM

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (<=/6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (<=/6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180588-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-180588-6	WC-WS1-COMP (A1-A5)	51	51	54	56	54	48	51	53
LCS 410-350542/2-A	Lab Control Sample	91	92	75	72	77	87	87	89
MB 410-350542/1-A	Method Blank	89	88	72	68	76	81	82	83

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-180588-6	WC-WS1-COMP (A1-A5)	58	55	60	57	55	60	56	60
LCS 410-350542/2-A	Lab Control Sample	76	70	87	84	92	83	84	91
MB 410-350542/1-A	Method Blank	72	69	84	80	86	79	78	85

		HpCDD (40-135)
Lab Sample ID	Client Sample ID	
240-180588-6	WC-WS1-COMP (A1-A5)	56
LCS 410-350542/2-A	Lab Control Sample	90
MB 410-350542/1-A	Method Blank	86

Surrogate Legend

- OCDF = 13C-OCDF
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- TCDD = 13C-2,3,7,8-TCDD
- PeCF = 13C-2,3,4,7,8-PeCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 2/25/2023 1:03:04 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180645-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Job ID: 240-180645-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180645-1

Comments

No additional comments.

Receipt

The samples were received on 2/18/2023 7:05 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6° C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563103 was outside the method criteria for the following analytes: Carbon disulfide, Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563303 was outside the method criteria for the following analytes: Carbon disulfide, Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563308 was outside the method criteria for the following analytes: Bromomethane, Carbon disulfide and Chloroethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The MS/MSD for preparation batch 240-562783 and analytical batch 240-563103 is not reported because it was analyzed in another batch.

Method 8260D: The MS/MSD for preparation batch 240-562783 and analytical batch 240-563308 is not reported because it was analyzed in another batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-WS2-11 (7-8') (240-180645-1), WC-WS2-12 (7-8') (240-180645-2), WC-WS2-13 (9-10') (240-180645-3), WC-WS2-14 (10-11') (240-180645-4), (240-180645-G-1-B MS) and (240-180645-G-1-C MSD). Elevated reporting limits (RLs) are provided.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563049 recovered above the upper control limit for 2-Nitrophenol and Atrazine. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-WS2-11 (7-8') (240-180645-1), WC-WS2-12 (7-8') (240-180645-2), WC-WS2-13 (9-10') (240-180645-3) and WC-WS2-14 (10-11') (240-180645-4).

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563049 recovered outside acceptance criteria, low biased, for bis (2-chloroisopropyl) ether and 4-Nitrophenol. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples: WC-WS2-11 (7-8') (240-180645-1), WC-WS2-12 (7-8') (240-180645-2), WC-WS2-13 (9-10') (240-180645-3) and WC-WS2-14 (10-11') (240-180645-4) were non-detect for the analytes, the data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Job ID: 240-180645-1 (Continued)

Laboratory: Eurofins Canton (Continued)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
3010A	Preparation, Total Metals	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180645-1	WC-WS2-11 (7-8')	Solid	02/18/23 17:35	02/18/23 19:05
240-180645-2	WC-WS2-12 (7-8')	Solid	02/18/23 17:45	02/18/23 19:05
240-180645-3	WC-WS2-13 (9-10')	Solid	02/18/23 17:59	02/18/23 19:05
240-180645-4	WC-WS2-14 (10-11')	Solid	02/18/23 18:10	02/18/23 19:05

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- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.1	F1	0.92	0.12	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]anthracene	0.53	J	0.92	0.21	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.62	J	0.92	0.40	mg/Kg	50	✳	8270E	Total/NA
Chrysene	0.67	J	0.92	0.091	mg/Kg	50	✳	8270E	Total/NA
Dibenzofuran	0.83	J	3.1	0.79	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	0.82	J	0.92	0.27	mg/Kg	50	✳	8270E	Total/NA
Naphthalene	2.0		0.92	0.15	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	1.7		0.92	0.14	mg/Kg	50	✳	8270E	Total/NA
Pyrene	0.79	J	0.92	0.13	mg/Kg	50	✳	8270E	Total/NA
Barium	0.30	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00081	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0083	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.2		0.45	0.059	mg/Kg	25	✳	8270E	Total/NA
Acenaphthylene	0.15	J	0.45	0.12	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.14	J	0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.44	J	0.45	0.10	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	0.32	J	0.45	0.28	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.51		0.45	0.19	mg/Kg	25	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.27	J	0.45	0.21	mg/Kg	25	✳	8270E	Total/NA
Chrysene	0.64		0.45	0.044	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	0.93	J	1.5	0.39	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	0.70		0.45	0.13	mg/Kg	25	✳	8270E	Total/NA
Fluorene	0.14	J	0.45	0.082	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	2.1		0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	1.8		0.45	0.067	mg/Kg	25	✳	8270E	Total/NA
Pyrene	0.73		0.45	0.064	mg/Kg	25	✳	8270E	Total/NA
Barium	0.82	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0010	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0070	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.1		0.45	0.059	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.22	J	0.45	0.086	mg/Kg	25	✳	8270E	Total/NA
Acenaphthylene	0.18	J	0.45	0.12	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.32	J	0.45	0.073	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.90		0.45	0.10	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	0.53		0.45	0.28	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.1		0.45	0.20	mg/Kg	25	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.39	J	0.45	0.21	mg/Kg	25	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.36	J	0.45	0.21	mg/Kg	25	✳	8270E	Total/NA
Chrysene	1.2		0.45	0.045	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	0.92	J	1.5	0.39	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	1.9		0.45	0.13	mg/Kg	25	✳	8270E	Total/NA
Fluorene	0.19	J	0.45	0.082	mg/Kg	25	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.35	J	0.45	0.22	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	2.0		0.45	0.073	mg/Kg	25	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-13 (9-10') (Continued)

Lab Sample ID: 240-180645-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phenanthrene	1.9		0.45	0.067	mg/Kg	25	✳	8270E	Total/NA
Pyrene	1.5		0.45	0.064	mg/Kg	25	✳	8270E	Total/NA
Barium	0.31	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0080	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	1.1		0.48	0.062	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.20	J	0.48	0.11	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.25	J	0.48	0.21	mg/Kg	25	✳	8270E	Total/NA
Chrysene	0.29	J	0.48	0.047	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	0.34	J	0.48	0.14	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	0.68		0.48	0.076	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	0.58		0.48	0.071	mg/Kg	25	✳	8270E	Total/NA
Pyrene	0.34	J	0.48	0.068	mg/Kg	25	✳	8270E	Total/NA
Barium	0.33	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00097	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0078	J	0.050	0.0028	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Date Collected: 02/18/23 17:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		27	8.3	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,1,2,2-Tetrachloroethane	ND		27	16	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		27	7.1	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,1,2-Trichloroethane	ND		27	6.1	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,1-Dichloroethane	ND		27	5.1	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,1-Dichloroethene	ND		27	8.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,2,4-Trichlorobenzene	ND		27	14	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,2-Dibromo-3-Chloropropane	ND		53	24	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Ethylene Dibromide	ND		27	8.4	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,2-Dichlorobenzene	ND		27	13	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,2-Dichloroethane	ND		27	5.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,2-Dichloropropane	ND		27	3.9	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,3-Dichlorobenzene	ND		27	4.9	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
1,4-Dichlorobenzene	ND		27	5.8	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
2-Butanone (MEK)	ND		110	17	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
2-Hexanone	ND		110	28	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
4-Methyl-2-pentanone (MIBK)	ND		110	25	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Acetone	ND		110	26	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Benzene	ND		27	4.5	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Dichlorobromomethane	ND		27	6.5	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Bromoform	ND		27	24	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Bromomethane	ND		27	18	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Carbon disulfide	ND		27	11	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Carbon tetrachloride	ND		27	11	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Chlorobenzene	ND		27	3.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Chloroethane	ND		27	16	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Chloroform	ND		27	5.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Chloromethane	ND		27	7.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
cis-1,2-Dichloroethene	ND		27	4.3	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
cis-1,3-Dichloropropene	ND		27	13	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Cyclohexane	ND		53	17	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Chlorodibromomethane	ND		27	12	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Dichlorodifluoromethane	ND		27	5.6	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Ethylbenzene	ND		27	5.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Isopropylbenzene	ND		27	4.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Methyl acetate	ND		130	18	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Methyl tert-butyl ether	ND		27	3.9	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Methylcyclohexane	ND		53	7.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Methylene Chloride	ND		53	41	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Styrene	ND		27	5.5	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Tetrachloroethene	ND		27	10	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Toluene	ND		27	26	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
trans-1,2-Dichloroethene	ND		27	6.6	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
trans-1,3-Dichloropropene	ND		27	11	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Trichloroethene	ND		27	15	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Trichlorofluoromethane	ND		27	15	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100
Vinyl chloride	ND		0.27	0.13	mg/Kg	✱	02/20/23 16:48	02/24/23 20:58	1
Xylenes, Total	ND		53	9.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:01	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Date Collected: 02/18/23 17:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/20/23 16:48	02/24/23 20:01	100
Toluene-d8 (Surr)	103		56 - 125	02/20/23 16:48	02/24/23 20:58	1
Dibromofluoromethane (Surr)	101		41 - 138	02/20/23 16:48	02/24/23 20:01	100
Dibromofluoromethane (Surr)	82		41 - 138	02/20/23 16:48	02/24/23 20:58	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/20/23 16:48	02/24/23 20:01	100
4-Bromofluorobenzene (Surr)	86		41 - 143	02/20/23 16:48	02/24/23 20:58	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/20/23 16:48	02/24/23 20:01	100
1,2-Dichloroethane-d4 (Surr)	76		58 - 125	02/20/23 16:48	02/24/23 20:58	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.1	1.0	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
bis (2-chloroisopropyl) ether	ND	F1	6.1	0.61	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,4,5-Trichlorophenol	ND		9.2	4.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,4,6-Trichlorophenol	ND		9.2	3.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,4-Dichlorophenol	ND		9.2	2.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,4-Dimethylphenol	ND		9.2	2.4	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,4-Dinitrophenol	ND		20	8.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,4-Dinitrotoluene	ND		12	3.8	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2,6-Dinitrotoluene	ND		12	3.4	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2-Chloronaphthalene	ND		3.1	0.86	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2-Chlorophenol	ND	F1	3.1	0.61	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2-Methylnaphthalene	3.1	F1	0.92	0.12	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2-Methylphenol	ND		12	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2-Nitroaniline	ND		12	2.4	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
2-Nitrophenol	ND	F1	3.1	0.79	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
3,3'-Dichlorobenzidine	ND		6.1	2.6	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
3-Nitroaniline	ND		12	3.0	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4,6-Dinitro-2-methylphenol	ND		20	4.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4-Bromophenyl phenyl ether	ND		3.1	0.86	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4-Chloro-3-methylphenol	ND		9.2	2.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4-Chloroaniline	ND		9.2	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4-Chlorophenyl phenyl ether	ND		3.1	0.86	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4-Nitroaniline	ND		12	3.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
4-Nitrophenol	ND		20	5.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Acenaphthene	ND		0.92	0.17	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Acenaphthylene	ND		0.92	0.24	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Acetophenone	ND		6.1	0.67	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Anthracene	ND		0.92	0.15	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Atrazine	ND		12	2.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Benzaldehyde	ND	F1	6.1	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Benzo[a]anthracene	0.53	J	0.92	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Benzo[a]pyrene	ND		0.92	0.57	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Benzo[b]fluoranthene	0.62	J	0.92	0.40	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Benzo[g,h,i]perylene	ND		0.92	0.43	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Benzo[k]fluoranthene	ND		0.92	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Bis(2-chloroethoxy)methane	ND	F1	6.1	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Bis(2-chloroethyl)ether	ND	F1	6.1	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Bis(2-ethylhexyl) phthalate	ND		4.3	3.1	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Butyl benzyl phthalate	ND		4.3	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Date Collected: 02/18/23 17:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		20	4.6	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Carbazole	ND		3.1	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Chrysene	0.67	J	0.92	0.091	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Dibenz(a,h)anthracene	ND		0.92	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Dibenzofuran	0.83	J	3.1	0.79	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Diethyl phthalate	ND		4.3	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Dimethyl phthalate	ND		4.3	0.86	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Di-n-butyl phthalate	ND		4.3	3.1	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Di-n-octyl phthalate	ND		4.3	1.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Fluoranthene	0.82	J	0.92	0.27	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Fluorene	ND		0.92	0.17	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Hexachlorobenzene	ND		0.92	0.17	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Hexachlorobutadiene	ND	F1	3.1	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Hexachlorocyclopentadiene	ND		20	3.8	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Hexachloroethane	ND	F1	3.1	0.55	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Indeno[1,2,3-cd]pyrene	ND		0.92	0.45	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Isophorone	ND	F1	3.1	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
N-Nitrosodi-n-propylamine	ND	F1	3.1	0.67	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
N-Nitrosodiphenylamine	ND	F1	3.1	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Naphthalene	2.0		0.92	0.15	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Nitrobenzene	ND	F1	6.1	0.79	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Pentachlorophenol	ND		9.2	3.5	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Phenanthrene	1.7		0.92	0.14	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Phenol	ND	F1	3.1	0.49	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
Pyrene	0.79	J	0.92	0.13	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50
3 & 4 Methylphenol	ND		24	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 20:27	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	98		46 - 137	02/20/23 10:04	02/22/23 20:27	50
Phenol-d5 (Surr)	0	S1-	26 - 120	02/20/23 10:04	02/22/23 20:27	50
Nitrobenzene-d5 (Surr)	61		25 - 120	02/20/23 10:04	02/22/23 20:27	50
2-Fluorophenol (Surr)	70		20 - 120	02/20/23 10:04	02/22/23 20:27	50
2-Fluorobiphenyl (Surr)	88		34 - 120	02/20/23 10:04	02/22/23 20:27	50
2,4,6-Tribromophenol (Surr)	200	S1+	10 - 120	02/20/23 10:04	02/22/23 20:27	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:52	1
Barium	0.30	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:52	1
Cadmium	0.00081	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:52	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:52	1
Lead	0.0083	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:52	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:52	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:52	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:40	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Date Collected: 02/18/23 17:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.3		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	18.7		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Date Collected: 02/18/23 17:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		70	22	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,1,2,2-Tetrachloroethane	ND		70	42	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		70	19	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,1,2-Trichloroethane	ND		70	16	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,1-Dichloroethane	ND		70	14	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,1-Dichloroethene	ND		70	23	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,2,4-Trichlorobenzene	ND		70	37	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,2-Dibromo-3-Chloropropane	ND		140	62	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Ethylene Dibromide	ND		70	22	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,2-Dichlorobenzene	ND		70	34	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,2-Dichloroethane	ND		70	13	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,2-Dichloropropane	ND		70	10	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,3-Dichlorobenzene	ND		70	13	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
1,4-Dichlorobenzene	ND		70	15	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
2-Butanone (MEK)	ND		280	44	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
2-Hexanone	ND		280	74	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
4-Methyl-2-pentanone (MIBK)	ND		280	67	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Acetone	ND		280	69	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Benzene	ND		70	12	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Dichlorobromomethane	ND		70	17	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Bromoform	ND		70	64	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Bromomethane	ND		70	47	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Carbon disulfide	ND		70	30	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Carbon tetrachloride	ND		70	29	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Chlorobenzene	ND		70	9.9	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Chloroethane	ND		70	42	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Chloroform	ND		70	15	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Chloromethane	ND		70	19	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
cis-1,2-Dichloroethene	ND		70	11	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
cis-1,3-Dichloropropene	ND		70	35	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Cyclohexane	ND		140	46	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Chlorodibromomethane	ND		70	33	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Dichlorodifluoromethane	ND		70	15	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Ethylbenzene	ND		70	13	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Isopropylbenzene	ND		70	11	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Methyl acetate	ND		350	47	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Methyl tert-butyl ether	ND		70	10	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Methylcyclohexane	ND		140	19	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Methylene Chloride	ND		140	110	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Styrene	ND		70	15	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Tetrachloroethene	ND		70	27	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Toluene	ND		70	68	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
trans-1,2-Dichloroethene	ND		70	17	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
trans-1,3-Dichloropropene	ND		70	30	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Trichloroethene	ND		70	40	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Trichlorofluoromethane	ND		70	39	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250
Vinyl chloride	ND		0.28	0.14	mg/Kg	✱	02/20/23 16:48	02/24/23 21:22	1
Xylenes, Total	ND		140	26	mg/Kg	✱	02/20/23 16:48	02/23/23 17:18	250

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Date Collected: 02/18/23 17:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125	02/20/23 16:48	02/23/23 17:18	250
Toluene-d8 (Surr)	103		56 - 125	02/20/23 16:48	02/24/23 21:22	1
Dibromofluoromethane (Surr)	79		41 - 138	02/20/23 16:48	02/23/23 17:18	250
Dibromofluoromethane (Surr)	81		41 - 138	02/20/23 16:48	02/24/23 21:22	1
4-Bromofluorobenzene (Surr)	73		41 - 143	02/20/23 16:48	02/23/23 17:18	250
4-Bromofluorobenzene (Surr)	82		41 - 143	02/20/23 16:48	02/24/23 21:22	1
1,2-Dichloroethane-d4 (Surr)	80		58 - 125	02/20/23 16:48	02/23/23 17:18	250
1,2-Dichloroethane-d4 (Surr)	75		58 - 125	02/20/23 16:48	02/24/23 21:22	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,4-Dinitrophenol	ND		9.9	4.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2-Methylnaphthalene	3.2		0.45	0.059	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2-Methylphenol	ND		6.0	0.93	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4,6-Dinitro-2-methylphenol	ND		9.9	2.4	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4-Chloro-3-methylphenol	ND		4.5	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4-Chloroaniline	ND		4.5	0.90	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
4-Nitrophenol	ND		9.9	2.8	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Acenaphthene	ND		0.45	0.085	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Acenaphthylene	0.15	J	0.45	0.12	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Acetophenone	ND		3.0	0.33	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Anthracene	0.14	J	0.45	0.072	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Benzo[a]anthracene	0.44	J	0.45	0.10	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Benzo[a]pyrene	0.32	J	0.45	0.28	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Benzo[b]fluoranthene	0.51		0.45	0.19	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Benzo[g,h,i]perylene	0.27	J	0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Benzo[k]fluoranthene	ND		0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Date Collected: 02/18/23 17:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		9.9	2.2	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Carbazole	ND		1.5	0.57	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Chrysene	0.64		0.45	0.044	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Dibenzofuran	0.93	J	1.5	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Diethyl phthalate	ND		2.1	0.93	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Di-n-octyl phthalate	ND		2.1	0.84	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Fluoranthene	0.70		0.45	0.13	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Fluorene	0.14	J	0.45	0.082	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Hexachlorobenzene	ND		0.45	0.085	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Hexachlorocyclopentadiene	ND		9.9	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Hexachloroethane	ND		1.5	0.27	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Indeno[1,2,3-cd]pyrene	ND		0.45	0.22	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Isophorone	ND		1.5	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Naphthalene	2.1		0.45	0.072	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Nitrobenzene	ND		3.0	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Pentachlorophenol	ND		4.5	1.7	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Phenanthrene	1.8		0.45	0.067	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Phenol	ND		1.5	0.24	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
Pyrene	0.73		0.45	0.064	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25
3 & 4 Methylphenol	ND		12	0.87	mg/Kg	☼	02/20/23 10:04	02/22/23 20:03	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	81		46 - 137	02/20/23 10:04	02/22/23 20:03	25
Phenol-d5 (Surr)	0	S1-	26 - 120	02/20/23 10:04	02/22/23 20:03	25
Nitrobenzene-d5 (Surr)	61		25 - 120	02/20/23 10:04	02/22/23 20:03	25
2-Fluorophenol (Surr)	57		20 - 120	02/20/23 10:04	02/22/23 20:03	25
2-Fluorobiphenyl (Surr)	74		34 - 120	02/20/23 10:04	02/22/23 20:03	25
2,4,6-Tribromophenol (Surr)	111		10 - 120	02/20/23 10:04	02/22/23 20:03	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 12:13	1
Barium	0.82	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 12:13	1
Cadmium	0.0010	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 12:13	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 12:13	1
Lead	0.0070	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 12:13	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 12:13	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 12:13	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:52	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Date Collected: 02/18/23 17:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.7		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	16.3		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Date Collected: 02/18/23 17:59

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		26	8.0	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,1,2,2-Tetrachloroethane	ND		26	15	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		26	6.8	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,1,2-Trichloroethane	ND		26	5.8	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,1-Dichloroethane	ND		26	4.9	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,1-Dichloroethene	ND		26	8.4	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,2,4-Trichlorobenzene	ND		26	14	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,2-Dibromo-3-Chloropropane	ND		51	23	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Ethylene Dibromide	ND		26	8.1	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,2-Dichlorobenzene	ND		26	12	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,2-Dichloroethane	ND		26	4.8	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,2-Dichloropropane	ND		26	3.8	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,3-Dichlorobenzene	ND		26	4.7	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
1,4-Dichlorobenzene	ND		26	5.6	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
2-Butanone (MEK)	ND		100	16	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
2-Hexanone	ND		100	27	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
4-Methyl-2-pentanone (MIBK)	ND		100	24	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Acetone	ND		100	25	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Benzene	ND		26	4.3	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Dichlorobromomethane	ND		26	6.2	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Bromoform	ND		26	23	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Bromomethane	ND		26	17	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Carbon disulfide	ND		26	11	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Carbon tetrachloride	ND		26	10	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Chlorobenzene	ND		26	3.6	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Chloroethane	ND		26	15	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Chloroform	ND		26	5.5	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Chloromethane	ND		26	6.7	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
cis-1,2-Dichloroethene	ND		26	4.1	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
cis-1,3-Dichloropropene	ND		26	13	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Cyclohexane	ND		51	17	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Chlorodibromomethane	ND		26	12	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Dichlorodifluoromethane	ND		26	5.4	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Ethylbenzene	ND		26	4.8	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Isopropylbenzene	ND		26	3.9	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Methyl acetate	ND		130	17	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Methyl tert-butyl ether	ND		26	3.8	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Methylcyclohexane	ND		51	6.7	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Methylene Chloride	ND		51	39	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Styrene	ND		26	5.3	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Tetrachloroethene	ND		26	9.9	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Toluene	ND		26	24	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
trans-1,2-Dichloroethene	ND		26	6.3	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
trans-1,3-Dichloropropene	ND		26	11	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Trichloroethene	ND		26	15	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Trichlorofluoromethane	ND		26	14	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100
Vinyl chloride	ND		0.26	0.13	mg/Kg	✳	02/20/23 16:48	02/24/23 21:46	1
Xylenes, Total	ND		51	9.3	mg/Kg	✳	02/20/23 16:48	02/24/23 20:26	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Date Collected: 02/18/23 17:59

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		56 - 125	02/20/23 16:48	02/24/23 20:26	100
Toluene-d8 (Surr)	103		56 - 125	02/20/23 16:48	02/24/23 21:46	1
Dibromofluoromethane (Surr)	104		41 - 138	02/20/23 16:48	02/24/23 20:26	100
Dibromofluoromethane (Surr)	83		41 - 138	02/20/23 16:48	02/24/23 21:46	1
4-Bromofluorobenzene (Surr)	108		41 - 143	02/20/23 16:48	02/24/23 20:26	100
4-Bromofluorobenzene (Surr)	86		41 - 143	02/20/23 16:48	02/24/23 21:46	1
1,2-Dichloroethane-d4 (Surr)	112		58 - 125	02/20/23 16:48	02/24/23 20:26	100
1,2-Dichloroethane-d4 (Surr)	72		58 - 125	02/20/23 16:48	02/24/23 21:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,4-Dinitrophenol	ND		9.9	4.3	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2-Methylnaphthalene	3.1		0.45	0.059	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2-Methylphenol	ND		6.0	0.93	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4,6-Dinitro-2-methylphenol	ND		9.9	2.4	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4-Chloro-3-methylphenol	ND		4.5	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4-Chloroaniline	ND		4.5	0.90	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
4-Nitrophenol	ND		9.9	2.8	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Acenaphthene	0.22	J	0.45	0.086	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Acenaphthylene	0.18	J	0.45	0.12	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Acetophenone	ND		3.0	0.33	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Anthracene	0.32	J	0.45	0.073	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Benzo[a]anthracene	0.90		0.45	0.10	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Benzo[a]pyrene	0.53		0.45	0.28	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Benzo[b]fluoranthene	1.1		0.45	0.20	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Benzo[g,h,i]perylene	0.39	J	0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Benzo[k]fluoranthene	0.36	J	0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Date Collected: 02/18/23 17:59

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		9.9	2.3	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Carbazole	ND		1.5	0.57	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Chrysene	1.2		0.45	0.045	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Dibenzofuran	0.92	J	1.5	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Diethyl phthalate	ND		2.1	0.93	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Di-n-octyl phthalate	ND		2.1	0.84	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Fluoranthene	1.9		0.45	0.13	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Fluorene	0.19	J	0.45	0.082	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Hexachlorobenzene	ND		0.45	0.086	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Hexachlorocyclopentadiene	ND		9.9	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Hexachloroethane	ND		1.5	0.27	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Indeno[1,2,3-cd]pyrene	0.35	J	0.45	0.22	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Isophorone	ND		1.5	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Naphthalene	2.0		0.45	0.073	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Nitrobenzene	ND		3.0	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Pentachlorophenol	ND		4.5	1.7	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Phenanthrene	1.9		0.45	0.067	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Phenol	ND		1.5	0.24	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
Pyrene	1.5		0.45	0.064	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25
3 & 4 Methylphenol	ND		12	0.87	mg/Kg	☼	02/20/23 10:04	02/22/23 19:15	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	81		46 - 137	02/20/23 10:04	02/22/23 19:15	25
Phenol-d5 (Surr)	0	S1-	26 - 120	02/20/23 10:04	02/22/23 19:15	25
Nitrobenzene-d5 (Surr)	53		25 - 120	02/20/23 10:04	02/22/23 19:15	25
2-Fluorophenol (Surr)	69		20 - 120	02/20/23 10:04	02/22/23 19:15	25
2-Fluorobiphenyl (Surr)	77		34 - 120	02/20/23 10:04	02/22/23 19:15	25
2,4,6-Tribromophenol (Surr)	126	S1+	10 - 120	02/20/23 10:04	02/22/23 19:15	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 12:26	1
Barium	0.31	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 12:26	1
Cadmium	0.0012	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 12:26	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 12:26	1
Lead	0.0080	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 12:26	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 12:26	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 12:26	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:54	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Date Collected: 02/18/23 17:59

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.0		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	17.0		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Date Collected: 02/18/23 18:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		26	8.2	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,1,2,2-Tetrachloroethane	ND		26	16	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		26	7.1	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,1,2-Trichloroethane	ND		26	6.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,1-Dichloroethane	ND		26	5.1	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,1-Dichloroethene	ND		26	8.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,2,4-Trichlorobenzene	ND		26	14	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,2-Dibromo-3-Chloropropane	ND		53	23	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Ethylene Dibromide	ND		26	8.3	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,2-Dichlorobenzene	ND		26	13	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,2-Dichloroethane	ND		26	5.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,2-Dichloropropane	ND		26	3.9	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,3-Dichlorobenzene	ND		26	4.9	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
1,4-Dichlorobenzene	ND		26	5.8	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
2-Butanone (MEK)	ND		110	17	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
2-Hexanone	ND		110	28	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
4-Methyl-2-pentanone (MIBK)	ND		110	25	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Acetone	ND		110	26	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Benzene	ND		26	4.4	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Dichlorobromomethane	ND		26	6.4	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Bromoform	ND		26	24	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Bromomethane	ND		26	18	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Carbon disulfide	ND		26	11	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Carbon tetrachloride	ND		26	11	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Chlorobenzene	ND		26	3.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Chloroethane	ND		26	16	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Chloroform	ND		26	5.7	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Chloromethane	ND		26	7.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
cis-1,2-Dichloroethene	ND		26	4.2	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
cis-1,3-Dichloropropene	ND		26	13	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Cyclohexane	ND		53	17	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Chlorodibromomethane	ND		26	12	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Dichlorodifluoromethane	ND		26	5.6	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Ethylbenzene	ND		26	5.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Isopropylbenzene	ND		26	4.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Methyl acetate	ND		130	18	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Methyl tert-butyl ether	ND		26	3.9	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Methylcyclohexane	ND		53	7.0	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Methylene Chloride	ND		53	40	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Styrene	ND		26	5.5	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Tetrachloroethene	ND		26	10	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Toluene	ND		26	25	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
trans-1,2-Dichloroethene	ND		26	6.5	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
trans-1,3-Dichloropropene	ND		26	11	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Trichloroethene	ND		26	15	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Trichlorofluoromethane	ND		26	14	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100
Vinyl chloride	ND		0.26	0.13	mg/Kg	✱	02/20/23 16:48	02/24/23 22:10	1
Xylenes, Total	ND		53	9.6	mg/Kg	✱	02/20/23 16:48	02/24/23 20:51	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Date Collected: 02/18/23 18:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/20/23 16:48	02/24/23 20:51	100
Toluene-d8 (Surr)	105		56 - 125	02/20/23 16:48	02/24/23 22:10	1
Dibromofluoromethane (Surr)	103		41 - 138	02/20/23 16:48	02/24/23 20:51	100
Dibromofluoromethane (Surr)	82		41 - 138	02/20/23 16:48	02/24/23 22:10	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/20/23 16:48	02/24/23 20:51	100
4-Bromofluorobenzene (Surr)	86		41 - 143	02/20/23 16:48	02/24/23 22:10	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/20/23 16:48	02/24/23 20:51	100
1,2-Dichloroethane-d4 (Surr)	73		58 - 125	02/20/23 16:48	02/24/23 22:10	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.54	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
bis (2-chloroisopropyl) ether	ND		3.2	0.32	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,4,5-Trichlorophenol	ND		4.8	2.2	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,4,6-Trichlorophenol	ND		4.8	2.0	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,4-Dichlorophenol	ND		4.8	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,4-Dimethylphenol	ND		4.8	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,4-Dinitrophenol	ND		10	4.5	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,4-Dinitrotoluene	ND		6.3	2.0	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2,6-Dinitrotoluene	ND		6.3	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2-Chloronaphthalene	ND		1.6	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2-Chlorophenol	ND		1.6	0.32	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2-Methylnaphthalene	1.1		0.48	0.062	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2-Methylphenol	ND		6.3	0.98	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2-Nitroaniline	ND		6.3	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
2-Nitrophenol	ND		1.6	0.41	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
3,3'-Dichlorobenzidine	ND		3.2	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
3-Nitroaniline	ND		6.3	1.6	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4-Bromophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4-Chloro-3-methylphenol	ND		4.8	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4-Chloroaniline	ND		4.8	0.95	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4-Chlorophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4-Nitroaniline	ND		6.3	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
4-Nitrophenol	ND		10	3.0	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Acenaphthene	ND		0.48	0.091	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Acenaphthylene	ND		0.48	0.13	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Acetophenone	ND		3.2	0.35	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Anthracene	ND		0.48	0.076	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Atrazine	ND		6.3	1.1	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Benzaldehyde	ND		3.2	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Benzo[a]anthracene	0.20 J		0.48	0.11	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Benzo[a]pyrene	ND		0.48	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Benzo[b]fluoranthene	0.25 J		0.48	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Benzo[g,h,i]perylene	ND		0.48	0.23	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Benzo[k]fluoranthene	ND		0.48	0.22	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Bis(2-chloroethoxy)methane	ND		3.2	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Bis(2-chloroethyl)ether	ND		3.2	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Butyl benzyl phthalate	ND		2.2	0.70	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Date Collected: 02/18/23 18:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.4	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Carbazole	ND		1.6	0.60	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Chrysene	0.29	J	0.48	0.047	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Dibenz(a,h)anthracene	ND		0.48	0.22	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Dibenzofuran	ND		1.6	0.41	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Diethyl phthalate	ND		2.2	0.98	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Dimethyl phthalate	ND		2.2	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Di-n-octyl phthalate	ND		2.2	0.89	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Fluoranthene	0.34	J	0.48	0.14	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Fluorene	ND		0.48	0.087	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Hexachlorobenzene	ND		0.48	0.090	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Hexachlorobutadiene	ND		1.6	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Hexachlorocyclopentadiene	ND		10	2.0	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Hexachloroethane	ND		1.6	0.29	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Indeno[1,2,3-cd]pyrene	ND		0.48	0.23	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Isophorone	ND		1.6	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
N-Nitrosodi-n-propylamine	ND		1.6	0.35	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
N-Nitrosodiphenylamine	ND		1.6	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Naphthalene	0.68		0.48	0.076	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Nitrobenzene	ND		3.2	0.41	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Pentachlorophenol	ND		4.8	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Phenanthrene	0.58		0.48	0.071	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Phenol	ND		1.6	0.25	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Pyrene	0.34	J	0.48	0.068	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
3 & 4 Methylphenol	ND		13	0.92	mg/Kg	☼	02/20/23 10:04	02/22/23 19:39	25
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	32	S1-	46 - 137				02/20/23 10:04	02/22/23 19:39	25
Phenol-d5 (Surr)	0	S1-	26 - 120				02/20/23 10:04	02/22/23 19:39	25
Nitrobenzene-d5 (Surr)	23	S1-	25 - 120				02/20/23 10:04	02/22/23 19:39	25
2-Fluorophenol (Surr)	22		20 - 120				02/20/23 10:04	02/22/23 19:39	25
2-Fluorobiphenyl (Surr)	28	S1-	34 - 120				02/20/23 10:04	02/22/23 19:39	25
2,4,6-Tribromophenol (Surr)	102		10 - 120				02/20/23 10:04	02/22/23 19:39	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 12:30	1
Barium	0.33	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 12:30	1
Cadmium	0.00097	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 12:30	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 12:30	1
Lead	0.0078	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 12:30	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 12:30	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 12:30	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:56	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Date Collected: 02/18/23 18:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.2		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	20.8		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180645-1	WC-WS2-11 (7-8')	105	101	106	109
240-180645-1	WC-WS2-11 (7-8')	103	82	86	76
240-180645-2	WC-WS2-12 (7-8')	78	79	73	80
240-180645-2	WC-WS2-12 (7-8')	103	81	82	75
240-180645-3	WC-WS2-13 (9-10')	108	104	108	112
240-180645-3	WC-WS2-13 (9-10')	103	83	86	72
240-180645-4	WC-WS2-14 (10-11')	107	103	106	109
240-180645-4	WC-WS2-14 (10-11')	105	82	86	73
LCS 240-562783/2-A	Lab Control Sample	108	104	106	104
LCS 240-562783/2-A	Lab Control Sample	91	83	101	77
MB 240-562783/1-A	Method Blank	105	93	104	107
MB 240-562783/1-A	Method Blank	94	83	102	74

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180645-1	WC-WS2-11 (7-8')	98	0 S1-	61	70	88	200 S1+
240-180645-1 MS	WC-WS2-11 (7-8')	82	0 S1-	53	58	63	168 S1+
240-180645-1 MSD	WC-WS2-11 (7-8')	92	0 S1-	51	74	73	198 S1+
240-180645-2	WC-WS2-12 (7-8')	81	0 S1-	61	57	74	111
240-180645-3	WC-WS2-13 (9-10')	81	0 S1-	53	69	77	126 S1+
240-180645-4	WC-WS2-14 (10-11')	32 S1-	0 S1-	23 S1-	22	28 S1-	102
LCS 240-562719/25-A	Lab Control Sample	128	59	57	54	85	41
LCS 240-562719/26-A	Lab Control Sample	132	64	61	56	88	43
LCS 240-562719/2-A	Lab Control Sample	110	74	62	75	92	107
MB 240-562719/1-A	Method Blank	112	56	56	51	81	45

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-562783/1-A
Matrix: Solid
Analysis Batch: 563092

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562783

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Acetone	ND		1.0	0.24	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Benzene	ND		0.25	0.042	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Bromoform	ND		0.25	0.23	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Chloroform	ND		0.25	0.054	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Styrene	ND		0.25	0.052	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Toluene	ND		0.25	0.24	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/20/23 16:48	02/23/23 08:26	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/20/23 16:48	02/23/23 08:26	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562783/1-A

Matrix: Solid

Analysis Batch: 563092

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562783

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	105		56 - 125	02/20/23 16:48	02/23/23 08:26	1
Dibromofluoromethane (Surr)	93		41 - 138	02/20/23 16:48	02/23/23 08:26	1
4-Bromofluorobenzene (Surr)	104		41 - 143	02/20/23 16:48	02/23/23 08:26	1
1,2-Dichloroethane-d4 (Surr)	107		58 - 125	02/20/23 16:48	02/23/23 08:26	1

Lab Sample ID: MB 240-562783/1-A

Matrix: Solid

Analysis Batch: 563382

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 562783

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/20/23 16:48	02/24/23 20:10	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	94		56 - 125	02/20/23 16:48	02/24/23 20:10	1
Dibromofluoromethane (Surr)	83		41 - 138	02/20/23 16:48	02/24/23 20:10	1
4-Bromofluorobenzene (Surr)	102		41 - 143	02/20/23 16:48	02/24/23 20:10	1
1,2-Dichloroethane-d4 (Surr)	74		58 - 125	02/20/23 16:48	02/24/23 20:10	1

Lab Sample ID: LCS 240-562783/2-A

Matrix: Solid

Analysis Batch: 563092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562783

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	1.25	1.22		mg/Kg		98	74 - 136
1,1,1,2-Tetrachloroethane	1.25	1.12		mg/Kg		89	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.23		mg/Kg		98	64 - 148
1,1,2-Trichloroethane	1.25	1.24		mg/Kg		99	79 - 120
1,1-Dichloroethane	1.25	1.19		mg/Kg		95	74 - 121
1,1-Dichloroethene	1.25	1.10		mg/Kg		88	68 - 141
1,2,4-Trichlorobenzene	1.25	1.08		mg/Kg		86	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.882		mg/Kg		71	52 - 133
Ethylene Dibromide	1.25	1.18		mg/Kg		95	80 - 121
1,2-Dichlorobenzene	1.25	1.24		mg/Kg		99	73 - 120
1,2-Dichloroethane	1.25	1.21		mg/Kg		97	71 - 123
1,2-Dichloropropane	1.25	1.16		mg/Kg		92	76 - 126
1,3-Dichlorobenzene	1.25	1.18		mg/Kg		95	73 - 120
1,4-Dichlorobenzene	1.25	1.20		mg/Kg		96	74 - 120
2-Butanone (MEK)	2.50	2.43		mg/Kg		97	63 - 142
2-Hexanone	2.50	2.42		mg/Kg		97	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.35		mg/Kg		94	62 - 142
Acetone	2.50	2.71		mg/Kg		108	58 - 160
Benzene	1.25	1.25		mg/Kg		100	76 - 121
Dichlorobromomethane	1.25	1.05		mg/Kg		84	71 - 138
Bromoform	1.25	0.879		mg/Kg		70	57 - 140
Bromomethane	1.25	0.720		mg/Kg		58	10 - 171
Carbon disulfide	1.25	0.801		mg/Kg		64	43 - 152
Carbon tetrachloride	1.25	0.974		mg/Kg		78	64 - 144

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562783/2-A

Matrix: Solid

Analysis Batch: 563092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562783

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
Chlorobenzene	1.25	1.24		mg/Kg		99	80 - 120
Chloroethane	1.25	0.620		mg/Kg		50	11 - 164
Chloroform	1.25	1.21		mg/Kg		97	78 - 120
Chloromethane	1.25	1.40		mg/Kg		112	41 - 142
cis-1,2-Dichloroethene	1.25	1.23		mg/Kg		99	78 - 124
cis-1,3-Dichloropropene	1.25	1.09		mg/Kg		87	70 - 133
Cyclohexane	1.25	1.21		mg/Kg		97	65 - 137
Chlorodibromomethane	1.25	0.983		mg/Kg		79	68 - 131
Dichlorodifluoromethane	1.25	1.54		mg/Kg		123	21 - 150
Ethylbenzene	1.25	1.26		mg/Kg		101	80 - 120
Isopropylbenzene	1.25	1.28		mg/Kg		102	80 - 130
Methyl acetate	2.50	2.43		mg/Kg		97	60 - 133
Methyl tert-butyl ether	1.25	1.20		mg/Kg		96	70 - 130
Methylcyclohexane	1.25	1.22		mg/Kg		98	70 - 138
Methylene Chloride	1.25	1.32		mg/Kg		106	71 - 124
Styrene	1.25	1.28		mg/Kg		103	75 - 140
Tetrachloroethene	1.25	1.32		mg/Kg		105	76 - 127
Toluene	1.25	1.23		mg/Kg		99	80 - 120
trans-1,2-Dichloroethene	1.25	1.15		mg/Kg		92	76 - 130
trans-1,3-Dichloropropene	1.25	1.10		mg/Kg		88	61 - 121
Trichloroethene	1.25	1.24		mg/Kg		99	74 - 130
Trichlorofluoromethane	1.25	1.02		mg/Kg		82	50 - 154
Vinyl chloride	1.25	1.37		mg/Kg		110	49 - 146
Xylenes, Total	2.50	2.49		mg/Kg		100	80 - 122
m-Xylene & p-Xylene	1.25	1.25		mg/Kg		100	80 - 122
o-Xylene	1.25	1.24		mg/Kg		99	80 - 124

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	108		56 - 125
Dibromofluoromethane (Surr)	104		41 - 138
4-Bromofluorobenzene (Surr)	106		41 - 143
1,2-Dichloroethane-d4 (Surr)	104		58 - 125

Lab Sample ID: LCS 240-562783/2-A

Matrix: Solid

Analysis Batch: 563382

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562783

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
Vinyl chloride	1.25	1.20		mg/Kg		96	49 - 146

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	91		56 - 125
Dibromofluoromethane (Surr)	83		41 - 138
4-Bromofluorobenzene (Surr)	101		41 - 143
1,2-Dichloroethane-d4 (Surr)	77		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-562719/1-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562719

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Atrazine	ND		0.20	0.036	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Carbazole	ND		0.050	0.019	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/20/23 10:04	02/22/23 15:15	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562719/1-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562719

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Isophorone	ND		0.050	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Phenol	ND		0.050	0.0080	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/20/23 10:04	02/22/23 15:15	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	112		46 - 137	02/20/23 10:04	02/22/23 15:15	1
Phenol-d5 (Surr)	56		26 - 120	02/20/23 10:04	02/22/23 15:15	1
Nitrobenzene-d5 (Surr)	56		25 - 120	02/20/23 10:04	02/22/23 15:15	1
2-Fluorophenol (Surr)	51		20 - 120	02/20/23 10:04	02/22/23 15:15	1
2-Fluorobiphenyl (Surr)	81		34 - 120	02/20/23 10:04	02/22/23 15:15	1
2,4,6-Tribromophenol (Surr)	45		10 - 120	02/20/23 10:04	02/22/23 15:15	1

Lab Sample ID: LCS 240-562719/25-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	128		46 - 137
Phenol-d5 (Surr)	59		26 - 120
Nitrobenzene-d5 (Surr)	57		25 - 120
2-Fluorophenol (Surr)	54		20 - 120
2-Fluorobiphenyl (Surr)	85		34 - 120
2,4,6-Tribromophenol (Surr)	41		10 - 120

Lab Sample ID: LCS 240-562719/26-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	132		46 - 137
Phenol-d5 (Surr)	64		26 - 120
Nitrobenzene-d5 (Surr)	61		25 - 120
2-Fluorophenol (Surr)	56		20 - 120
2-Fluorobiphenyl (Surr)	88		34 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562719/26-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	43		10 - 120

Lab Sample ID: LCS 240-562719/2-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.567		mg/Kg		85	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.361		mg/Kg		54	38 - 120
2,4,5-Trichlorophenol	0.667	0.649		mg/Kg		97	50 - 120
2,4,6-Trichlorophenol	0.667	0.650		mg/Kg		97	50 - 120
2,4-Dichlorophenol	0.667	0.629		mg/Kg		94	50 - 120
2,4-Dimethylphenol	0.667	0.450		mg/Kg		67	24 - 120
2,4-Dinitrophenol	1.33	0.881		mg/Kg		66	19 - 132
2,4-Dinitrotoluene	0.667	0.590		mg/Kg		89	64 - 120
2,6-Dinitrotoluene	0.667	0.656		mg/Kg		98	62 - 120
2-Chloronaphthalene	0.667	0.552		mg/Kg		83	51 - 120
2-Chlorophenol	0.667	0.523		mg/Kg		78	47 - 120
2-Methylnaphthalene	0.667	0.487		mg/Kg		73	38 - 120
2-Methylphenol	0.667	0.454		mg/Kg		68	45 - 120
2-Nitroaniline	0.667	0.458		mg/Kg		69	57 - 120
2-Nitrophenol	0.667	0.627		mg/Kg		94	51 - 120
3,3'-Dichlorobenzidine	1.33	1.07		mg/Kg		80	27 - 199
3-Nitroaniline	0.667	0.490		mg/Kg		74	41 - 120
4,6-Dinitro-2-methylphenol	1.33	0.954		mg/Kg		72	46 - 126
4-Bromophenyl phenyl ether	0.667	0.683		mg/Kg		102	65 - 120
4-Chloro-3-methylphenol	0.667	0.512		mg/Kg		77	51 - 120
4-Chloroaniline	0.667	0.383		mg/Kg		57	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.592		mg/Kg		89	59 - 120
4-Nitroaniline	0.667	0.598		mg/Kg		90	48 - 128
4-Nitrophenol	1.33	0.927		mg/Kg		70	43 - 120
Acenaphthene	0.667	0.582		mg/Kg		87	52 - 120
Acenaphthylene	0.667	0.621		mg/Kg		93	52 - 120
Acetophenone	0.667	0.449		mg/Kg		67	47 - 120
Anthracene	0.667	0.616		mg/Kg		92	64 - 120
Atrazine	1.33	1.50		mg/Kg		113	71 - 125
Benzaldehyde	1.33	0.820		mg/Kg		61	42 - 120
Benzo[a]anthracene	0.667	0.683		mg/Kg		102	70 - 120
Benzo[a]pyrene	0.667	0.615		mg/Kg		92	63 - 125
Benzo[b]fluoranthene	0.667	0.609		mg/Kg		91	64 - 121
Benzo[g,h,i]perylene	0.667	0.637		mg/Kg		96	62 - 120
Benzo[k]fluoranthene	0.667	0.607		mg/Kg		91	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.460		mg/Kg		69	50 - 120
Bis(2-chloroethyl)ether	0.667	0.388		mg/Kg		58	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.611		mg/Kg		92	63 - 133
Butyl benzyl phthalate	0.667	0.592		mg/Kg		89	66 - 127
Caprolactam	1.33	1.11		mg/Kg		83	67 - 120
Carbazole	0.667	0.619		mg/Kg		93	61 - 129

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562719/2-A

Matrix: Solid

Analysis Batch: 563049

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 562719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chrysene	0.667	0.643		mg/Kg		96	67 - 120
Dibenz(a,h)anthracene	0.667	0.641		mg/Kg		96	62 - 120
Dibenzofuran	0.667	0.561		mg/Kg		84	55 - 120
Diethyl phthalate	0.667	0.566		mg/Kg		85	61 - 120
Dimethyl phthalate	0.667	0.566		mg/Kg		85	64 - 120
Di-n-butyl phthalate	0.667	0.652		mg/Kg		98	70 - 129
Di-n-octyl phthalate	0.667	0.510		mg/Kg		76	64 - 129
Fluoranthene	0.667	0.600		mg/Kg		90	71 - 124
Fluorene	0.667	0.587		mg/Kg		88	58 - 120
Hexachlorobenzene	0.667	0.609		mg/Kg		91	59 - 120
Hexachlorobutadiene	0.667	0.521		mg/Kg		78	45 - 120
Hexachlorocyclopentadiene	0.667	0.363		mg/Kg		55	10 - 120
Hexachloroethane	0.667	0.406		mg/Kg		61	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.664		mg/Kg		100	65 - 122
Isophorone	0.667	0.459		mg/Kg		69	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.420		mg/Kg		63	48 - 120
N-Nitrosodiphenylamine	0.667	0.554		mg/Kg		83	64 - 120
Naphthalene	0.667	0.502		mg/Kg		75	34 - 120
Nitrobenzene	0.667	0.416		mg/Kg		62	48 - 120
Pentachlorophenol	1.33	0.681		mg/Kg		51	10 - 120
Phenanthrene	0.667	0.586		mg/Kg		88	60 - 120
Phenol	0.667	0.437		mg/Kg		66	48 - 120
Pyrene	0.667	0.670		mg/Kg		101	67 - 120
3 & 4 Methylphenol	0.667	0.476		mg/Kg		71	49 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	110		46 - 137
Phenol-d5 (Surr)	74		26 - 120
Nitrobenzene-d5 (Surr)	62		25 - 120
2-Fluorophenol (Surr)	75		20 - 120
2-Fluorobiphenyl (Surr)	92		34 - 120
2,4,6-Tribromophenol (Surr)	107		10 - 120

Lab Sample ID: 240-180645-1 MS

Matrix: Solid

Analysis Batch: 563049

Client Sample ID: WC-WS2-11 (7-8')

Prep Type: Total/NA

Prep Batch: 562719

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
1,1'-Biphenyl	ND		0.824	ND		mg/Kg	☼	NC	29 - 120
bis (2-chloroisopropyl) ether	ND	F1	0.824	ND	F1	mg/Kg	☼	0	10 - 120
2,4,5-Trichlorophenol	ND		0.824	ND		mg/Kg	☼	NC	35 - 120
2,4,6-Trichlorophenol	ND		0.824	ND		mg/Kg	☼	NC	18 - 120
2,4-Dichlorophenol	ND		0.824	ND		mg/Kg	☼	NC	21 - 120
2,4-Dimethylphenol	ND		0.824	ND		mg/Kg	☼	NC	10 - 120
2,4-Dinitrophenol	ND		1.65	ND		mg/Kg	☼	NC	10 - 126
2,4-Dinitrotoluene	ND		0.824	ND		mg/Kg	☼	NC	46 - 120
2,6-Dinitrotoluene	ND		0.824	ND		mg/Kg	☼	NC	44 - 120
2-Chloronaphthalene	ND		0.824	ND		mg/Kg	☼	NC	33 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180645-1 MS

Matrix: Solid

Analysis Batch: 563049

Client Sample ID: WC-WS2-11 (7-8')

Prep Type: Total/NA

Prep Batch: 562719

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Added	Result				
2-Chlorophenol	ND	F1	0.824	ND	F1	mg/Kg	✖	0	19 - 120
2-Methylnaphthalene	3.1	F1	0.824	3.96		mg/Kg	✖	99	13 - 122
2-Methylphenol	ND		0.824	ND		mg/Kg	✖	NC	12 - 120
2-Nitroaniline	ND		0.824	ND		mg/Kg	✖	NC	36 - 122
2-Nitrophenol	ND	F1	0.824	ND	F1	mg/Kg	✖	0	28 - 120
3,3'-Dichlorobenzidine	ND		1.65	ND		mg/Kg	✖	NC	10 - 179
3-Nitroaniline	ND		0.824	ND		mg/Kg	✖	NC	10 - 123
4,6-Dinitro-2-methylphenol	ND		1.65	ND		mg/Kg	✖	NC	11 - 120
4-Bromophenyl phenyl ether	ND		0.824	ND		mg/Kg	✖	NC	49 - 120
4-Chloro-3-methylphenol	ND		0.824	ND		mg/Kg	✖	NC	35 - 120
4-Chloroaniline	ND		0.824	ND		mg/Kg	✖	NC	10 - 120
4-Chlorophenyl phenyl ether	ND		0.824	ND		mg/Kg	✖	NC	45 - 120
4-Nitroaniline	ND		0.824	ND		mg/Kg	✖	NC	13 - 129
4-Nitrophenol	ND		1.65	ND		mg/Kg	✖	NC	28 - 123
Acenaphthene	ND		0.824	0.565	J	mg/Kg	✖	69	33 - 120
Acenaphthylene	ND		0.824	0.651	J	mg/Kg	✖	79	39 - 120
Acetophenone	ND		0.824	0.881	J	mg/Kg	✖	107	11 - 120
Anthracene	ND		0.824	0.612	J	mg/Kg	✖	74	30 - 127
Atrazine	ND		1.65	ND		mg/Kg	✖	NC	52 - 126
Benzaldehyde	ND	F1	1.65	2.58	J F1	mg/Kg	✖	157	13 - 120
Benzo[a]anthracene	0.53	J	0.824	1.07		mg/Kg	✖	66	24 - 137
Benzo[a]pyrene	ND		0.824	0.815	J	mg/Kg	✖	99	28 - 136
Benzo[b]fluoranthene	0.62	J	0.824	1.05		mg/Kg	✖	51	21 - 142
Benzo[g,h,i]perylene	ND		0.824	0.760	J	mg/Kg	✖	92	10 - 144
Benzo[k]fluoranthene	ND		0.824	0.656	J	mg/Kg	✖	80	36 - 135
Bis(2-chloroethoxy)methane	ND	F1	0.824	ND	F1	mg/Kg	✖	0	25 - 120
Bis(2-chloroethyl)ether	ND	F1	0.824	ND	F1	mg/Kg	✖	0	16 - 120
Bis(2-ethylhexyl) phthalate	ND		0.824	ND		mg/Kg	✖	NC	37 - 143
Butyl benzyl phthalate	ND		0.824	1.71	J	mg/Kg	✖	NC	49 - 130
Caprolactam	ND		1.65	ND		mg/Kg	✖	NC	37 - 127
Carbazole	ND		0.824	ND		mg/Kg	✖	NC	33 - 132
Chrysene	0.67	J	0.824	1.21		mg/Kg	✖	66	28 - 129
Dibenz(a,h)anthracene	ND		0.824	0.500	J	mg/Kg	✖	61	10 - 132
Dibenzofuran	0.83	J	0.824	1.41	J	mg/Kg	✖	70	33 - 120
Diethyl phthalate	ND		0.824	ND		mg/Kg	✖	NC	48 - 120
Dimethyl phthalate	ND		0.824	ND		mg/Kg	✖	NC	45 - 120
Di-n-butyl phthalate	ND		0.824	ND		mg/Kg	✖	NC	40 - 137
Di-n-octyl phthalate	ND		0.824	3.25	J	mg/Kg	✖	NC	34 - 152
Fluoranthene	0.82	J	0.824	1.29		mg/Kg	✖	57	31 - 140
Fluorene	ND		0.824	0.619	J	mg/Kg	✖	75	43 - 120
Hexachlorobenzene	ND		0.824	0.474	J	mg/Kg	✖	57	44 - 120
Hexachlorobutadiene	ND	F1	0.824	ND	F1	mg/Kg	✖	0	13 - 120
Hexachlorocyclopentadiene	ND		0.824	ND		mg/Kg	✖	NC	10 - 120
Hexachloroethane	ND	F1	0.824	0.565	J	mg/Kg	✖	69	10 - 120
Indeno[1,2,3-cd]pyrene	ND		0.824	0.648	J	mg/Kg	✖	79	10 - 139
Isophorone	ND	F1	0.824	ND	F1	mg/Kg	✖	0	27 - 120
N-Nitrosodi-n-propylamine	ND	F1	0.824	ND	F1	mg/Kg	✖	0	23 - 120
N-Nitrosodiphenylamine	ND	F1	0.824	ND	F1	mg/Kg	✖	0	30 - 128
Naphthalene	2.0		0.824	2.74		mg/Kg	✖	91	10 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180645-1 MS

Matrix: Solid

Analysis Batch: 563049

Client Sample ID: WC-WS2-11 (7-8')

Prep Type: Total/NA

Prep Batch: 562719

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Nitrobenzene	ND	F1	0.824	ND	F1	mg/Kg	☼	0		19 - 120
Pentachlorophenol	ND		1.65	5.58	J	mg/Kg	☼	NC		10 - 120
Phenanthrene	1.7		0.824	2.30		mg/Kg	☼	78		36 - 120
Phenol	ND	F1	0.824	ND	F1	mg/Kg	☼	0		10 - 120
Pyrene	0.79	J	0.824	1.32		mg/Kg	☼	64		31 - 134
3 & 4 Methylphenol	ND		0.824	ND		mg/Kg	☼	NC		10 - 122
MS MS										
Surrogate	%Recovery	Qualifier	Limits							
Terphenyl-d14 (Surr)	82		46 - 137							
Phenol-d5 (Surr)	0	S1-	26 - 120							
Nitrobenzene-d5 (Surr)	53		25 - 120							
2-Fluorophenol (Surr)	58		20 - 120							
2-Fluorobiphenyl (Surr)	63		34 - 120							
2,4,6-Tribromophenol (Surr)	168	S1+	10 - 120							

Lab Sample ID: 240-180645-1 MSD

Matrix: Solid

Analysis Batch: 563049

Client Sample ID: WC-WS2-11 (7-8')

Prep Type: Total/NA

Prep Batch: 562719

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
1,1'-Biphenyl	ND		0.818	ND		mg/Kg	☼	NC		29 - 120	NC	45
bis (2-chloroisopropyl) ether	ND	F1	0.818	1.05	J F1	mg/Kg	☼	128		10 - 120	NC	45
2,4,5-Trichlorophenol	ND		0.818	ND		mg/Kg	☼	NC		35 - 120	NC	39
2,4,6-Trichlorophenol	ND		0.818	ND		mg/Kg	☼	NC		18 - 120	NC	45
2,4-Dichlorophenol	ND		0.818	ND		mg/Kg	☼	NC		21 - 120	NC	44
2,4-Dimethylphenol	ND		0.818	ND		mg/Kg	☼	NC		10 - 120	NC	45
2,4-Dinitrophenol	ND		1.64	ND		mg/Kg	☼	NC		10 - 126	NC	45
2,4-Dinitrotoluene	ND		0.818	ND		mg/Kg	☼	NC		46 - 120	NC	45
2,6-Dinitrotoluene	ND		0.818	ND		mg/Kg	☼	NC		44 - 120	NC	45
2-Chloronaphthalene	ND		0.818	ND		mg/Kg	☼	NC		33 - 120	NC	45
2-Chlorophenol	ND	F1	0.818	ND	F1	mg/Kg	☼	0		19 - 120	NC	45
2-Methylnaphthalene	3.1	F1	0.818	4.28	F1	mg/Kg	☼	139		13 - 122	8	45
2-Methylphenol	ND		0.818	ND		mg/Kg	☼	NC		12 - 120	NC	45
2-Nitroaniline	ND		0.818	ND		mg/Kg	☼	NC		36 - 122	NC	42
2-Nitrophenol	ND	F1	0.818	ND	F1	mg/Kg	☼	0		28 - 120	NC	45
3,3'-Dichlorobenzidine	ND		1.64	ND		mg/Kg	☼	NC		10 - 179	NC	45
3-Nitroaniline	ND		0.818	ND		mg/Kg	☼	NC		10 - 123	NC	45
4,6-Dinitro-2-methylphenol	ND		1.64	7.06	J	mg/Kg	☼	NC		11 - 120	NC	40
4-Bromophenyl phenyl ether	ND		0.818	ND		mg/Kg	☼	NC		49 - 120	NC	42
4-Chloro-3-methylphenol	ND		0.818	ND		mg/Kg	☼	NC		35 - 120	NC	42
4-Chloroaniline	ND		0.818	ND		mg/Kg	☼	NC		10 - 120	NC	45
4-Chlorophenyl phenyl ether	ND		0.818	ND		mg/Kg	☼	NC		45 - 120	NC	44
4-Nitroaniline	ND		0.818	ND		mg/Kg	☼	NC		13 - 129	NC	38
4-Nitrophenol	ND		1.64	ND		mg/Kg	☼	NC		28 - 123	NC	45
Acenaphthene	ND		0.818	0.735	J	mg/Kg	☼	90		33 - 120	26	45
Acenaphthylene	ND		0.818	0.796	J	mg/Kg	☼	97		39 - 120	20	45
Acetophenone	ND		0.818	0.774	J	mg/Kg	☼	95		11 - 120	13	45
Anthracene	ND		0.818	0.822	J	mg/Kg	☼	100		30 - 127	29	45

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180645-1 MSD

Client Sample ID: WC-WS2-11 (7-8')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 563049

Prep Batch: 562719

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Atrazine	ND		1.64	ND		mg/Kg	*	NC	52 - 126	NC	34
Benzaldehyde	ND	F1	1.64	1.82	J	mg/Kg	*	111	13 - 120	35	45
Benzo[a]anthracene	0.53	J	0.818	1.26		mg/Kg	*	89	24 - 137	16	42
Benzo[a]pyrene	ND		0.818	0.964		mg/Kg	*	118	28 - 136	17	41
Benzo[b]fluoranthene	0.62	J	0.818	1.29		mg/Kg	*	81	21 - 142	21	42
Benzo[g,h,i]perylene	ND		0.818	0.712	J	mg/Kg	*	87	10 - 144	6	40
Benzo[k]fluoranthene	ND		0.818	0.791	J	mg/Kg	*	97	36 - 135	19	44
Bis(2-chloroethoxy)methane	ND	F1	0.818	ND	F1	mg/Kg	*	0	25 - 120	NC	45
Bis(2-chloroethyl)ether	ND	F1	0.818	ND	F1	mg/Kg	*	0	16 - 120	NC	45
Bis(2-ethylhexyl) phthalate	ND		0.818	ND		mg/Kg	*	NC	37 - 143	NC	38
Butyl benzyl phthalate	ND		0.818	1.85	J	mg/Kg	*	NC	49 - 130	7	41
Caprolactam	ND		1.64	ND		mg/Kg	*	NC	37 - 127	NC	45
Carbazole	ND		0.818	ND		mg/Kg	*	NC	33 - 132	NC	45
Chrysene	0.67	J	0.818	1.42		mg/Kg	*	93	28 - 129	16	42
Dibenz(a,h)anthracene	ND		0.818	0.538	J	mg/Kg	*	66	10 - 132	7	37
Dibenzofuran	0.83	J	0.818	1.64	J	mg/Kg	*	98	33 - 120	15	43
Diethyl phthalate	ND		0.818	ND		mg/Kg	*	NC	48 - 120	NC	38
Dimethyl phthalate	ND		0.818	ND		mg/Kg	*	NC	45 - 120	NC	43
Di-n-butyl phthalate	ND		0.818	ND		mg/Kg	*	NC	40 - 137	NC	42
Di-n-octyl phthalate	ND		0.818	3.32	J	mg/Kg	*	NC	34 - 152	2	39
Fluoranthene	0.82	J	0.818	1.48		mg/Kg	*	80	31 - 140	13	45
Fluorene	ND		0.818	0.697	J	mg/Kg	*	85	43 - 120	12	39
Hexachlorobenzene	ND		0.818	0.651	J	mg/Kg	*	79	44 - 120	31	39
Hexachlorobutadiene	ND	F1	0.818	ND	F1	mg/Kg	*	0	13 - 120	NC	45
Hexachlorocyclopentadiene	ND		0.818	ND		mg/Kg	*	NC	10 - 120	NC	45
Hexachloroethane	ND	F1	0.818	ND	F1	mg/Kg	*	0	10 - 120	NC	45
Indeno[1,2,3-cd]pyrene	ND		0.818	0.688	J	mg/Kg	*	84	10 - 139	6	41
Isophorone	ND	F1	0.818	ND	F1	mg/Kg	*	0	27 - 120	NC	45
N-Nitrosodi-n-propylamine	ND	F1	0.818	ND	F1	mg/Kg	*	0	23 - 120	NC	45
N-Nitrosodiphenylamine	ND	F1	0.818	0.909	J	mg/Kg	*	111	30 - 128	NC	44
Naphthalene	2.0		0.818	2.72		mg/Kg	*	88	10 - 120	1	45
Nitrobenzene	ND	F1	0.818	ND	F1	mg/Kg	*	0	19 - 120	NC	45
Pentachlorophenol	ND		1.64	5.58	J	mg/Kg	*	NC	10 - 120	0	45
Phenanthrene	1.7		0.818	2.60		mg/Kg	*	116	36 - 120	13	41
Phenol	ND	F1	0.818	ND	F1	mg/Kg	*	0	10 - 120	NC	45
Pyrene	0.79	J	0.818	1.44		mg/Kg	*	79	31 - 134	8	43
3 & 4 Methylphenol	ND		0.818	ND		mg/Kg	*	NC	10 - 122	NC	45

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	92		46 - 137
Phenol-d5 (Surr)	0	S1-	26 - 120
Nitrobenzene-d5 (Surr)	51		25 - 120
2-Fluorophenol (Surr)	74		20 - 120
2-Fluorobiphenyl (Surr)	73		34 - 120
2,4,6-Tribromophenol (Surr)	198	S1+	10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-562703/2-A
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562703

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:44	1
Barium	ND		0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:44	1
Cadmium	0.000402	J	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:44	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:44	1
Lead	ND		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:44	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:44	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:44	1

Lab Sample ID: LCS 240-562703/3-A
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562703

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Arsenic	2.00	1.99		mg/L		99	50 - 150	
Barium	2.00	1.89		mg/L		95	50 - 150	
Cadmium	1.00	0.986		mg/L		99	50 - 150	
Chromium	1.00	0.965		mg/L		96	50 - 150	
Lead	1.00	0.917		mg/L		92	50 - 150	
Selenium	2.00	2.01		mg/L		101	50 - 150	
Silver	0.100	0.104		mg/L		104	50 - 150	

Lab Sample ID: LB 240-562609/1-B
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562703

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:39	1
Barium	0.00313	J	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:39	1
Cadmium	0.000257	J	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:39	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:39	1
Lead	ND		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:39	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:39	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:39	1

Lab Sample ID: 240-180645-1 MS
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: WC-WS2-11 (7-8')
Prep Type: TCLP
Prep Batch: 562703

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Arsenic	ND		5.00	4.97		mg/L		99	75 - 125	
Barium	0.30	J B	50.0	48.3		mg/L		96	75 - 125	
Cadmium	0.00081	J B	1.00	1.02		mg/L		102	75 - 125	
Chromium	ND		5.00	4.85		mg/L		97	75 - 125	
Lead	0.0083	J	5.00	4.75		mg/L		95	75 - 125	
Selenium	ND		1.00	1.00		mg/L		100	75 - 125	
Silver	ND		1.00	1.02		mg/L		102	75 - 125	

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-180645-1 MSD
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: WC-WS2-11 (7-8')
Prep Type: TCLP
Prep Batch: 562703

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Arsenic	ND		5.00	5.05		mg/L		101	75 - 125	1	20
Barium	0.30	J B	50.0	48.8		mg/L		97	75 - 125	1	20
Cadmium	0.00081	J B	1.00	1.03		mg/L		103	75 - 125	1	20
Chromium	ND		5.00	4.89		mg/L		98	75 - 125	1	20
Lead	0.0083	J	5.00	4.80		mg/L		96	75 - 125	1	20
Selenium	ND		1.00	1.02		mg/L		102	75 - 125	2	20
Silver	ND		1.00	1.03		mg/L		103	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-562705/2-A
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562705

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:36	1

Lab Sample ID: LCS 240-562705/3-A
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562705

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Mercury	0.00500	0.00468		mg/L		94	80 - 120

Lab Sample ID: LB 240-562609/1-C
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562705

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:34	1

Lab Sample ID: 240-180645-1 MS
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: WC-WS2-11 (7-8')
Prep Type: TCLP
Prep Batch: 562705

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Mercury	ND		0.00500	0.00511		mg/L		102	80 - 120

Lab Sample ID: 240-180645-1 MSD
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: WC-WS2-11 (7-8')
Prep Type: TCLP
Prep Batch: 562705

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Mercury	ND		0.00500	0.00497		mg/L		99	80 - 120	3	20

QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180645-1

GC/MS VOA

Prep Batch: 562783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	Total/NA	Solid	5035	
240-180645-2	WC-WS2-12 (7-8')	Total/NA	Solid	5035	
240-180645-3	WC-WS2-13 (9-10')	Total/NA	Solid	5035	
240-180645-4	WC-WS2-14 (10-11')	Total/NA	Solid	5035	
MB 240-562783/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562783/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 563092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-562783/1-A	Method Blank	Total/NA	Solid	8260D	562783
LCS 240-562783/2-A	Lab Control Sample	Total/NA	Solid	8260D	562783

Analysis Batch: 563103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-2	WC-WS2-12 (7-8')	Total/NA	Solid	8260D	562783

Analysis Batch: 563308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	Total/NA	Solid	8260D	562783
240-180645-3	WC-WS2-13 (9-10')	Total/NA	Solid	8260D	562783
240-180645-4	WC-WS2-14 (10-11')	Total/NA	Solid	8260D	562783

Analysis Batch: 563382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	Total/NA	Solid	8260D	562783
240-180645-2	WC-WS2-12 (7-8')	Total/NA	Solid	8260D	562783
240-180645-3	WC-WS2-13 (9-10')	Total/NA	Solid	8260D	562783
240-180645-4	WC-WS2-14 (10-11')	Total/NA	Solid	8260D	562783
MB 240-562783/1-A	Method Blank	Total/NA	Solid	8260D	562783
LCS 240-562783/2-A	Lab Control Sample	Total/NA	Solid	8260D	562783

GC/MS Semi VOA

Prep Batch: 562719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	Total/NA	Solid	3540C	
240-180645-2	WC-WS2-12 (7-8')	Total/NA	Solid	3540C	
240-180645-3	WC-WS2-13 (9-10')	Total/NA	Solid	3540C	
240-180645-4	WC-WS2-14 (10-11')	Total/NA	Solid	3540C	
MB 240-562719/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-562719/25-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562719/26-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562719/2-A	Lab Control Sample	Total/NA	Solid	3540C	
240-180645-1 MS	WC-WS2-11 (7-8')	Total/NA	Solid	3540C	
240-180645-1 MSD	WC-WS2-11 (7-8')	Total/NA	Solid	3540C	

Analysis Batch: 563049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	Total/NA	Solid	8270E	562719
240-180645-2	WC-WS2-12 (7-8')	Total/NA	Solid	8270E	562719
240-180645-3	WC-WS2-13 (9-10')	Total/NA	Solid	8270E	562719

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QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180645-1

GC/MS Semi VOA (Continued)

Analysis Batch: 563049 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-4	WC-WS2-14 (10-11')	Total/NA	Solid	8270E	562719
MB 240-562719/1-A	Method Blank	Total/NA	Solid	8270E	562719
LCS 240-562719/25-A	Lab Control Sample	Total/NA	Solid	8270E	562719
LCS 240-562719/26-A	Lab Control Sample	Total/NA	Solid	8270E	562719
LCS 240-562719/2-A	Lab Control Sample	Total/NA	Solid	8270E	562719
240-180645-1 MS	WC-WS2-11 (7-8')	Total/NA	Solid	8270E	562719
240-180645-1 MSD	WC-WS2-11 (7-8')	Total/NA	Solid	8270E	562719

Metals

Leach Batch: 562609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	TCLP	Solid	1311	
240-180645-2	WC-WS2-12 (7-8')	TCLP	Solid	1311	
240-180645-3	WC-WS2-13 (9-10')	TCLP	Solid	1311	
240-180645-4	WC-WS2-14 (10-11')	TCLP	Solid	1311	
LB 240-562609/1-B	Method Blank	TCLP	Solid	1311	
LB 240-562609/1-C	Method Blank	TCLP	Solid	1311	
240-180645-1 MS	WC-WS2-11 (7-8')	TCLP	Solid	1311	
240-180645-1 MSD	WC-WS2-11 (7-8')	TCLP	Solid	1311	

Prep Batch: 562703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	TCLP	Solid	3010A	562609
240-180645-2	WC-WS2-12 (7-8')	TCLP	Solid	3010A	562609
240-180645-3	WC-WS2-13 (9-10')	TCLP	Solid	3010A	562609
240-180645-4	WC-WS2-14 (10-11')	TCLP	Solid	3010A	562609
LB 240-562609/1-B	Method Blank	TCLP	Solid	3010A	562609
MB 240-562703/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-562703/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180645-1 MS	WC-WS2-11 (7-8')	TCLP	Solid	3010A	562609
240-180645-1 MSD	WC-WS2-11 (7-8')	TCLP	Solid	3010A	562609

Prep Batch: 562705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	TCLP	Solid	7470A	562609
240-180645-2	WC-WS2-12 (7-8')	TCLP	Solid	7470A	562609
240-180645-3	WC-WS2-13 (9-10')	TCLP	Solid	7470A	562609
240-180645-4	WC-WS2-14 (10-11')	TCLP	Solid	7470A	562609
LB 240-562609/1-C	Method Blank	TCLP	Solid	7470A	562609
MB 240-562705/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-562705/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180645-1 MS	WC-WS2-11 (7-8')	TCLP	Solid	7470A	562609
240-180645-1 MSD	WC-WS2-11 (7-8')	TCLP	Solid	7470A	562609

Analysis Batch: 562870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	TCLP	Solid	6010D	562703
240-180645-2	WC-WS2-12 (7-8')	TCLP	Solid	6010D	562703
240-180645-3	WC-WS2-13 (9-10')	TCLP	Solid	6010D	562703
240-180645-4	WC-WS2-14 (10-11')	TCLP	Solid	6010D	562703

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QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180645-1

Metals (Continued)

Analysis Batch: 562870 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 240-562609/1-B	Method Blank	TCLP	Solid	6010D	562703
MB 240-562703/2-A	Method Blank	Total/NA	Solid	6010D	562703
LCS 240-562703/3-A	Lab Control Sample	Total/NA	Solid	6010D	562703
240-180645-1 MS	WC-WS2-11 (7-8')	TCLP	Solid	6010D	562703
240-180645-1 MSD	WC-WS2-11 (7-8')	TCLP	Solid	6010D	562703

Analysis Batch: 562913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	TCLP	Solid	7470A	562705
240-180645-2	WC-WS2-12 (7-8')	TCLP	Solid	7470A	562705
240-180645-3	WC-WS2-13 (9-10')	TCLP	Solid	7470A	562705
240-180645-4	WC-WS2-14 (10-11')	TCLP	Solid	7470A	562705
LB 240-562609/1-C	Method Blank	TCLP	Solid	7470A	562705
MB 240-562705/2-A	Method Blank	Total/NA	Solid	7470A	562705
LCS 240-562705/3-A	Lab Control Sample	Total/NA	Solid	7470A	562705
240-180645-1 MS	WC-WS2-11 (7-8')	TCLP	Solid	7470A	562705
240-180645-1 MSD	WC-WS2-11 (7-8')	TCLP	Solid	7470A	562705

General Chemistry

Analysis Batch: 562608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180645-1	WC-WS2-11 (7-8')	Total/NA	Solid	Moisture	
240-180645-2	WC-WS2-12 (7-8')	Total/NA	Solid	Moisture	
240-180645-3	WC-WS2-13 (9-10')	Total/NA	Solid	Moisture	
240-180645-4	WC-WS2-14 (10-11')	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Date Collected: 02/18/23 17:35

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562703	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:52
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562705	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:40
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-11 (7-8')

Lab Sample ID: 240-180645-1

Date Collected: 02/18/23 17:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		1	563382	CS	EET CAN	02/24/23 20:58
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		100	563308	CS	EET CAN	02/24/23 20:01
Total/NA	Prep	3540C			562719	BMB	EET CAN	02/20/23 10:04
Total/NA	Analysis	8270E		50	563049	JMG	EET CAN	02/22/23 20:27

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Date Collected: 02/18/23 17:45

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562703	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 12:13
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562705	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:52
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-12 (7-8')

Lab Sample ID: 240-180645-2

Date Collected: 02/18/23 17:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		1	563382	CS	EET CAN	02/24/23 21:22
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		250	563103	CS	EET CAN	02/23/23 17:18
Total/NA	Prep	3540C			562719	BMB	EET CAN	02/20/23 10:04
Total/NA	Analysis	8270E		25	563049	JMG	EET CAN	02/22/23 20:03

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Date Collected: 02/18/23 17:59

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562703	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 12:26
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562705	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:54
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-13 (9-10')

Lab Sample ID: 240-180645-3

Date Collected: 02/18/23 17:59

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		1	563382	CS	EET CAN	02/24/23 21:46
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		100	563308	CS	EET CAN	02/24/23 20:26
Total/NA	Prep	3540C			562719	BMB	EET CAN	02/20/23 10:04
Total/NA	Analysis	8270E		25	563049	JMG	EET CAN	02/22/23 19:15

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Date Collected: 02/18/23 18:10

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562703	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 12:30
TCLP	Leach	1311			562609	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562705	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:56
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-14 (10-11')

Lab Sample ID: 240-180645-4

Date Collected: 02/18/23 18:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		1	563382	CS	EET CAN	02/24/23 22:10
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		100	563308	CS	EET CAN	02/24/23 20:51
Total/NA	Prep	3540C			562719	BMB	EET CAN	02/20/23 10:04
Total/NA	Analysis	8270E		25	563049	JMG	EET CAN	02/22/23 19:39

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180645-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Chain of Custody Record

Client Information Client Contact: Grace Gegick Company: ARCADIS U.S., Inc. Address: 284 Cramer Creek Court City: Dublin State, Zip: OH, 43017 Phone: Email: Grace.Gegick@arcadis.com Project Name: Norfolk Southern - ER Site:		Lab PM: DelMonico, Michael E-Mail: Michael.DelMonico@et.eurofins.com Carrier Tracking No(s): State of Origin: Job #:		COC No: 240-104892-37597.6 Page: Page 6 of 6 Job #:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: Purchase Order not required WO #: Project #: 24030745 SSOW#:			Analysis Requested		
Sample Identification WNC-WS2-11 (7-8') WNC-WS2-12 (7-8') WNC-WS2-13 (9-10') WNC-WS2-14 (10-11')		Sample Date 2/18/23 2/18/23 2/18/23 2/18/23		Sample Time 1735 1745 1759 1810	
Matrix (Water, Soils, Sludge, Other)		Sample Type (C=comp, G=grab)		Preservation Code	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of Containers	
Special Instructions/Note: 240-180645 Chain of Custody		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)			

Barcode: 240-180645 Chain of Custody

Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by:		Date:	
Relinquished by: <i>Michelle Clayton</i>		Date/Time: 2/18/23	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Method of Shipment:	Date/Time: 2-18-23	Company: EPTNC
Received by: <i>[Signature]</i>	Date/Time: 2-18-23 1905	Company: EPTNC
Received by:	Date/Time:	Company:
Cooler Temperature(s) °C and Other Remarks:		



Barberton Facility

Client Arcadis Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-18-23 Opened on 2-18-23

OME

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form

IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. 3.8 °C Corrected Cooler Temp. 3.6 °C

IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No

-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No

9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?

10. Were correct bottle(s) used for the test(s) indicated? Yes No

11. Sufficient quantity received to perform indicated analyses? Yes No

12. Are these work share samples and all listed on the COC? Yes No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864

14. Were VOAs on the COC? Yes No

15. Were air bubbles >6 mm in any VOA vials? Yes No NA ➔ Larger than this.

16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No

17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

Sampling time for Sample #3 confirmed on
Containers = 1759. OME 2-18-23

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 2/25/2023 12:13:33 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180646-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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2/25/2023 12:13:33 PM

Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)

Eurofins Canton

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Job ID: 240-180646-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180646-1

Receipt

The samples were received on 2/18/2023 7:05 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.4°C, 3.6°C and 4.4°C

GC/MS VOA

Method 8260D: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-WS2-02 (1-2) (240-180646-2), WC-WS2-03 (2-3) (240-180646-3), WC-WS2-04 (3-4) (240-180646-4), WC-WS2-05 (2-3) (240-180646-5), WC-WS2-06 (3-4) (240-180646-7), WC-WS2-07 (2-3) (240-180646-8), WC-WS2-08 (4-5) (240-180646-9), WC-WS2-09 (5-6) (240-180646-10) and WC-WS2-10 (3-4) (240-180646-11).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563103 was outside the method criteria for the following analytes: Carbon disulfide, Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563303 was outside the method criteria for the following analytes: Carbon disulfide, Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The MS/MSD for preparation batch 240-562918 and analytical batch 240-563103 is not reported because of high analyte concentrations in the parent sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563180 recovered outside acceptance criteria, low biased, for Pyridine. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples: WC-WS2-COMP (01-07) (240-180646-6) and WC-WS2-COMP (08-14) (240-180646-12) were non-detect for the analyte, the data has been reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563049 recovered above the upper control limit for 2-Nitrophenol and Atrazine. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-WS2-01 (1-1.5) (240-180646-1) and WC-WS2-02 (1-2) (240-180646-2).

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563049 recovered outside acceptance criteria, low biased, for bis (2-chloroisopropyl) ether and 4-Nitrophenol. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples: WC-WS2-01 (1-1.5) (240-180646-1) and WC-WS2-02 (1-2) (240-180646-2) were non-detect for the analytes, the data has been reported.

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-WS2-01 (1-1.5) (240-180646-1), WC-WS2-02 (1-2) (240-180646-2), WC-WS2-03 (2-3) (240-180646-3), WC-WS2-04 (3-4) (240-180646-4), WC-WS2-05 (2-3) (240-180646-5), WC-WS2-06 (3-4) (240-180646-7), WC-WS2-07 (2-3) (240-180646-8), WC-WS2-08 (4-5) (240-180646-9), WC-WS2-09 (5-6) (240-180646-10), WC-WS2-10 (3-4) (240-180646-11), (240-180646-G-3-E MS), (240-180646-G-3-F MSD) and WC-WS2-COMP (08-14) (240-180646-12). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Job ID: 240-180646-1 (Continued)

Laboratory: Eurofins Canton (Continued)

PCBs

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-WS2-COMP (01-07) (240-180646-6) and WC-WS2-COMP (08-14) (240-180646-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides

Method 8081B: The continuing calibration verification (CCV) associated with batch 240-563004 was outside %D criteria for the individual peaks 4 and 5 used for the quantitation of Toxaphene. The average %D is in control for this analyte and samples associated with this CCV were non-detects for the affected analyte; therefore, corrective action was not performed. The associated samples are impacted: WC-WS2-COMP (01-07) (240-180646-6) and WC-WS2-COMP (08-14) (240-180646-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
537 (mod)	EPA 537 Isotope Dilution	EPA	ELLE
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180646-1	WC-WS2-01 (1-1.5)	Solid	02/18/23 15:55	02/18/23 19:05
240-180646-2	WC-WS2-02 (1-2)	Solid	02/18/23 16:10	02/18/23 19:05
240-180646-3	WC-WS2-03 (2-3)	Solid	02/18/23 16:15	02/18/23 19:05
240-180646-4	WC-WS2-04 (3-4)	Solid	02/18/23 16:30	02/18/23 19:05
240-180646-5	WC-WS2-05 (2-3)	Solid	02/18/23 16:35	02/18/23 19:05
240-180646-6	WC-WS2-COMP (01-07)	Solid	02/18/23 00:00	02/18/23 19:05
240-180646-7	WC-WS2-06 (3-4)	Solid	02/18/23 16:52	02/18/23 19:05
240-180646-8	WC-WS2-07 (2-3)	Solid	02/18/23 17:00	02/18/23 19:05
240-180646-9	WC-WS2-08 (4-5)	Solid	02/18/23 17:10	02/18/23 19:05
240-180646-10	WC-WS2-09 (5-6)	Solid	02/18/23 17:20	02/18/23 19:05
240-180646-11	WC-WS2-10 (3-4)	Solid	02/18/23 17:28	02/18/23 19:05
240-180646-12	WC-WS2-COMP (08-14)	Solid	02/18/23 00:00	02/18/23 19:05



Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-01 (1-1.5)

Lab Sample ID: 240-180646-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.0		0.45	0.058	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.16	J	0.45	0.085	mg/Kg	25	✳	8270E	Total/NA
Acenaphthylene	0.20	J	0.45	0.12	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.34	J	0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.93		0.45	0.10	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	0.84		0.45	0.28	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.4		0.45	0.19	mg/Kg	25	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.73		0.45	0.21	mg/Kg	25	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.43	J	0.45	0.21	mg/Kg	25	✳	8270E	Total/NA
Chrysene	1.4		0.45	0.044	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	0.87	J	1.5	0.39	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	2.3		0.45	0.13	mg/Kg	25	✳	8270E	Total/NA
Fluorene	0.20	J	0.45	0.082	mg/Kg	25	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.54		0.45	0.22	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	2.0		0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	2.1		0.45	0.066	mg/Kg	25	✳	8270E	Total/NA
Pyrene	2.1		0.45	0.064	mg/Kg	25	✳	8270E	Total/NA
Barium	0.38	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0016	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0093	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-02 (1-2)

Lab Sample ID: 240-180646-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.5		0.47	0.062	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.31	J	0.47	0.090	mg/Kg	25	✳	8270E	Total/NA
Acenaphthylene	0.19	J	0.47	0.13	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.64		0.47	0.076	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.96		0.47	0.11	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	0.60		0.47	0.30	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.1		0.47	0.21	mg/Kg	25	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.36	J	0.47	0.22	mg/Kg	25	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.34	J	0.47	0.22	mg/Kg	25	✳	8270E	Total/NA
Chrysene	1.2		0.47	0.047	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	1.0	J	1.6	0.41	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	2.1		0.47	0.14	mg/Kg	25	✳	8270E	Total/NA
Fluorene	0.31	J	0.47	0.087	mg/Kg	25	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.34	J	0.47	0.23	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	2.2		0.47	0.076	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	2.3		0.47	0.071	mg/Kg	25	✳	8270E	Total/NA
Pyrene	1.7		0.47	0.068	mg/Kg	25	✳	8270E	Total/NA
Barium	0.32	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.010	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	2.3		0.37	0.049	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.12	J	0.37	0.071	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.20	J	0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.57		0.37	0.085	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-03 (2-3) (Continued)

Lab Sample ID: 240-180646-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	0.41		0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.72		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.29	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.28	J	0.37	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.68		0.37	0.037	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.75	J	1.2	0.32	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	1.2		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.15	J	0.37	0.068	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.22	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.3		0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	1.5		0.37	0.055	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.0		0.37	0.053	mg/Kg	20	✳	8270E	Total/NA
Barium	0.32	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0014	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0098	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.6		0.35	0.045	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.22	J	0.35	0.066	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.16	J	0.35	0.093	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.29	J	0.35	0.056	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.86		0.35	0.079	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.68		0.35	0.22	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.3		0.35	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.27	J	0.35	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.40		0.35	0.16	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.98		0.35	0.034	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.1	J	1.2	0.30	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	1.6		0.35	0.10	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.21	J	0.35	0.063	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.25	J	0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.5		0.35	0.056	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.1		0.35	0.051	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.4		0.35	0.049	mg/Kg	20	✳	8270E	Total/NA
Barium	0.39	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0074	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.3		0.34	0.045	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.13	J	0.34	0.065	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.10	J	0.34	0.092	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.18	J	0.34	0.055	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.50		0.34	0.078	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.43		0.34	0.21	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.84		0.34	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.25	J	0.34	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.24	J	0.34	0.16	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-05 (2-3) (Continued)

Lab Sample ID: 240-180646-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chrysene	0.59		0.34	0.034	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.90	J	1.1	0.30	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.93		0.34	0.10	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.13	J	0.34	0.063	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.2		0.34	0.055	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	1.7		0.34	0.051	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.84		0.34	0.049	mg/Kg	20	✳	8270E	Total/NA
Barium	0.27	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0080	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.015	J	0.25	0.0012	mg/L	1		8260D	TCLP
Perfluorooctanoic acid	0.30	J	0.68	0.23	ng/g	1	✳	537 IDA	Total/NA
Perfluorooctanesulfonic acid	0.33	J	0.68	0.23	ng/g	1	✳	537 IDA	Total/NA

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.4		0.39	0.051	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.33	J	0.39	0.074	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.16	J	0.39	0.10	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.40		0.39	0.062	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.83		0.39	0.088	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.56		0.39	0.24	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.2		0.39	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.27	J	0.39	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.46		0.39	0.18	mg/Kg	20	✳	8270E	Total/NA
Chrysene	1.3		0.39	0.039	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.1	J	1.3	0.34	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	2.0		0.39	0.12	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.29	J	0.39	0.071	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.20	J	0.39	0.19	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.4		0.39	0.062	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.2		0.39	0.058	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.6		0.39	0.055	mg/Kg	20	✳	8270E	Total/NA
Barium	0.27	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00089	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0074	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.0		0.37	0.049	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.15	J	0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.45		0.37	0.085	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.38		0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.75		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.18	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.23	J	0.37	0.17	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-07 (2-3) (Continued)

Lab Sample ID: 240-180646-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chrysene	0.53		0.37	0.037	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.84	J	1.2	0.32	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.86		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.11	J	0.37	0.068	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.0		0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	1.6		0.37	0.056	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.74		0.37	0.053	mg/Kg	20	✳	8270E	Total/NA
Barium	0.31	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0090	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.24	J	0.25	0.12	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	2.6		0.36	0.046	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.16	J	0.36	0.068	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.11	J	0.36	0.095	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.23	J	0.36	0.057	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.58		0.36	0.081	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.47		0.36	0.22	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.97		0.36	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.18	J	0.36	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.27	J	0.36	0.16	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.70		0.36	0.035	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.78	J	1.2	0.31	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	1.3		0.36	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.18	J	0.36	0.065	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.7		0.36	0.057	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	1.6		0.36	0.053	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.1		0.36	0.051	mg/Kg	20	✳	8270E	Total/NA
Barium	0.32	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00097	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0076	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-09 (5-6)

Lab Sample ID: 240-180646-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	2.5		0.37	0.048	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.093	J	0.37	0.070	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.16	J	0.37	0.059	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.48		0.37	0.083	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.34	J	0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.75		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.18	J	0.37	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.59		0.37	0.036	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.70	J	1.2	0.32	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.81		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.094	J	0.37	0.067	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.7		0.37	0.059	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	1.4		0.37	0.055	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.72		0.37	0.052	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-09 (5-6) (Continued)

Lab Sample ID: 240-180646-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.23	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0096	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-10 (3-4)

Lab Sample ID: 240-180646-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	3.2		0.35	0.046	mg/Kg	20	⊛	8270E	Total/NA
Acenaphthene	0.18	J	0.35	0.067	mg/Kg	20	⊛	8270E	Total/NA
Acenaphthylene	0.11	J	0.35	0.094	mg/Kg	20	⊛	8270E	Total/NA
Anthracene	0.22	J	0.35	0.057	mg/Kg	20	⊛	8270E	Total/NA
Benzo[a]anthracene	0.62		0.35	0.080	mg/Kg	20	⊛	8270E	Total/NA
Benzo[a]pyrene	0.41		0.35	0.22	mg/Kg	20	⊛	8270E	Total/NA
Benzo[b]fluoranthene	0.89		0.35	0.15	mg/Kg	20	⊛	8270E	Total/NA
Benzo[k]fluoranthene	0.31	J	0.35	0.16	mg/Kg	20	⊛	8270E	Total/NA
Chrysene	0.65		0.35	0.035	mg/Kg	20	⊛	8270E	Total/NA
Dibenzofuran	0.95	J	1.2	0.31	mg/Kg	20	⊛	8270E	Total/NA
Fluoranthene	1.2		0.35	0.10	mg/Kg	20	⊛	8270E	Total/NA
Fluorene	0.16	J	0.35	0.064	mg/Kg	20	⊛	8270E	Total/NA
Naphthalene	2.2		0.35	0.057	mg/Kg	20	⊛	8270E	Total/NA
Phenanthrene	1.8		0.35	0.052	mg/Kg	20	⊛	8270E	Total/NA
Pyrene	1.0		0.35	0.050	mg/Kg	20	⊛	8270E	Total/NA
Barium	0.30	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0087	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	0.27	J	0.71	0.24	ng/g	1	⊛	537 IDA	Total/NA
Perfluorooctanesulfonic acid	0.30	J	0.71	0.24	ng/g	1	⊛	537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-01 (1-1.5)

Lab Sample ID: 240-180646-1

Date Collected: 02/18/23 15:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		15	4.8	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,1,2,2-Tetrachloroethane	ND		15	9.2	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		15	4.1	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,1,2-Trichloroethane	ND		15	3.5	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,1-Dichloroethane	ND		15	2.9	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,1-Dichloroethene	ND		15	5.0	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,2,4-Trichlorobenzene	ND		15	8.1	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,2-Dibromo-3-Chloropropane	ND		31	14	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Ethylene Dibromide	ND		15	4.8	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,2-Dichlorobenzene	ND		15	7.3	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,2-Dichloroethane	ND		15	2.9	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,2-Dichloropropane	ND		15	2.3	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,3-Dichlorobenzene	ND		15	2.8	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
1,4-Dichlorobenzene	ND		15	3.4	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
2-Butanone (MEK)	ND		61	9.6	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
2-Hexanone	ND		61	16	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
4-Methyl-2-pentanone (MIBK)	ND		61	15	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Acetone	ND		61	15	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Benzene	ND		15	2.6	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Dichlorobromomethane	ND		15	3.7	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Bromoform	ND		15	14	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Bromomethane	ND		15	10	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Carbon disulfide	ND		15	6.6	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Carbon tetrachloride	ND		15	6.2	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Chlorobenzene	ND		15	2.1	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Chloroethane	ND		15	9.2	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Chloroform	ND		15	3.3	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Chloromethane	ND		15	4.0	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
cis-1,2-Dichloroethene	ND		15	2.4	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
cis-1,3-Dichloropropene	ND		15	7.6	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Cyclohexane	ND		31	10	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Chlorodibromomethane	ND		15	7.2	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Dichlorodifluoromethane	ND		15	3.2	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Ethylbenzene	ND		15	2.9	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Isopropylbenzene	ND		15	2.3	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Methyl acetate	ND		76	10	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Methyl tert-butyl ether	ND		15	2.3	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Methylcyclohexane	ND		31	4.0	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Methylene Chloride	ND		31	23	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Styrene	ND		15	3.2	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Tetrachloroethene	ND		15	5.9	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Toluene	ND		15	15	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
trans-1,2-Dichloroethene	ND		15	3.8	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
trans-1,3-Dichloropropene	ND		15	6.4	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Trichloroethene	ND		15	8.7	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Trichlorofluoromethane	ND		15	8.4	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50
Vinyl chloride	ND		0.31	0.15	mg/Kg	✳	02/20/23 16:48	02/23/23 22:27	1
Xylenes, Total	ND		31	5.6	mg/Kg	✳	02/20/23 16:48	02/24/23 18:11	50

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-01 (1-1.5)

Lab Sample ID: 240-180646-1

Date Collected: 02/18/23 15:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/20/23 16:48	02/23/23 22:27	1
Toluene-d8 (Surr)	78		56 - 125	02/20/23 16:48	02/24/23 18:11	50
Dibromofluoromethane (Surr)	87		41 - 138	02/20/23 16:48	02/23/23 22:27	1
Dibromofluoromethane (Surr)	79		41 - 138	02/20/23 16:48	02/24/23 18:11	50
4-Bromofluorobenzene (Surr)	99		41 - 143	02/20/23 16:48	02/23/23 22:27	1
4-Bromofluorobenzene (Surr)	74		41 - 143	02/20/23 16:48	02/24/23 18:11	50
1,2-Dichloroethane-d4 (Surr)	97		58 - 125	02/20/23 16:48	02/23/23 22:27	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125	02/20/23 16:48	02/24/23 18:11	50

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,4-Dinitrophenol	ND		9.8	4.2	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,4-Dinitrotoluene	ND		6.0	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2-Methylnaphthalene	3.0		0.45	0.058	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2-Methylphenol	ND		6.0	0.92	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4,6-Dinitro-2-methylphenol	ND		9.8	2.4	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4-Chloro-3-methylphenol	ND		4.5	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4-Chloroaniline	ND		4.5	0.89	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
4-Nitrophenol	ND		9.8	2.8	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Acenaphthene	0.16	J	0.45	0.085	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Acenaphthylene	0.20	J	0.45	0.12	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Acetophenone	ND		3.0	0.33	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Anthracene	0.34	J	0.45	0.072	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Benzo[a]anthracene	0.93		0.45	0.10	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Benzo[a]pyrene	0.84		0.45	0.28	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Benzo[b]fluoranthene	1.4		0.45	0.19	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Benzo[g,h,i]perylene	0.73		0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Benzo[k]fluoranthene	0.43	J	0.45	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/20/23 10:04	02/22/23 17:39	25

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-01 (1-1.5)

Lab Sample ID: 240-180646-1

Date Collected: 02/18/23 15:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		9.8	2.2	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Carbazole	ND		1.5	0.57	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Chrysene	1.4		0.45	0.044	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Dibenzofuran	0.87	J	1.5	0.39	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Diethyl phthalate	ND		2.1	0.92	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Di-n-octyl phthalate	ND		2.1	0.83	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Fluoranthene	2.3		0.45	0.13	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Fluorene	0.20	J	0.45	0.082	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Hexachlorobenzene	ND		0.45	0.085	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Hexachlorocyclopentadiene	ND		9.8	1.8	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Hexachloroethane	ND		1.5	0.27	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Indeno[1,2,3-cd]pyrene	0.54		0.45	0.22	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Isophorone	ND		1.5	0.36	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Naphthalene	2.0		0.45	0.072	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Nitrobenzene	ND		3.0	0.39	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Pentachlorophenol	ND		4.5	1.7	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Phenanthrene	2.1		0.45	0.066	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Phenol	ND		1.5	0.24	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
Pyrene	2.1		0.45	0.064	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25
3 & 4 Methylphenol	ND		12	0.86	mg/Kg	✳	02/20/23 10:04	02/22/23 17:39	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	100		46 - 137	02/20/23 10:04	02/22/23 17:39	25
Phenol-d5 (Surr)	0	S1-	26 - 120	02/20/23 10:04	02/22/23 17:39	25
Nitrobenzene-d5 (Surr)	61		25 - 120	02/20/23 10:04	02/22/23 17:39	25
2-Fluorophenol (Surr)	76		20 - 120	02/20/23 10:04	02/22/23 17:39	25
2-Fluorobiphenyl (Surr)	92		34 - 120	02/20/23 10:04	02/22/23 17:39	25
2,4,6-Tribromophenol (Surr)	127	S1+	10 - 120	02/20/23 10:04	02/22/23 17:39	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 09:54	1
Barium	0.38	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 09:54	1
Cadmium	0.0016	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 09:54	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 09:54	1
Lead	0.0093	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 09:54	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 09:54	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 09:54	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:39	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-01 (1-1.5)

Lab Sample ID: 240-180646-1

Date Collected: 02/18/23 15:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.3		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	16.7		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-02 (1-2)

Lab Sample ID: 240-180646-2

Date Collected: 02/18/23 16:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		13	4.1	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,1,2,2-Tetrachloroethane	ND		13	7.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		13	3.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,1,2-Trichloroethane	ND		13	3.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,1-Dichloroethane	ND		13	2.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,1-Dichloroethene	ND		13	4.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,2,4-Trichlorobenzene	ND		13	7.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,2-Dibromo-3-Chloropropane	ND		26	12	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Ethylene Dibromide	ND		13	4.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,2-Dichlorobenzene	ND		13	6.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,2-Dichloroethane	ND		13	2.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,2-Dichloropropane	ND		13	2.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,3-Dichlorobenzene	ND		13	2.4	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
1,4-Dichlorobenzene	ND		13	2.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
2-Butanone (MEK)	ND		53	8.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
2-Hexanone	ND		53	14	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
4-Methyl-2-pentanone (MIBK)	ND		53	13	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Acetone	ND		53	13	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Benzene	ND		13	2.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Dichlorobromomethane	ND		13	3.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Bromoform	ND		13	12	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Bromomethane	ND		13	8.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Carbon disulfide	ND		13	5.7	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Carbon tetrachloride	ND		13	5.4	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Chlorobenzene	ND		13	1.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Chloroethane	ND		13	7.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Chloroform	ND		13	2.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Chloromethane	ND		13	3.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
cis-1,2-Dichloroethene	ND		13	2.1	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
cis-1,3-Dichloropropene	ND		13	6.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Cyclohexane	ND		26	8.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Chlorodibromomethane	ND		13	6.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Dichlorodifluoromethane	ND		13	2.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Ethylbenzene	ND		13	2.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Isopropylbenzene	ND		13	2.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Methyl acetate	ND		66	8.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Methyl tert-butyl ether	ND		13	2.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Methylcyclohexane	ND		26	3.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Methylene Chloride	ND		26	20	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Styrene	ND		13	2.7	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Tetrachloroethene	ND		13	5.1	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Toluene	ND		13	13	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
trans-1,2-Dichloroethene	ND		13	3.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
trans-1,3-Dichloropropene	ND		13	5.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Trichloroethene	ND		13	7.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Trichlorofluoromethane	ND		13	7.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50
Vinyl chloride	ND		0.26	0.13	mg/Kg	✳	02/21/23 13:30	02/23/23 23:40	1
Xylenes, Total	ND		26	4.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:29	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-02 (1-2)

Lab Sample ID: 240-180646-2

Date Collected: 02/18/23 16:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		56 - 125	02/21/23 13:30	02/23/23 23:40	1
Toluene-d8 (Surr)	78		56 - 125	02/21/23 13:30	02/24/23 12:29	50
Dibromofluoromethane (Surr)	84		41 - 138	02/21/23 13:30	02/23/23 23:40	1
Dibromofluoromethane (Surr)	83		41 - 138	02/21/23 13:30	02/24/23 12:29	50
4-Bromofluorobenzene (Surr)	98		41 - 143	02/21/23 13:30	02/23/23 23:40	1
4-Bromofluorobenzene (Surr)	75		41 - 143	02/21/23 13:30	02/24/23 12:29	50
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/21/23 13:30	02/23/23 23:40	1
1,2-Dichloroethane-d4 (Surr)	80		58 - 125	02/21/23 13:30	02/24/23 12:29	50

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.54	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
bis (2-chloroisopropyl) ether	ND		3.2	0.32	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,4,5-Trichlorophenol	ND		4.7	2.2	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,4,6-Trichlorophenol	ND		4.7	2.0	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,4-Dichlorophenol	ND		4.7	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,4-Dimethylphenol	ND		4.7	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,4-Dinitrophenol	ND		10	4.5	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,4-Dinitrotoluene	ND		6.3	2.0	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2,6-Dinitrotoluene	ND		6.3	1.8	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2-Chloronaphthalene	ND		1.6	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2-Chlorophenol	ND		1.6	0.32	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2-Methylnaphthalene	3.5		0.47	0.062	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2-Methylphenol	ND		6.3	0.98	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2-Nitroaniline	ND		6.3	1.3	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
2-Nitrophenol	ND		1.6	0.41	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
3,3'-Dichlorobenzidine	ND		3.2	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
3-Nitroaniline	ND		6.3	1.6	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4-Bromophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4-Chloro-3-methylphenol	ND		4.7	1.4	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4-Chloroaniline	ND		4.7	0.95	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4-Chlorophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4-Nitroaniline	ND		6.3	1.9	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
4-Nitrophenol	ND		10	3.0	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Acenaphthene	0.31	J	0.47	0.090	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Acenaphthylene	0.19	J	0.47	0.13	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Acetophenone	ND		3.2	0.35	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Anthracene	0.64		0.47	0.076	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Atrazine	ND		6.3	1.1	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Benzaldehyde	ND		3.2	0.73	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Benzo[a]anthracene	0.96		0.47	0.11	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Benzo[a]pyrene	0.60		0.47	0.30	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Benzo[b]fluoranthene	1.1		0.47	0.21	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Benzo[g,h,i]perylene	0.36	J	0.47	0.22	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Benzo[k]fluoranthene	0.34	J	0.47	0.22	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Bis(2-chloroethoxy)methane	ND		3.2	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Bis(2-chloroethyl)ether	ND		3.2	0.38	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25
Butyl benzyl phthalate	ND		2.2	0.70	mg/Kg	☼	02/20/23 10:04	02/22/23 18:03	25

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-02 (1-2)

Lab Sample ID: 240-180646-2

Date Collected: 02/18/23 16:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.4	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Carbazole	ND		1.6	0.60	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Chrysene	1.2		0.47	0.047	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Dibenz(a,h)anthracene	ND		0.47	0.22	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Dibenzofuran	1.0 J		1.6	0.41	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Diethyl phthalate	ND		2.2	0.98	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Dimethyl phthalate	ND		2.2	0.44	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Di-n-octyl phthalate	ND		2.2	0.89	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Fluoranthene	2.1		0.47	0.14	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Fluorene	0.31 J		0.47	0.087	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Hexachlorobenzene	ND		0.47	0.090	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Hexachlorobutadiene	ND		1.6	0.38	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Hexachlorocyclopentadiene	ND		10	2.0	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Hexachloroethane	ND		1.6	0.28	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Indeno[1,2,3-cd]pyrene	0.34 J		0.47	0.23	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Isophorone	ND		1.6	0.38	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
N-Nitrosodi-n-propylamine	ND		1.6	0.35	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
N-Nitrosodiphenylamine	ND		1.6	0.38	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Naphthalene	2.2		0.47	0.076	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Nitrobenzene	ND		3.2	0.41	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Pentachlorophenol	ND		4.7	1.8	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Phenanthrene	2.3		0.47	0.071	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Phenol	ND		1.6	0.25	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
Pyrene	1.7		0.47	0.068	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25
3 & 4 Methylphenol	ND		13	0.92	mg/Kg	✳	02/20/23 10:04	02/22/23 18:03	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	82		46 - 137	02/20/23 10:04	02/22/23 18:03	25
Phenol-d5 (Surr)	0	S1-	26 - 120	02/20/23 10:04	02/22/23 18:03	25
Nitrobenzene-d5 (Surr)	48		25 - 120	02/20/23 10:04	02/22/23 18:03	25
2-Fluorophenol (Surr)	59		20 - 120	02/20/23 10:04	02/22/23 18:03	25
2-Fluorobiphenyl (Surr)	72		34 - 120	02/20/23 10:04	02/22/23 18:03	25
2,4,6-Tribromophenol (Surr)	132	S1+	10 - 120	02/20/23 10:04	02/22/23 18:03	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 09:58	1
Barium	0.32 J B		0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 09:58	1
Cadmium	0.0013 J B		0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 09:58	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 09:58	1
Lead	0.010 J		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 09:58	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 09:58	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 09:58	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:46	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-02 (1-2)

Lab Sample ID: 240-180646-2

Date Collected: 02/18/23 16:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.7		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	20.3		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Date Collected: 02/18/23 16:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		14	4.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,1,2,2-Tetrachloroethane	ND		14	8.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		14	3.7	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,1,2-Trichloroethane	ND		14	3.1	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,1-Dichloroethane	ND		14	2.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,1-Dichloroethene	ND		14	4.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,2,4-Trichlorobenzene	ND		14	7.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,2-Dibromo-3-Chloropropane	ND		27	12	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Ethylene Dibromide	ND		14	4.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,2-Dichlorobenzene	ND		14	6.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,2-Dichloroethane	ND		14	2.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,2-Dichloropropane	ND		14	2.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,3-Dichlorobenzene	ND		14	2.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
1,4-Dichlorobenzene	ND		14	3.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
2-Butanone (MEK)	ND		55	8.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
2-Hexanone	ND		55	14	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
4-Methyl-2-pentanone (MIBK)	ND		55	13	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Acetone	ND		55	13	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Benzene	ND		14	2.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Dichlorobromomethane	ND		14	3.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Bromoform	ND		14	12	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Bromomethane	ND		14	9.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Carbon disulfide	ND		14	5.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Carbon tetrachloride	ND		14	5.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Chlorobenzene	ND		14	1.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Chloroethane	ND		14	8.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Chloroform	ND		14	2.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Chloromethane	ND		14	3.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
cis-1,2-Dichloroethene	ND		14	2.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
cis-1,3-Dichloropropene	ND		14	6.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Cyclohexane	ND		27	8.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Chlorodibromomethane	ND		14	6.4	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Dichlorodifluoromethane	ND		14	2.9	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Ethylbenzene	ND		14	2.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Isopropylbenzene	ND		14	2.1	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Methyl acetate	ND		68	9.2	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Methyl tert-butyl ether	ND		14	2.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Methylcyclohexane	ND		27	3.6	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Methylene Chloride	ND		27	21	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Styrene	ND		14	2.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Tetrachloroethene	ND		14	5.3	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Toluene	ND		14	13	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
trans-1,2-Dichloroethene	ND		14	3.4	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
trans-1,3-Dichloropropene	ND		14	5.7	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Trichloroethene	ND		14	7.8	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Trichlorofluoromethane	ND		14	7.5	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50
Vinyl chloride	ND		0.27	0.13	mg/Kg	✳	02/21/23 13:30	02/23/23 17:59	1
Xylenes, Total	ND		27	5.0	mg/Kg	✳	02/21/23 13:30	02/24/23 12:50	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Date Collected: 02/18/23 16:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/23/23 17:59	1
Toluene-d8 (Surr)	80		56 - 125	02/21/23 13:30	02/24/23 12:50	50
Dibromofluoromethane (Surr)	85		41 - 138	02/21/23 13:30	02/23/23 17:59	1
Dibromofluoromethane (Surr)	81		41 - 138	02/21/23 13:30	02/24/23 12:50	50
4-Bromofluorobenzene (Surr)	96		41 - 143	02/21/23 13:30	02/23/23 17:59	1
4-Bromofluorobenzene (Surr)	75		41 - 143	02/21/23 13:30	02/24/23 12:50	50
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/21/23 13:30	02/23/23 17:59	1
1,2-Dichloroethane-d4 (Surr)	79		58 - 125	02/21/23 13:30	02/24/23 12:50	50

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,4-Dimethylphenol	ND		3.7	0.99	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,4-Dinitrophenol	ND		8.2	3.5	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,4-Dinitrotoluene	ND		5.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2,6-Dinitrotoluene	ND		5.0	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2-Chloronaphthalene	ND		1.2	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2-Chlorophenol	ND		1.2	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2-Methylnaphthalene	2.3		0.37	0.049	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2-Methylphenol	ND	F1	5.0	0.77	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2-Nitroaniline	ND		5.0	0.99	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
3,3'-Dichlorobenzidine	ND	F1	2.5	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
3-Nitroaniline	ND		5.0	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4,6-Dinitro-2-methylphenol	ND		8.2	2.0	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4-Bromophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4-Chloroaniline	ND	F1	3.7	0.75	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4-Chlorophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4-Nitroaniline	ND		5.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
4-Nitrophenol	ND		8.2	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Acenaphthene	0.12	J	0.37	0.071	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Acenaphthylene	ND		0.37	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Acetophenone	ND		2.5	0.27	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Anthracene	0.20	J	0.37	0.060	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Atrazine	ND		5.0	0.89	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Benzaldehyde	ND		2.5	0.57	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Benzo[a]anthracene	0.57		0.37	0.085	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Benzo[a]pyrene	0.41		0.37	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Benzo[b]fluoranthene	0.72		0.37	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Benzo[g,h,i]perylene	0.29	J	0.37	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Benzo[k]fluoranthene	0.28	J	0.37	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20
Butyl benzyl phthalate	ND	F1	1.7	0.55	mg/Kg	☼	02/21/23 09:46	02/23/23 11:30	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Date Collected: 02/18/23 16:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.2	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Carbazole	ND		1.2	0.47	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Chrysene	0.68		0.37	0.037	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Dibenzofuran	0.75	J	1.2	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Diethyl phthalate	ND	F1	1.7	0.77	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Dimethyl phthalate	ND		1.7	0.35	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Di-n-butyl phthalate	ND		1.7	1.3	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Di-n-octyl phthalate	ND	F1	1.7	0.70	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Fluoranthene	1.2		0.37	0.11	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Fluorene	0.15	J	0.37	0.068	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Hexachlorobenzene	ND		0.37	0.071	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Hexachlorobutadiene	ND		1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Hexachlorocyclopentadiene	ND		8.2	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Indeno[1,2,3-cd]pyrene	0.22	J	0.37	0.18	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Isophorone	ND		1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
N-Nitrosodiphenylamine	ND		1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Naphthalene	1.3		0.37	0.060	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Nitrobenzene	ND		2.5	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Pentachlorophenol	ND	F1	3.7	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Phenanthrene	1.5		0.37	0.055	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Phenol	ND		1.2	0.20	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
Pyrene	1.0		0.37	0.053	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20
3 & 4 Methylphenol	ND	F1	9.9	0.72	mg/Kg	✳	02/21/23 09:46	02/23/23 11:30	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	69		46 - 137	02/21/23 09:46	02/23/23 11:30	20
Phenol-d5 (Surr)	53		26 - 120	02/21/23 09:46	02/23/23 11:30	20
Nitrobenzene-d5 (Surr)	48		25 - 120	02/21/23 09:46	02/23/23 11:30	20
2-Fluorophenol (Surr)	59		20 - 120	02/21/23 09:46	02/23/23 11:30	20
2-Fluorobiphenyl (Surr)	65		34 - 120	02/21/23 09:46	02/23/23 11:30	20
2,4,6-Tribromophenol (Surr)	85		10 - 120	02/21/23 09:46	02/23/23 11:30	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:03	1
Barium	0.32	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:03	1
Cadmium	0.0014	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:03	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:03	1
Lead	0.0098	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:03	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:03	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:03	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:48	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Date Collected: 02/18/23 16:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.1		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	18.9		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Date Collected: 02/18/23 16:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		31	9.5	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,1,2,2-Tetrachloroethane	ND		31	18	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		31	8.2	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,1,2-Trichloroethane	ND		31	7.0	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,1-Dichloroethane	ND		31	5.9	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,1-Dichloroethene	ND		31	10	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,2,4-Trichlorobenzene	ND		31	16	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,2-Dibromo-3-Chloropropane	ND		61	27	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Ethylene Dibromide	ND		31	9.7	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,2-Dichlorobenzene	ND		31	15	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,2-Dichloroethane	ND		31	5.8	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,2-Dichloropropane	ND		31	4.5	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,3-Dichlorobenzene	ND		31	5.6	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
1,4-Dichlorobenzene	ND		31	6.7	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
2-Butanone (MEK)	ND		120	19	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
2-Hexanone	ND		120	32	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
4-Methyl-2-pentanone (MIBK)	ND		120	29	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Acetone	ND		120	30	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Benzene	ND		31	5.1	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Dichlorobromomethane	ND		31	7.4	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Bromoform	ND		31	28	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Bromomethane	ND		31	20	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Carbon disulfide	ND		31	13	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Carbon tetrachloride	ND		31	12	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Chlorobenzene	ND		31	4.3	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Chloroethane	ND		31	18	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Chloroform	ND		31	6.6	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Chloromethane	ND		31	8.1	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
cis-1,2-Dichloroethene	ND		31	4.9	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
cis-1,3-Dichloropropene	ND		31	15	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Cyclohexane	ND		61	20	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Chlorodibromomethane	ND		31	14	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Dichlorodifluoromethane	ND		31	6.5	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Ethylbenzene	ND		31	5.8	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Isopropylbenzene	ND		31	4.6	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Methyl acetate	ND		150	21	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Methyl tert-butyl ether	ND		31	4.5	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Methylcyclohexane	ND		61	8.1	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Methylene Chloride	ND		61	47	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Styrene	ND		31	6.4	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Tetrachloroethene	ND		31	12	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Toluene	ND		31	29	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
trans-1,2-Dichloroethene	ND		31	7.6	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
trans-1,3-Dichloropropene	ND		31	13	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Trichloroethene	ND		31	17	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Trichlorofluoromethane	ND		31	17	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100
Vinyl chloride	ND		0.31	0.15	mg/Kg	✱	02/21/23 13:30	02/24/23 00:28	1
Xylenes, Total	ND		61	11	mg/Kg	✱	02/21/23 13:30	02/23/23 10:10	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Date Collected: 02/18/23 16:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/23/23 10:10	100
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/24/23 00:28	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/23/23 10:10	100
Dibromofluoromethane (Surr)	88		41 - 138	02/21/23 13:30	02/24/23 00:28	1
4-Bromofluorobenzene (Surr)	74		41 - 143	02/21/23 13:30	02/23/23 10:10	100
4-Bromofluorobenzene (Surr)	96		41 - 143	02/21/23 13:30	02/24/23 00:28	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/23/23 10:10	100
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	02/21/23 13:30	02/24/23 00:28	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.39	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,4-Dimethylphenol	ND		3.5	0.92	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,4-Dinitrophenol	ND		7.6	3.3	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,4-Dinitrotoluene	ND		4.6	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2,6-Dinitrotoluene	ND		4.6	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2-Chloronaphthalene	ND		1.2	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2-Methylnaphthalene	3.6		0.35	0.045	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2-Methylphenol	ND		4.6	0.72	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2-Nitroaniline	ND		4.6	0.92	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
2-Nitrophenol	ND		1.2	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
3,3'-Dichlorobenzidine	ND		2.3	0.99	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
3-Nitroaniline	ND		4.6	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4,6-Dinitro-2-methylphenol	ND		7.6	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4-Bromophenyl phenyl ether	ND		1.2	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4-Chloro-3-methylphenol	ND		3.5	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4-Chloroaniline	ND		3.5	0.69	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4-Chlorophenyl phenyl ether	ND		1.2	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4-Nitroaniline	ND		4.6	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
4-Nitrophenol	ND		7.6	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Acenaphthene	0.22	J	0.35	0.066	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Acenaphthylene	0.16	J	0.35	0.093	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Acetophenone	ND		2.3	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Anthracene	0.29	J	0.35	0.056	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Atrazine	ND		4.6	0.83	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Benzaldehyde	ND		2.3	0.53	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Benzo[a]anthracene	0.86		0.35	0.079	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Benzo[a]pyrene	0.68		0.35	0.22	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Benzo[b]fluoranthene	1.3		0.35	0.15	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Benzo[g,h,i]perylene	0.27	J	0.35	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Benzo[k]fluoranthene	0.40		0.35	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20
Butyl benzyl phthalate	ND		1.6	0.51	mg/Kg	☼	02/21/23 09:46	02/23/23 12:48	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Date Collected: 02/18/23 16:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.6	1.7	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Carbazole	ND		1.2	0.44	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Chrysene	0.98		0.35	0.034	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Dibenzofuran	1.1	J	1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Diethyl phthalate	ND		1.6	0.72	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Dimethyl phthalate	ND		1.6	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Di-n-octyl phthalate	ND		1.6	0.65	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Fluoranthene	1.6		0.35	0.10	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Fluorene	0.21	J	0.35	0.063	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Hexachlorobenzene	ND		0.35	0.066	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Hexachlorocyclopentadiene	ND		7.6	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Indeno[1,2,3-cd]pyrene	0.25	J	0.35	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Isophorone	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
N-Nitrosodi-n-propylamine	ND		1.2	0.25	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Naphthalene	2.5		0.35	0.056	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Nitrobenzene	ND		2.3	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Pentachlorophenol	ND		3.5	1.3	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Phenanthrene	2.1		0.35	0.051	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Phenol	ND		1.2	0.18	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
Pyrene	1.4		0.35	0.049	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20
3 & 4 Methylphenol	ND		9.2	0.67	mg/Kg	✳	02/21/23 09:46	02/23/23 12:48	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	75		46 - 137	02/21/23 09:46	02/23/23 12:48	20
Phenol-d5 (Surr)	55		26 - 120	02/21/23 09:46	02/23/23 12:48	20
Nitrobenzene-d5 (Surr)	68		25 - 120	02/21/23 09:46	02/23/23 12:48	20
2-Fluorophenol (Surr)	77		20 - 120	02/21/23 09:46	02/23/23 12:48	20
2-Fluorobiphenyl (Surr)	72		34 - 120	02/21/23 09:46	02/23/23 12:48	20
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/21/23 09:46	02/23/23 12:48	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:07	1
Barium	0.39	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:07	1
Cadmium	0.0013	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:07	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:07	1
Lead	0.0074	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:07	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:07	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:07	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:50	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Date Collected: 02/18/23 16:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.6		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	13.4		0.1	0.1	%			02/19/23 15:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Date Collected: 02/18/23 16:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		23	7.2	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,1,2,2-Tetrachloroethane	ND		23	14	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		23	6.1	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,1,2-Trichloroethane	ND		23	5.2	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,1-Dichloroethane	ND		23	4.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,1-Dichloroethene	ND		23	7.5	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,2,4-Trichlorobenzene	ND		23	12	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,2-Dibromo-3-Chloropropane	ND		46	20	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Ethylene Dibromide	ND		23	7.2	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,2-Dichlorobenzene	ND		23	11	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,2-Dichloroethane	ND		23	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,2-Dichloropropane	ND		23	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,3-Dichlorobenzene	ND		23	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
1,4-Dichlorobenzene	ND		23	5.0	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
2-Butanone (MEK)	ND		92	14	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
2-Hexanone	ND		92	24	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
4-Methyl-2-pentanone (MIBK)	ND		92	22	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Acetone	ND		92	22	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Benzene	ND		23	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Dichlorobromomethane	ND		23	5.6	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Bromoform	ND		23	21	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Bromomethane	ND		23	15	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Carbon disulfide	ND		23	9.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Carbon tetrachloride	ND		23	9.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Chlorobenzene	ND		23	3.2	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Chloroethane	ND		23	14	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Chloroform	ND		23	5.0	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Chloromethane	ND		23	6.1	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
cis-1,2-Dichloroethene	ND		23	3.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
cis-1,3-Dichloropropene	ND		23	11	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Cyclohexane	ND		46	15	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Chlorodibromomethane	ND		23	11	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Dichlorodifluoromethane	ND		23	4.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Ethylbenzene	ND		23	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Isopropylbenzene	ND		23	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Methyl acetate	ND		110	15	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Methyl tert-butyl ether	ND		23	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Methylcyclohexane	ND		46	6.1	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Methylene Chloride	ND		46	35	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Styrene	ND		23	4.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Tetrachloroethene	ND		23	8.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Toluene	ND		23	22	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
trans-1,2-Dichloroethene	ND		23	5.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
trans-1,3-Dichloropropene	ND		23	9.6	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Trichloroethene	ND		23	13	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Trichlorofluoromethane	ND		23	13	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100
Vinyl chloride	ND		0.23	0.11	mg/Kg	✱	02/21/23 13:30	02/24/23 00:53	1
Xylenes, Total	ND		46	8.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:12	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Date Collected: 02/18/23 16:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/24/23 00:53	1
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/24/23 13:12	100
Dibromofluoromethane (Surr)	87		41 - 138	02/21/23 13:30	02/24/23 00:53	1
Dibromofluoromethane (Surr)	80		41 - 138	02/21/23 13:30	02/24/23 13:12	100
4-Bromofluorobenzene (Surr)	98		41 - 143	02/21/23 13:30	02/24/23 00:53	1
4-Bromofluorobenzene (Surr)	74		41 - 143	02/21/23 13:30	02/24/23 13:12	100
1,2-Dichloroethane-d4 (Surr)	95		58 - 125	02/21/23 13:30	02/24/23 00:53	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/24/23 13:12	100

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.1	0.39	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,4,5-Trichlorophenol	ND		3.4	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,4,6-Trichlorophenol	ND		3.4	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,4-Dichlorophenol	ND		3.4	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,4-Dimethylphenol	ND		3.4	0.92	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,4-Dinitrophenol	ND		7.5	3.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,4-Dinitrotoluene	ND		4.6	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2,6-Dinitrotoluene	ND		4.6	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2-Chloronaphthalene	ND		1.1	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2-Chlorophenol	ND		1.1	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2-Methylnaphthalene	3.3		0.34	0.045	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2-Methylphenol	ND		4.6	0.71	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2-Nitroaniline	ND		4.6	0.92	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
2-Nitrophenol	ND		1.1	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
3,3'-Dichlorobenzidine	ND		2.3	0.98	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
3-Nitroaniline	ND		4.6	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4,6-Dinitro-2-methylphenol	ND		7.5	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4-Bromophenyl phenyl ether	ND		1.1	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4-Chloro-3-methylphenol	ND		3.4	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4-Chloroaniline	ND		3.4	0.69	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4-Chlorophenyl phenyl ether	ND		1.1	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4-Nitroaniline	ND		4.6	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
4-Nitrophenol	ND		7.5	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Acenaphthene	0.13	J	0.34	0.065	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Acenaphthylene	0.10	J	0.34	0.092	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Acetophenone	ND		2.3	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Anthracene	0.18	J	0.34	0.055	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Atrazine	ND		4.6	0.82	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Benzaldehyde	ND		2.3	0.53	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Benzo[a]anthracene	0.50		0.34	0.078	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Benzo[a]pyrene	0.43		0.34	0.21	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Benzo[b]fluoranthene	0.84		0.34	0.15	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Benzo[g,h,i]perylene	0.25	J	0.34	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Benzo[k]fluoranthene	0.24	J	0.34	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Bis(2-chloroethoxy)methane	ND		2.3	0.27	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Bis(2-chloroethyl)ether	ND		2.3	0.27	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20
Butyl benzyl phthalate	ND		1.6	0.50	mg/Kg	☼	02/21/23 09:46	02/23/23 13:14	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Date Collected: 02/18/23 16:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.5	1.7	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Carbazole	ND		1.1	0.43	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Chrysene	0.59		0.34	0.034	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Dibenz(a,h)anthracene	ND		0.34	0.16	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Dibenzofuran	0.90	J	1.1	0.30	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Diethyl phthalate	ND		1.6	0.71	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Dimethyl phthalate	ND		1.6	0.32	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Di-n-octyl phthalate	ND		1.6	0.64	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Fluoranthene	0.93		0.34	0.10	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Fluorene	0.13	J	0.34	0.063	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Hexachlorobenzene	ND		0.34	0.065	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Hexachlorobutadiene	ND		1.1	0.27	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Hexachlorocyclopentadiene	ND		7.5	1.4	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Hexachloroethane	ND		1.1	0.21	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Indeno[1,2,3-cd]pyrene	ND		0.34	0.17	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Isophorone	ND		1.1	0.27	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
N-Nitrosodi-n-propylamine	ND		1.1	0.25	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
N-Nitrosodiphenylamine	ND		1.1	0.27	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Naphthalene	2.2		0.34	0.055	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Nitrobenzene	ND		2.3	0.30	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Pentachlorophenol	ND		3.4	1.3	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Phenanthrene	1.7		0.34	0.051	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Phenol	ND		1.1	0.18	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
Pyrene	0.84		0.34	0.049	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20
3 & 4 Methylphenol	ND		9.2	0.66	mg/Kg	☆	02/21/23 09:46	02/23/23 13:14	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	53		46 - 137	02/21/23 09:46	02/23/23 13:14	20
Phenol-d5 (Surr)	44		26 - 120	02/21/23 09:46	02/23/23 13:14	20
Nitrobenzene-d5 (Surr)	48		25 - 120	02/21/23 09:46	02/23/23 13:14	20
2-Fluorophenol (Surr)	55		20 - 120	02/21/23 09:46	02/23/23 13:14	20
2-Fluorobiphenyl (Surr)	55		34 - 120	02/21/23 09:46	02/23/23 13:14	20
2,4,6-Tribromophenol (Surr)	88		10 - 120	02/21/23 09:46	02/23/23 13:14	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:12	1
Barium	0.27	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:12	1
Cadmium	0.0013	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:12	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:12	1
Lead	0.0080	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:12	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:12	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:12	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:52	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Date Collected: 02/18/23 16:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.3		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	13.7		0.1	0.1	%			02/19/23 15:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/20/23 19:54	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/20/23 19:54	1
2-Butanone (MEK)	0.015	J	0.25	0.0012	mg/L			02/20/23 19:54	1
Benzene	ND		0.025	0.00042	mg/L			02/20/23 19:54	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/20/23 19:54	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/20/23 19:54	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/20/23 19:54	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/20/23 19:54	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/20/23 19:54	1
Chloroform	ND		0.025	0.00047	mg/L			02/20/23 19:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	94		80 - 120					02/20/23 19:54	1
<i>Dibromofluoromethane (Surr)</i>	101		71 - 121					02/20/23 19:54	1
<i>4-Bromofluorobenzene (Surr)</i>	111		80 - 120					02/20/23 19:54	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	93		76 - 120					02/20/23 19:54	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/21/23 08:07	02/23/23 14:40	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/21/23 08:07	02/23/23 14:40	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/21/23 08:07	02/23/23 14:40	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/21/23 08:07	02/23/23 14:40	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/21/23 08:07	02/23/23 14:40	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/21/23 08:07	02/23/23 14:40	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/21/23 08:07	02/23/23 14:40	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/21/23 08:07	02/23/23 14:40	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/21/23 08:07	02/23/23 14:40	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/21/23 08:07	02/23/23 14:40	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/21/23 08:07	02/23/23 14:40	1
Pyridine	ND		0.0040	0.00036	mg/L		02/21/23 08:07	02/23/23 14:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	115		46 - 137				02/21/23 08:07	02/23/23 14:40	1
<i>Phenol-d5 (Surr)</i>	62		26 - 120				02/21/23 08:07	02/23/23 14:40	1
<i>Nitrobenzene-d5 (Surr)</i>	72		24 - 120				02/21/23 08:07	02/23/23 14:40	1
<i>2-Fluorophenol (Surr)</i>	69		19 - 120				02/21/23 08:07	02/23/23 14:40	1
<i>2-Fluorobiphenyl (Surr)</i>	98		33 - 120				02/21/23 08:07	02/23/23 14:40	1
<i>2,4,6-Tribromophenol (Surr)</i>	106		10 - 120				02/21/23 08:07	02/23/23 14:40	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/21/23 08:09	02/22/23 11:32	1
Endrin	ND		0.00050	0.0000065	mg/L		02/21/23 08:09	02/22/23 11:32	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/21/23 08:09	02/22/23 11:32	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/21/23 08:09	02/22/23 11:32	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/21/23 08:09	02/22/23 11:32	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/21/23 08:09	02/22/23 11:32	1
Toxaphene	ND		0.020	0.000058	mg/L		02/21/23 08:09	02/22/23 11:32	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	71		10 - 145	02/21/23 08:09	02/22/23 11:32	1
DCB Decachlorobiphenyl	74		10 - 145	02/21/23 08:09	02/22/23 11:32	1
Tetrachloro-m-xylene	54		10 - 123	02/21/23 08:09	02/22/23 11:32	1
Tetrachloro-m-xylene	51		10 - 123	02/21/23 08:09	02/22/23 11:32	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 08:41	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 08:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	66		26 - 136	02/21/23 20:16	02/22/23 08:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.3		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	17.7		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		59	30	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1221	ND		59	36	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1232	ND		59	25	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1242	ND		59	23	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1248	ND		59	20	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1254	ND		59	25	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1260	ND		59	25	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1262	ND		59	26	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Aroclor-1268	ND		59	19	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1
Polychlorinated biphenyls, Total	ND		59	36	ug/Kg	✳	02/20/23 08:20	02/21/23 01:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	63		10 - 149	02/20/23 08:20	02/21/23 01:31	1
DCB Decachlorobiphenyl	61		10 - 174	02/20/23 08:20	02/21/23 01:31	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	0.30	J	0.68	0.23	ng/g	✳	02/21/23 12:53	02/21/23 17:33	1
Perfluorooctanesulfonic acid	0.33	J	0.68	0.23	ng/g	✳	02/21/23 12:53	02/21/23 17:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	74		26 - 159	02/21/23 12:53	02/21/23 17:33	1
13C8 PFOS	84		41 - 154	02/21/23 12:53	02/21/23 17:33	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Date Collected: 02/18/23 16:52

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 76.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		21	6.6	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,1,2,2-Tetrachloroethane	ND		21	13	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21	5.7	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,1,2-Trichloroethane	ND		21	4.8	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,1-Dichloroethane	ND		21	4.1	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,1-Dichloroethene	ND		21	6.9	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,2,4-Trichlorobenzene	ND		21	11	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,2-Dibromo-3-Chloropropane	ND		42	19	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Ethylene Dibromide	ND		21	6.7	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,2-Dichlorobenzene	ND		21	10	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,2-Dichloroethane	ND		21	4.0	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,2-Dichloropropane	ND		21	3.1	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,3-Dichlorobenzene	ND		21	3.9	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
1,4-Dichlorobenzene	ND		21	4.7	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
2-Butanone (MEK)	ND		85	13	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
2-Hexanone	ND		85	22	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
4-Methyl-2-pentanone (MIBK)	ND		85	20	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Acetone	ND		85	21	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Benzene	ND		21	3.6	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Dichlorobromomethane	ND		21	5.2	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Bromoform	ND		21	19	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Bromomethane	ND		21	14	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Carbon disulfide	ND		21	9.1	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Carbon tetrachloride	ND		21	8.6	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Chlorobenzene	ND		21	3.0	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Chloroethane	ND		21	13	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Chloroform	ND		21	4.6	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Chloromethane	ND		21	5.6	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
cis-1,2-Dichloroethene	ND		21	3.4	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
cis-1,3-Dichloropropene	ND		21	11	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Cyclohexane	ND		42	14	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Chlorodibromomethane	ND		21	9.9	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Dichlorodifluoromethane	ND		21	4.5	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Ethylbenzene	ND		21	4.0	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Isopropylbenzene	ND		21	3.2	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Methyl acetate	ND		110	14	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Methyl tert-butyl ether	ND		21	3.1	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Methylcyclohexane	ND		42	5.6	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Methylene Chloride	ND		42	32	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Styrene	ND		21	4.4	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Tetrachloroethene	ND		21	8.2	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Toluene	ND		21	20	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
trans-1,2-Dichloroethene	ND		21	5.3	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
trans-1,3-Dichloropropene	ND		21	8.9	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Trichloroethene	ND		21	12	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Trichlorofluoromethane	ND		21	12	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667
Vinyl chloride	ND		0.32	0.16	mg/Kg	✳	02/21/23 13:30	02/24/23 01:17	1
Xylenes, Total	ND		42	7.7	mg/Kg	✳	02/21/23 13:30	02/24/23 13:34	66.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Date Collected: 02/18/23 16:52

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 76.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/24/23 01:17	1
Toluene-d8 (Surr)	82		56 - 125	02/21/23 13:30	02/24/23 13:34	66.667
Dibromofluoromethane (Surr)	87		41 - 138	02/21/23 13:30	02/24/23 01:17	1
Dibromofluoromethane (Surr)	85		41 - 138	02/21/23 13:30	02/24/23 13:34	66.667
4-Bromofluorobenzene (Surr)	96		41 - 143	02/21/23 13:30	02/24/23 01:17	1
4-Bromofluorobenzene (Surr)	79		41 - 143	02/21/23 13:30	02/24/23 13:34	66.667
1,2-Dichloroethane-d4 (Surr)	93		58 - 125	02/21/23 13:30	02/24/23 01:17	1
1,2-Dichloroethane-d4 (Surr)	81		58 - 125	02/21/23 13:30	02/24/23 13:34	66.667

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.3	0.44	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
bis (2-chloroisopropyl) ether	ND		2.6	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,4,5-Trichlorophenol	ND		3.9	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,4,6-Trichlorophenol	ND		3.9	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,4-Dichlorophenol	ND		3.9	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,4-Dimethylphenol	ND		3.9	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,4-Dinitrophenol	ND		8.5	3.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,4-Dinitrotoluene	ND		5.2	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2,6-Dinitrotoluene	ND		5.2	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2-Chloronaphthalene	ND		1.3	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2-Chlorophenol	ND		1.3	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2-Methylnaphthalene	3.4		0.39	0.051	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2-Methylphenol	ND		5.2	0.80	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2-Nitroaniline	ND		5.2	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
2-Nitrophenol	ND		1.3	0.34	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
3,3'-Dichlorobenzidine	ND		2.6	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
3-Nitroaniline	ND		5.2	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4,6-Dinitro-2-methylphenol	ND		8.5	2.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4-Bromophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4-Chloro-3-methylphenol	ND		3.9	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4-Chloroaniline	ND		3.9	0.78	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4-Chlorophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4-Nitroaniline	ND		5.2	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
4-Nitrophenol	ND		8.5	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Acenaphthene	0.33	J	0.39	0.074	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Acenaphthylene	0.16	J	0.39	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Acetophenone	ND		2.6	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Anthracene	0.40		0.39	0.062	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Atrazine	ND		5.2	0.93	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Benzaldehyde	ND		2.6	0.59	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Benzo[a]anthracene	0.83		0.39	0.088	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Benzo[a]pyrene	0.56		0.39	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Benzo[b]fluoranthene	1.2		0.39	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Benzo[g,h,i]perylene	0.27	J	0.39	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Benzo[k]fluoranthene	0.46		0.39	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Bis(2-chloroethoxy)methane	ND		2.6	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Bis(2-chloroethyl)ether	ND		2.6	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20
Butyl benzyl phthalate	ND		1.8	0.57	mg/Kg	☼	02/21/23 09:46	02/23/23 13:39	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Date Collected: 02/18/23 16:52

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 76.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.5	1.9	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Carbazole	ND		1.3	0.49	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Chrysene	1.3		0.39	0.039	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Dibenz(a,h)anthracene	ND		0.39	0.18	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Dibenzofuran	1.1	J	1.3	0.34	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Diethyl phthalate	ND		1.8	0.80	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Dimethyl phthalate	ND		1.8	0.36	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Di-n-octyl phthalate	ND		1.8	0.72	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Fluoranthene	2.0		0.39	0.12	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Fluorene	0.29	J	0.39	0.071	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Hexachlorobenzene	ND		0.39	0.074	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Hexachlorobutadiene	ND		1.3	0.31	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Hexachlorocyclopentadiene	ND		8.5	1.6	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Hexachloroethane	ND		1.3	0.23	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Indeno[1,2,3-cd]pyrene	0.20	J	0.39	0.19	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Isophorone	ND		1.3	0.31	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
N-Nitrosodiphenylamine	ND		1.3	0.31	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Naphthalene	2.4		0.39	0.062	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Nitrobenzene	ND		2.6	0.34	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Pentachlorophenol	ND		3.9	1.5	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Phenanthrene	2.2		0.39	0.058	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Phenol	ND		1.3	0.21	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
Pyrene	1.6		0.39	0.055	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20
3 & 4 Methylphenol	ND		10	0.75	mg/Kg	☆	02/21/23 09:46	02/23/23 13:39	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	74		46 - 137	02/21/23 09:46	02/23/23 13:39	20
Phenol-d5 (Surr)	54		26 - 120	02/21/23 09:46	02/23/23 13:39	20
Nitrobenzene-d5 (Surr)	70		25 - 120	02/21/23 09:46	02/23/23 13:39	20
2-Fluorophenol (Surr)	71		20 - 120	02/21/23 09:46	02/23/23 13:39	20
2-Fluorobiphenyl (Surr)	73		34 - 120	02/21/23 09:46	02/23/23 13:39	20
2,4,6-Tribromophenol (Surr)	95		10 - 120	02/21/23 09:46	02/23/23 13:39	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:16	1
Barium	0.27	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:16	1
Cadmium	0.00089	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:16	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:16	1
Lead	0.0074	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:16	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:16	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:16	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:59	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Date Collected: 02/18/23 16:52

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 76.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	76.5		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	23.5		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Date Collected: 02/18/23 17:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		18	5.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,1,2,2-Tetrachloroethane	ND		18	11	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		18	4.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,1,2-Trichloroethane	ND		18	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,1-Dichloroethane	ND		18	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,1-Dichloroethene	ND		18	6.0	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,2,4-Trichlorobenzene	ND		18	9.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,2-Dibromo-3-Chloropropane	ND		36	16	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Ethylene Dibromide	ND		18	5.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,2-Dichlorobenzene	ND		18	8.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,2-Dichloroethane	ND		18	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,2-Dichloropropane	ND		18	2.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,3-Dichlorobenzene	ND		18	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
1,4-Dichlorobenzene	ND		18	4.0	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
2-Butanone (MEK)	ND		73	11	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
2-Hexanone	ND		73	19	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
4-Methyl-2-pentanone (MIBK)	ND		73	17	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Acetone	ND		73	18	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Benzene	ND		18	3.1	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Dichlorobromomethane	ND		18	4.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Bromoform	ND		18	17	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Bromomethane	ND		18	12	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Carbon disulfide	ND		18	7.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Carbon tetrachloride	ND		18	7.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Chlorobenzene	ND		18	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Chloroethane	ND		18	11	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Chloroform	ND		18	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Chloromethane	ND		18	4.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
cis-1,2-Dichloroethene	ND		18	2.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
cis-1,3-Dichloropropene	ND		18	9.1	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Cyclohexane	ND		36	12	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Chlorodibromomethane	ND		18	8.5	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Dichlorodifluoromethane	ND		18	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Ethylbenzene	ND		18	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Isopropylbenzene	ND		18	2.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Methyl acetate	ND		91	12	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Methyl tert-butyl ether	ND		18	2.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Methylcyclohexane	ND		36	4.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Methylene Chloride	ND		36	28	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Styrene	ND		18	3.8	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Tetrachloroethene	ND		18	7.1	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Toluene	ND		18	18	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
trans-1,2-Dichloroethene	ND		18	4.5	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
trans-1,3-Dichloropropene	ND		18	7.7	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Trichloroethene	ND		18	10	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Trichlorofluoromethane	ND		18	10	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667
Vinyl chloride	ND		0.27	0.13	mg/Kg	✱	02/21/23 13:30	02/24/23 01:41	1
Xylenes, Total	ND		36	6.6	mg/Kg	✱	02/21/23 13:30	02/24/23 13:55	66.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Date Collected: 02/18/23 17:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/24/23 01:41	1
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/24/23 13:55	66.667
Dibromofluoromethane (Surr)	87		41 - 138	02/21/23 13:30	02/24/23 01:41	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/24/23 13:55	66.667
4-Bromofluorobenzene (Surr)	96		41 - 143	02/21/23 13:30	02/24/23 01:41	1
4-Bromofluorobenzene (Surr)	73		41 - 143	02/21/23 13:30	02/24/23 13:55	66.667
1,2-Dichloroethane-d4 (Surr)	93		58 - 125	02/21/23 13:30	02/24/23 01:41	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125	02/21/23 13:30	02/24/23 13:55	66.667

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,4-Dimethylphenol	ND		3.7	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,4-Dinitrophenol	ND		8.2	3.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,4-Dinitrotoluene	ND		5.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2,6-Dinitrotoluene	ND		5.0	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2-Chloronaphthalene	ND		1.2	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2-Chlorophenol	ND		1.2	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2-Methylnaphthalene	3.0		0.37	0.049	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2-Methylphenol	ND		5.0	0.77	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2-Nitroaniline	ND		5.0	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
3-Nitroaniline	ND		5.0	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4,6-Dinitro-2-methylphenol	ND		8.2	2.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4-Bromophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4-Chloroaniline	ND		3.7	0.75	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4-Chlorophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4-Nitroaniline	ND		5.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
4-Nitrophenol	ND		8.2	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Acenaphthene	ND		0.37	0.071	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Acenaphthylene	ND		0.37	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Acetophenone	ND		2.5	0.27	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Anthracene	0.15 J		0.37	0.060	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Atrazine	ND		5.0	0.90	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Benzaldehyde	ND		2.5	0.57	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Benzo[a]anthracene	0.45		0.37	0.085	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Benzo[a]pyrene	0.38		0.37	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Benzo[b]fluoranthene	0.75		0.37	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Benzo[g,h,i]perylene	0.18 J		0.37	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Benzo[k]fluoranthene	0.23 J		0.37	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20
Butyl benzyl phthalate	ND		1.7	0.55	mg/Kg	☼	02/21/23 09:46	02/23/23 14:05	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Date Collected: 02/18/23 17:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.2	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Carbazole	ND		1.2	0.47	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Chrysene	0.53		0.37	0.037	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Dibenzofuran	0.84	J	1.2	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Diethyl phthalate	ND		1.7	0.77	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Dimethyl phthalate	ND		1.7	0.35	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Di-n-butyl phthalate	ND		1.7	1.3	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Di-n-octyl phthalate	ND		1.7	0.70	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Fluoranthene	0.86		0.37	0.11	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Fluorene	0.11	J	0.37	0.068	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Hexachlorobenzene	ND		0.37	0.071	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Hexachlorobutadiene	ND		1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Hexachlorocyclopentadiene	ND		8.2	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Indeno[1,2,3-cd]pyrene	ND		0.37	0.18	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Isophorone	ND		1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
N-Nitrosodiphenylamine	ND		1.2	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Naphthalene	2.0		0.37	0.060	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Nitrobenzene	ND		2.5	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Phenanthrene	1.6		0.37	0.056	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Phenol	ND		1.2	0.20	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
Pyrene	0.74		0.37	0.053	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20
3 & 4 Methylphenol	ND		10	0.72	mg/Kg	✳	02/21/23 09:46	02/23/23 14:05	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	54		46 - 137	02/21/23 09:46	02/23/23 14:05	20
Phenol-d5 (Surr)	32		26 - 120	02/21/23 09:46	02/23/23 14:05	20
Nitrobenzene-d5 (Surr)	39		25 - 120	02/21/23 09:46	02/23/23 14:05	20
2-Fluorophenol (Surr)	49		20 - 120	02/21/23 09:46	02/23/23 14:05	20
2-Fluorobiphenyl (Surr)	53		34 - 120	02/21/23 09:46	02/23/23 14:05	20
2,4,6-Tribromophenol (Surr)	83		10 - 120	02/21/23 09:46	02/23/23 14:05	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:21	1
Barium	0.31	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:21	1
Cadmium	0.0011	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:21	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:21	1
Lead	0.0090	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:21	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:21	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:21	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:01	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Date Collected: 02/18/23 17:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.7		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	20.3		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Date Collected: 02/18/23 17:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		16	5.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,1,2,2-Tetrachloroethane	ND		16	9.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		16	4.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,1,2-Trichloroethane	ND		16	3.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,1-Dichloroethane	ND		16	3.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,1-Dichloroethene	ND		16	5.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,2,4-Trichlorobenzene	ND		16	8.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,2-Dibromo-3-Chloropropane	ND		33	15	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Ethylene Dibromide	ND		16	5.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,2-Dichlorobenzene	ND		16	7.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,2-Dichloroethane	ND		16	3.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,2-Dichloropropane	ND		16	2.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,3-Dichlorobenzene	ND		16	3.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
1,4-Dichlorobenzene	ND		16	3.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
2-Butanone (MEK)	ND		66	10	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
2-Hexanone	ND		66	17	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
4-Methyl-2-pentanone (MIBK)	ND		66	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Acetone	ND		66	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Benzene	ND		16	2.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Dichlorobromomethane	ND		16	4.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Bromoform	ND		16	15	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Bromomethane	ND		16	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Carbon disulfide	ND		16	7.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Carbon tetrachloride	ND		16	6.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Chlorobenzene	ND		16	2.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Chloroethane	ND		16	9.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Chloroform	ND		16	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Chloromethane	ND		16	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
cis-1,2-Dichloroethene	ND		16	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
cis-1,3-Dichloropropene	ND		16	8.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Cyclohexane	ND		33	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Chlorodibromomethane	ND		16	7.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Dichlorodifluoromethane	ND		16	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Ethylbenzene	ND		16	3.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Isopropylbenzene	ND		16	2.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Methyl acetate	ND		82	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Methyl tert-butyl ether	ND		16	2.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Methylcyclohexane	ND		33	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Methylene Chloride	ND		33	25	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Styrene	ND		16	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Tetrachloroethene	ND		16	6.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Toluene	ND		16	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
trans-1,2-Dichloroethene	ND		16	4.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
trans-1,3-Dichloropropene	ND		16	6.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Trichloroethene	ND		16	9.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Trichlorofluoromethane	ND		16	9.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667
Vinyl chloride	0.24	J	0.25	0.12	mg/Kg	✱	02/21/23 13:30	02/24/23 02:06	1
Xylenes, Total	ND		33	6.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:16	66.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Date Collected: 02/18/23 17:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/24/23 02:06	1
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/24/23 14:16	66.667
Dibromofluoromethane (Surr)	85		41 - 138	02/21/23 13:30	02/24/23 02:06	1
Dibromofluoromethane (Surr)	83		41 - 138	02/21/23 13:30	02/24/23 14:16	66.667
4-Bromofluorobenzene (Surr)	96		41 - 143	02/21/23 13:30	02/24/23 02:06	1
4-Bromofluorobenzene (Surr)	74		41 - 143	02/21/23 13:30	02/24/23 14:16	66.667
1,2-Dichloroethane-d4 (Surr)	91		58 - 125	02/21/23 13:30	02/24/23 02:06	1
1,2-Dichloroethane-d4 (Surr)	79		58 - 125	02/21/23 13:30	02/24/23 14:16	66.667

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
bis (2-chloroisopropyl) ether	ND		2.4	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,4,5-Trichlorophenol	ND		3.6	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,4,6-Trichlorophenol	ND		3.6	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,4-Dichlorophenol	ND		3.6	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,4-Dimethylphenol	ND		3.6	0.95	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,4-Dinitrophenol	ND		7.8	3.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2-Chlorophenol	ND		1.2	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2-Methylnaphthalene	2.6		0.36	0.046	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2-Methylphenol	ND		4.7	0.73	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2-Nitroaniline	ND		4.7	0.95	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
2-Nitrophenol	ND		1.2	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
3,3'-Dichlorobenzidine	ND		2.4	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
3-Nitroaniline	ND		4.7	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4,6-Dinitro-2-methylphenol	ND		7.8	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4-Chloro-3-methylphenol	ND		3.6	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4-Chloroaniline	ND		3.6	0.71	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
4-Nitrophenol	ND		7.8	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Acenaphthene	0.16	J	0.36	0.068	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Acenaphthylene	0.11	J	0.36	0.095	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Acetophenone	ND		2.4	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Anthracene	0.23	J	0.36	0.057	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Atrazine	ND		4.7	0.85	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Benzaldehyde	ND		2.4	0.55	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Benzo[a]anthracene	0.58		0.36	0.081	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Benzo[a]pyrene	0.47		0.36	0.22	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Benzo[b]fluoranthene	0.97		0.36	0.15	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Benzo[g,h,i]perylene	0.18	J	0.36	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Benzo[k]fluoranthene	0.27	J	0.36	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Bis(2-chloroethoxy)methane	ND		2.4	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Bis(2-chloroethyl)ether	ND		2.4	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20
Butyl benzyl phthalate	ND		1.7	0.52	mg/Kg	☼	02/21/23 09:46	02/23/23 14:31	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Date Collected: 02/18/23 17:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.8	1.8	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Carbazole	ND		1.2	0.45	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Chrysene	0.70		0.36	0.035	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Dibenz(a,h)anthracene	ND		0.36	0.16	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Dibenzofuran	0.78 J		1.2	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Diethyl phthalate	ND		1.7	0.73	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Dimethyl phthalate	ND		1.7	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Di-n-butyl phthalate	ND		1.7	1.2	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Di-n-octyl phthalate	ND		1.7	0.66	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Fluoranthene	1.3		0.36	0.11	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Fluorene	0.18 J		0.36	0.065	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Hexachlorobenzene	ND		0.36	0.068	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Hexachlorocyclopentadiene	ND		7.8	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Indeno[1,2,3-cd]pyrene	ND		0.36	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Isophorone	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Naphthalene	1.7		0.36	0.057	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Nitrobenzene	ND		2.4	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Pentachlorophenol	ND		3.6	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Phenanthrene	1.6		0.36	0.053	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Phenol	ND		1.2	0.19	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
Pyrene	1.1		0.36	0.051	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20
3 & 4 Methylphenol	ND		9.5	0.69	mg/Kg	✳	02/21/23 09:46	02/23/23 14:31	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	59		46 - 137	02/21/23 09:46	02/23/23 14:31	20
Phenol-d5 (Surr)	39		26 - 120	02/21/23 09:46	02/23/23 14:31	20
Nitrobenzene-d5 (Surr)	53		25 - 120	02/21/23 09:46	02/23/23 14:31	20
2-Fluorophenol (Surr)	55		20 - 120	02/21/23 09:46	02/23/23 14:31	20
2-Fluorobiphenyl (Surr)	60		34 - 120	02/21/23 09:46	02/23/23 14:31	20
2,4,6-Tribromophenol (Surr)	86		10 - 120	02/21/23 09:46	02/23/23 14:31	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:25	1
Barium	0.32 J B		0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:25	1
Cadmium	0.00097 J B		0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:25	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:25	1
Lead	0.0076 J		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:25	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:25	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:25	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:03	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Date Collected: 02/18/23 17:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.8		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	15.2		0.1	0.1	%			02/19/23 15:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-09 (5-6)

Lab Sample ID: 240-180646-10

Date Collected: 02/18/23 17:20

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		18	5.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,1,2,2-Tetrachloroethane	ND		18	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		18	4.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,1,2-Trichloroethane	ND		18	4.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,1-Dichloroethane	ND		18	3.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,1-Dichloroethene	ND		18	5.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,2,4-Trichlorobenzene	ND		18	9.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,2-Dibromo-3-Chloropropane	ND		35	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Ethylene Dibromide	ND		18	5.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,2-Dichlorobenzene	ND		18	8.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,2-Dichloroethane	ND		18	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,2-Dichloropropane	ND		18	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,3-Dichlorobenzene	ND		18	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
1,4-Dichlorobenzene	ND		18	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
2-Butanone (MEK)	ND		71	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
2-Hexanone	ND		71	19	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
4-Methyl-2-pentanone (MIBK)	ND		71	17	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Acetone	ND		71	17	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Benzene	ND		18	3.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Dichlorobromomethane	ND		18	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Bromoform	ND		18	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Bromomethane	ND		18	12	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Carbon disulfide	ND		18	7.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Carbon tetrachloride	ND		18	7.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Chlorobenzene	ND		18	2.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Chloroethane	ND		18	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Chloroform	ND		18	3.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Chloromethane	ND		18	4.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
cis-1,2-Dichloroethene	ND		18	2.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
cis-1,3-Dichloropropene	ND		18	8.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Cyclohexane	ND		35	12	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Chlorodibromomethane	ND		18	8.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Dichlorodifluoromethane	ND		18	3.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Ethylbenzene	ND		18	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Isopropylbenzene	ND		18	2.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Methyl acetate	ND		89	12	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Methyl tert-butyl ether	ND		18	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Methylcyclohexane	ND		35	4.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Methylene Chloride	ND		35	27	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Styrene	ND		18	3.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Tetrachloroethene	ND		18	6.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Toluene	ND		18	17	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
trans-1,2-Dichloroethene	ND		18	4.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
trans-1,3-Dichloropropene	ND		18	7.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Trichloroethene	ND		18	10	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Trichlorofluoromethane	ND		18	9.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667
Vinyl chloride	ND		0.27	0.13	mg/Kg	✱	02/21/23 13:30	02/24/23 02:30	1
Xylenes, Total	ND		35	6.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:38	66.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-09 (5-6)

Lab Sample ID: 240-180646-10

Date Collected: 02/18/23 17:20

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/24/23 02:30	1
Toluene-d8 (Surr)	78		56 - 125	02/21/23 13:30	02/24/23 14:38	66.667
Dibromofluoromethane (Surr)	87		41 - 138	02/21/23 13:30	02/24/23 02:30	1
Dibromofluoromethane (Surr)	82		41 - 138	02/21/23 13:30	02/24/23 14:38	66.667
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/24/23 02:30	1
4-Bromofluorobenzene (Surr)	73		41 - 143	02/21/23 13:30	02/24/23 14:38	66.667
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/21/23 13:30	02/24/23 02:30	1
1,2-Dichloroethane-d4 (Surr)	80		58 - 125	02/21/23 13:30	02/24/23 14:38	66.667

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
bis (2-chloroisopropyl) ether	ND		2.4	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,4-Dimethylphenol	ND		3.7	0.98	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,4-Dinitrophenol	ND		8.1	3.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,4-Dinitrotoluene	ND		4.9	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2,6-Dinitrotoluene	ND		4.9	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2-Chloronaphthalene	ND		1.2	0.34	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2-Chlorophenol	ND		1.2	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2-Methylnaphthalene	2.5		0.37	0.048	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2-Methylphenol	ND		4.9	0.76	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2-Nitroaniline	ND		4.9	0.98	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
3,3'-Dichlorobenzidine	ND		2.4	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
3-Nitroaniline	ND		4.9	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4,6-Dinitro-2-methylphenol	ND		8.1	2.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4-Bromophenyl phenyl ether	ND		1.2	0.34	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4-Chloroaniline	ND		3.7	0.73	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4-Chlorophenyl phenyl ether	ND		1.2	0.34	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4-Nitroaniline	ND		4.9	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
4-Nitrophenol	ND		8.1	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Acenaphthene	0.093	J	0.37	0.070	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Acenaphthylene	ND		0.37	0.098	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Acetophenone	ND		2.4	0.27	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Anthracene	0.16	J	0.37	0.059	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Atrazine	ND		4.9	0.88	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Benzaldehyde	ND		2.4	0.56	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Benzo[a]anthracene	0.48		0.37	0.083	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Benzo[a]pyrene	0.34	J	0.37	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Benzo[b]fluoranthene	0.75		0.37	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Benzo[g,h,i]perylene	ND		0.37	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Benzo[k]fluoranthene	0.18	J	0.37	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Bis(2-chloroethoxy)methane	ND		2.4	0.29	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Bis(2-chloroethyl)ether	ND		2.4	0.29	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20
Butyl benzyl phthalate	ND		1.7	0.54	mg/Kg	☼	02/21/23 09:46	02/23/23 14:57	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-09 (5-6)

Lab Sample ID: 240-180646-10

Date Collected: 02/18/23 17:20

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.1	1.8	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Carbazole	ND		1.2	0.46	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Chrysene	0.59		0.37	0.036	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Dibenzofuran	0.70	J	1.2	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Diethyl phthalate	ND		1.7	0.76	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Dimethyl phthalate	ND		1.7	0.34	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Di-n-butyl phthalate	ND		1.7	1.2	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Di-n-octyl phthalate	ND		1.7	0.68	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Fluoranthene	0.81		0.37	0.11	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Fluorene	0.094	J	0.37	0.067	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Hexachlorobenzene	ND		0.37	0.070	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Hexachlorobutadiene	ND		1.2	0.29	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Hexachlorocyclopentadiene	ND		8.1	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Indeno[1,2,3-cd]pyrene	ND		0.37	0.18	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Isophorone	ND		1.2	0.29	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
N-Nitrosodiphenylamine	ND		1.2	0.29	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Naphthalene	1.7		0.37	0.059	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Nitrobenzene	ND		2.4	0.32	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Phenanthrene	1.4		0.37	0.055	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Phenol	ND		1.2	0.20	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
Pyrene	0.72		0.37	0.052	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20
3 & 4 Methylphenol	ND		9.8	0.71	mg/Kg	✳	02/21/23 09:46	02/23/23 14:57	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	68		46 - 137	02/21/23 09:46	02/23/23 14:57	20
Phenol-d5 (Surr)	54		26 - 120	02/21/23 09:46	02/23/23 14:57	20
Nitrobenzene-d5 (Surr)	55		25 - 120	02/21/23 09:46	02/23/23 14:57	20
2-Fluorophenol (Surr)	60		20 - 120	02/21/23 09:46	02/23/23 14:57	20
2-Fluorobiphenyl (Surr)	66		34 - 120	02/21/23 09:46	02/23/23 14:57	20
2,4,6-Tribromophenol (Surr)	93		10 - 120	02/21/23 09:46	02/23/23 14:57	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:29	1
Barium	0.23	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:29	1
Cadmium	0.0013	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:29	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:29	1
Lead	0.0096	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:29	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:29	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:29	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-09 (5-6)

Lab Sample ID: 240-180646-10

Date Collected: 02/18/23 17:20

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.2		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	17.8		0.1	0.1	%			02/19/23 15:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-10 (3-4)

Lab Sample ID: 240-180646-11

Date Collected: 02/18/23 17:28

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		17	5.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,1,2,2-Tetrachloroethane	ND		17	10	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		17	4.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,1,2-Trichloroethane	ND		17	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,1-Dichloroethane	ND		17	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,1-Dichloroethene	ND		17	5.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,2,4-Trichlorobenzene	ND		17	9.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,2-Dibromo-3-Chloropropane	ND		35	15	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Ethylene Dibromide	ND		17	5.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,2-Dichlorobenzene	ND		17	8.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,2-Dichloroethane	ND		17	3.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,2-Dichloropropane	ND		17	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,3-Dichlorobenzene	ND		17	3.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
1,4-Dichlorobenzene	ND		17	3.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
2-Butanone (MEK)	ND		69	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
2-Hexanone	ND		69	18	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
4-Methyl-2-pentanone (MIBK)	ND		69	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Acetone	ND		69	17	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Benzene	ND		17	2.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Dichlorobromomethane	ND		17	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Bromoform	ND		17	16	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Bromomethane	ND		17	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Carbon disulfide	ND		17	7.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Carbon tetrachloride	ND		17	7.0	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Chlorobenzene	ND		17	2.4	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Chloroethane	ND		17	10	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Chloroform	ND		17	3.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Chloromethane	ND		17	4.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
cis-1,2-Dichloroethene	ND		17	2.8	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
cis-1,3-Dichloropropene	ND		17	8.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Cyclohexane	ND		35	11	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Chlorodibromomethane	ND		17	8.1	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Dichlorodifluoromethane	ND		17	3.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Ethylbenzene	ND		17	3.2	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Isopropylbenzene	ND		17	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Methyl acetate	ND		86	12	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Methyl tert-butyl ether	ND		17	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Methylcyclohexane	ND		35	4.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Methylene Chloride	ND		35	26	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Styrene	ND		17	3.6	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Tetrachloroethene	ND		17	6.7	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Toluene	ND		17	17	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
trans-1,2-Dichloroethene	ND		17	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
trans-1,3-Dichloropropene	ND		17	7.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Trichloroethene	ND		17	9.9	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Trichlorofluoromethane	ND		17	9.5	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667
Vinyl chloride	ND		0.26	0.13	mg/Kg	✱	02/21/23 13:30	02/24/23 02:54	1
Xylenes, Total	ND		35	6.3	mg/Kg	✱	02/21/23 13:30	02/24/23 14:59	66.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-10 (3-4)

Lab Sample ID: 240-180646-11

Date Collected: 02/18/23 17:28

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		56 - 125	02/21/23 13:30	02/24/23 02:54	1
Toluene-d8 (Surr)	76		56 - 125	02/21/23 13:30	02/24/23 14:59	66.667
Dibromofluoromethane (Surr)	88		41 - 138	02/21/23 13:30	02/24/23 02:54	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/24/23 14:59	66.667
4-Bromofluorobenzene (Surr)	98		41 - 143	02/21/23 13:30	02/24/23 02:54	1
4-Bromofluorobenzene (Surr)	73		41 - 143	02/21/23 13:30	02/24/23 14:59	66.667
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	02/21/23 13:30	02/24/23 02:54	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/24/23 14:59	66.667

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
bis (2-chloroisopropyl) ether	ND		2.4	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,4-Dimethylphenol	ND		3.5	0.94	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,4-Dinitrophenol	ND		7.8	3.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2-Chlorophenol	ND		1.2	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2-Methylnaphthalene	3.2		0.35	0.046	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2-Methylphenol	ND		4.7	0.73	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2-Nitroaniline	ND		4.7	0.94	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
2-Nitrophenol	ND		1.2	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
3,3'-Dichlorobenzidine	ND		2.4	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
3-Nitroaniline	ND		4.7	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4,6-Dinitro-2-methylphenol	ND		7.8	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4-Chloroaniline	ND		3.5	0.71	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
4-Nitrophenol	ND		7.8	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Acenaphthene	0.18	J	0.35	0.067	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Acenaphthylene	0.11	J	0.35	0.094	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Acetophenone	ND		2.4	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Anthracene	0.22	J	0.35	0.057	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Atrazine	ND		4.7	0.85	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Benzaldehyde	ND		2.4	0.54	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Benzo[a]anthracene	0.62		0.35	0.080	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Benzo[a]pyrene	0.41		0.35	0.22	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Benzo[b]fluoranthene	0.89		0.35	0.15	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Benzo[g,h,i]perylene	ND		0.35	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Benzo[k]fluoranthene	0.31	J	0.35	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Bis(2-chloroethoxy)methane	ND		2.4	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Bis(2-chloroethyl)ether	ND		2.4	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20
Butyl benzyl phthalate	ND		1.6	0.52	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-10 (3-4)

Lab Sample ID: 240-180646-11

Date Collected: 02/18/23 17:28

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.8	1.8	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Carbazole	ND		1.2	0.45	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Chrysene	0.65		0.35	0.035	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Dibenzofuran	0.95	J	1.2	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Diethyl phthalate	ND		1.6	0.73	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Di-n-octyl phthalate	ND		1.6	0.66	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Fluoranthene	1.2		0.35	0.10	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Fluorene	0.16	J	0.35	0.064	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Hexachlorocyclopentadiene	ND		7.8	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Indeno[1,2,3-cd]pyrene	ND		0.35	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Isophorone	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Naphthalene	2.2		0.35	0.057	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Nitrobenzene	ND		2.4	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Phenanthrene	1.8		0.35	0.052	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Phenol	ND		1.2	0.19	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
Pyrene	1.0		0.35	0.050	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20
3 & 4 Methylphenol	ND		9.4	0.68	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	70		46 - 137	02/21/23 09:46	02/23/23 15:23	20
Phenol-d5 (Surr)	39		26 - 120	02/21/23 09:46	02/23/23 15:23	20
Nitrobenzene-d5 (Surr)	55		25 - 120	02/21/23 09:46	02/23/23 15:23	20
2-Fluorophenol (Surr)	68		20 - 120	02/21/23 09:46	02/23/23 15:23	20
2-Fluorobiphenyl (Surr)	68		34 - 120	02/21/23 09:46	02/23/23 15:23	20
2,4,6-Tribromophenol (Surr)	91		10 - 120	02/21/23 09:46	02/23/23 15:23	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:42	1
Barium	0.30	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:42	1
Cadmium	0.0013	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:42	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:42	1
Lead	0.0087	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:42	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:42	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:42	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:07	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-10 (3-4)

Lab Sample ID: 240-180646-11

Date Collected: 02/18/23 17:28

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.1		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	14.9		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/20/23 20:17	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/20/23 20:17	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/20/23 20:17	1
Benzene	ND		0.025	0.00042	mg/L			02/20/23 20:17	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/20/23 20:17	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/20/23 20:17	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/20/23 20:17	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/20/23 20:17	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/20/23 20:17	1
Chloroform	ND		0.025	0.00047	mg/L			02/20/23 20:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120					02/20/23 20:17	1
Dibromofluoromethane (Surr)	101		71 - 121					02/20/23 20:17	1
4-Bromofluorobenzene (Surr)	115		80 - 120					02/20/23 20:17	1
1,2-Dichloroethane-d4 (Surr)	94		76 - 120					02/20/23 20:17	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.010	0.00084	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
2,4,5-Trichlorophenol	ND		0.010	0.0050	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
2,4,6-Trichlorophenol	ND		0.010	0.0045	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
2,4-Dinitrotoluene	ND		0.010	0.0052	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Hexachlorobenzene	ND		0.0020	0.00040	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Hexachlorobutadiene	ND		0.010	0.0014	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Hexachloroethane	ND		0.010	0.00099	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
2-Methylphenol	ND		0.010	0.00052	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
3 & 4 Methylphenol	ND		0.010	0.00048	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Nitrobenzene	ND		0.010	0.0013	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Pentachlorophenol	ND		0.040	0.0078	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Pyridine	ND		0.010	0.00090	mg/L		02/21/23 08:07	02/23/23 15:52	2.5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	123		46 - 137				02/21/23 08:07	02/23/23 15:52	2.5
Phenol-d5 (Surr)	70		26 - 120				02/21/23 08:07	02/23/23 15:52	2.5
Nitrobenzene-d5 (Surr)	77		24 - 120				02/21/23 08:07	02/23/23 15:52	2.5
2-Fluorophenol (Surr)	78		19 - 120				02/21/23 08:07	02/23/23 15:52	2.5
2-Fluorobiphenyl (Surr)	105		33 - 120				02/21/23 08:07	02/23/23 15:52	2.5
2,4,6-Tribromophenol (Surr)	112		10 - 120				02/21/23 08:07	02/23/23 15:52	2.5

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/21/23 08:09	02/22/23 11:44	1
Endrin	ND		0.00050	0.0000065	mg/L		02/21/23 08:09	02/22/23 11:44	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/21/23 08:09	02/22/23 11:44	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/21/23 08:09	02/22/23 11:44	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/21/23 08:09	02/22/23 11:44	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/21/23 08:09	02/22/23 11:44	1
Toxaphene	ND		0.020	0.000058	mg/L		02/21/23 08:09	02/22/23 11:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	57		10 - 145	02/21/23 08:09	02/22/23 11:44	1
DCB Decachlorobiphenyl	58		10 - 145	02/21/23 08:09	02/22/23 11:44	1
Tetrachloro-m-xylene	47		10 - 123	02/21/23 08:09	02/22/23 11:44	1
Tetrachloro-m-xylene	44		10 - 123	02/21/23 08:09	02/22/23 11:44	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 09:09	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 09:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136	02/21/23 20:16	02/22/23 09:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.9		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	19.1		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 80.9

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		62	31	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1221	ND		62	37	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1232	ND		62	26	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1242	ND		62	23	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1248	ND		62	21	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1254	ND		62	26	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1260	ND		62	26	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1262	ND		62	27	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Aroclor-1268	ND		62	20	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1
Polychlorinated biphenyls, Total	ND		62	37	ug/Kg	✳	02/20/23 08:20	02/21/23 01:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	63		10 - 149	02/20/23 08:20	02/21/23 01:47	1
DCB Decachlorobiphenyl	70		10 - 174	02/20/23 08:20	02/21/23 01:47	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	0.27	J	0.71	0.24	ng/g	✳	02/21/23 12:53	02/21/23 17:44	1
Perfluorooctanesulfonic acid	0.30	J	0.71	0.24	ng/g	✳	02/21/23 12:53	02/21/23 17:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	69		26 - 159	02/21/23 12:53	02/21/23 17:44	1
13C8 PFOS	82		41 - 154	02/21/23 12:53	02/21/23 17:44	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180646-1	WC-WS2-01 (1-1.5)	106	87	99	97
240-180646-1	WC-WS2-01 (1-1.5)	78	79	74	76
240-180646-2	WC-WS2-02 (1-2)	104	84	98	92
240-180646-2	WC-WS2-02 (1-2)	78	83	75	80
240-180646-3	WC-WS2-03 (2-3)	105	85	96	92
240-180646-3	WC-WS2-03 (2-3)	80	81	75	79
240-180646-3 MS	WC-WS2-03 (2-3)	105	88	97	94
240-180646-3 MSD	WC-WS2-03 (2-3)	107	84	96	91
240-180646-4	WC-WS2-04 (3-4)	77	79	74	78
240-180646-4	WC-WS2-04 (3-4)	105	88	96	94
240-180646-5	WC-WS2-05 (2-3)	105	87	98	95
240-180646-5	WC-WS2-05 (2-3)	77	80	74	78
240-180646-7	WC-WS2-06 (3-4)	105	87	96	93
240-180646-7	WC-WS2-06 (3-4)	82	85	79	81
240-180646-8	WC-WS2-07 (2-3)	105	87	96	93
240-180646-8	WC-WS2-07 (2-3)	77	79	73	75
240-180646-9	WC-WS2-08 (4-5)	105	85	96	91
240-180646-9	WC-WS2-08 (4-5)	77	83	74	79
240-180646-10	WC-WS2-09 (5-6)	105	87	97	92
240-180646-10	WC-WS2-09 (5-6)	78	82	73	80
240-180646-11	WC-WS2-10 (3-4)	108	88	98	94
240-180646-11	WC-WS2-10 (3-4)	76	79	73	78
LCS 240-562783/2-A	Lab Control Sample	101	86	96	97
LCS 240-562918/2-A	Lab Control Sample	101	90	101	97
LCS 240-562918/2-A	Lab Control Sample	81	80	75	75
LCS 240-562918/2-A	Lab Control Sample	101	88	96	98
MB 240-562783/1-A	Method Blank	100	88	97	97
MB 240-562918/1-A	Method Blank	102	89	99	95
MB 240-562918/1-A	Method Blank	85	79	75	78
MB 240-562918/1-A	Method Blank	99	86	97	97

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-562664/20	Lab Control Sample	96	107	111	100

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-180646-6	WC-WS2-COMP (01-07)	94	101	111	93
240-180646-12	WC-WS2-COMP (08-14)	97	101	115	94
LB 240-562615/1-A MB	Method Blank	95	105	108	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180646-1	WC-WS2-01 (1-1.5)	100	0 S1-	61	76	92	127 S1+
240-180646-2	WC-WS2-02 (1-2)	82	0 S1-	48	59	72	132 S1+
240-180646-3	WC-WS2-03 (2-3)	69	53	48	59	65	85
240-180646-3 MS	WC-WS2-03 (2-3)	64	53	63	61	66	92
240-180646-3 MSD	WC-WS2-03 (2-3)	67	49	67	61	72	90
240-180646-4	WC-WS2-04 (3-4)	75	55	68	77	72	0 S1-
240-180646-5	WC-WS2-05 (2-3)	53	44	48	55	55	88
240-180646-7	WC-WS2-06 (3-4)	74	54	70	71	73	95
240-180646-8	WC-WS2-07 (2-3)	54	32	39	49	53	83
240-180646-9	WC-WS2-08 (4-5)	59	39	53	55	60	86
240-180646-10	WC-WS2-09 (5-6)	68	54	55	60	66	93
240-180646-11	WC-WS2-10 (3-4)	70	39	55	68	68	91
LCS 240-562719/25-A	Lab Control Sample	128	59	57	54	85	41
LCS 240-562719/26-A	Lab Control Sample	132	64	61	56	88	43
LCS 240-562719/2-A	Lab Control Sample	110	74	62	75	92	107
LCS 240-562873/2-A	Lab Control Sample	107	90	85	81	92	85
LCS 240-562873/3-A	Lab Control Sample	111	81	69	67	79	51
LCS 240-562873/4-A	Lab Control Sample	111	82	69	71	79	60
MB 240-562719/1-A	Method Blank	112	56	56	51	81	45
MB 240-562873/1-A	Method Blank	118	93	82	75	91	53

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-562821/10-A	Lab Control Sample	105	60	67	67	91	99

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
MB 240-562821/9-A	Method Blank	119	59	74	71	97	97

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180646-6	WC-WS2-COMP (01-07)	115	62	72	69	98	106
240-180646-6 MS	WC-WS2-COMP (01-07)	116	75	79	83	104	113
240-180646-12	WC-WS2-COMP (08-14)	123	70	77	78	105	112

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-562822/7-A	Lab Control Sample	90	90	71	69
MB 240-562822/6-A	Method Blank	92	92	69	67

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-180646-6	WC-WS2-COMP (01-07)	74	71	51	54
240-180646-12	WC-WS2-COMP (08-14)	58	57	44	47
240-180646-12 MS	WC-WS2-COMP (08-14)	88	89	61	65

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

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Surrogate Summary

Client: Norfolk Southern Corporation

Job ID: 240-180646-1

Project/Site: NS East Palestine

TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (10-149)	DCBP2 (10-174)
240-180646-6	WC-WS2-COMP (01-07)	63	61
240-180646-12	WC-WS2-COMP (08-14)	63	70
LCS 240-562650/2-A	Lab Control Sample	94	123
MB 240-562650/1-A	Method Blank	53	93

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)
LCS 410-346721/6-A	Lab Control Sample	68
MB 410-346721/1-A	Method Blank	60
MB 410-346721/2-A	Method Blank	55
MB 410-346721/4-A	Method Blank	57
MB 410-346721/5-A	Method Blank	58

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA2 (26-136)
MB 410-346721/3-A	Method Blank	57

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)
240-180646-6	WC-WS2-COMP (01-07)	66
240-180646-12	WC-WS2-COMP (08-14)	65

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: LCS 240-562664/20
Matrix: Solid
Analysis Batch: 562664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	0.916		mg/L		92	74 - 127
1,2-Dichloroethane	1.00	0.867		mg/L		87	72 - 120
2-Butanone (MEK)	2.00	1.68		mg/L		84	68 - 130
Benzene	1.00	0.924		mg/L		92	80 - 121
Carbon tetrachloride	1.00	0.883		mg/L		88	69 - 120
Chlorobenzene	1.00	0.872		mg/L		87	80 - 120
Chloroform	1.00	0.967		mg/L		97	75 - 120
Tetrachloroethene	1.00	0.849		mg/L		85	74 - 120
Trichloroethene	1.00	0.860		mg/L		86	75 - 120
Vinyl chloride	1.00	1.06		mg/L		106	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	107		71 - 121
4-Bromofluorobenzene (Surr)	111		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		76 - 120

Lab Sample ID: MB 240-562783/1-A
Matrix: Solid
Analysis Batch: 563234

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562783

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/20/23 16:48	02/23/23 21:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		56 - 125	02/20/23 16:48	02/23/23 21:38	1
Dibromofluoromethane (Surr)	88		41 - 138	02/20/23 16:48	02/23/23 21:38	1
4-Bromofluorobenzene (Surr)	97		41 - 143	02/20/23 16:48	02/23/23 21:38	1
1,2-Dichloroethane-d4 (Surr)	97		58 - 125	02/20/23 16:48	02/23/23 21:38	1

Lab Sample ID: LCS 240-562783/2-A
Matrix: Solid
Analysis Batch: 563234

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562783

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.00	1.27		mg/Kg		127	49 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		56 - 125
Dibromofluoromethane (Surr)	86		41 - 138
4-Bromofluorobenzene (Surr)	96		41 - 143
1,2-Dichloroethane-d4 (Surr)	97		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Acetone	ND		1.0	0.24	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Benzene	ND		0.25	0.042	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Bromoform	ND		0.25	0.23	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chloroform	ND		0.25	0.054	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Styrene	ND		0.25	0.052	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Toluene	ND		0.25	0.24	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/21/23 13:30	02/23/23 08:45	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	85		56 - 125	02/21/23 13:30	02/23/23 08:45	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/23/23 08:45	1
4-Bromofluorobenzene (Surr)	75		41 - 143	02/21/23 13:30	02/23/23 08:45	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/23/23 08:45	1

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 15:57	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	102		56 - 125	02/21/23 13:30	02/23/23 15:57	1
Dibromofluoromethane (Surr)	89		41 - 138	02/21/23 13:30	02/23/23 15:57	1
4-Bromofluorobenzene (Surr)	99		41 - 143	02/21/23 13:30	02/23/23 15:57	1
1,2-Dichloroethane-d4 (Surr)	95		58 - 125	02/21/23 13:30	02/23/23 15:57	1

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563234

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 22:51	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	99		56 - 125	02/21/23 13:30	02/23/23 22:51	1
Dibromofluoromethane (Surr)	86		41 - 138	02/21/23 13:30	02/23/23 22:51	1
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/23/23 22:51	1
1,2-Dichloroethane-d4 (Surr)	97		58 - 125	02/21/23 13:30	02/23/23 22:51	1

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	1.25	1.13		mg/Kg		90	74 - 136
1,1,1,2-Tetrachloroethane	1.25	1.14		mg/Kg		91	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.23		mg/Kg		98	64 - 148
1,1,2-Trichloroethane	1.25	1.18		mg/Kg		94	79 - 120
1,1-Dichloroethane	1.25	1.10		mg/Kg		88	74 - 121
1,1-Dichloroethene	1.25	1.09		mg/Kg		87	68 - 141
1,2,4-Trichlorobenzene	1.25	1.12		mg/Kg		90	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.803		mg/Kg		64	52 - 133
Ethylene Dibromide	1.25	1.18		mg/Kg		94	80 - 121
1,2-Dichlorobenzene	1.25	1.13		mg/Kg		90	73 - 120
1,2-Dichloroethane	1.25	1.13		mg/Kg		91	71 - 123

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichloropropane	1.25	1.12		mg/Kg		89	76 - 126
1,3-Dichlorobenzene	1.25	1.11		mg/Kg		89	73 - 120
1,4-Dichlorobenzene	1.25	1.10		mg/Kg		88	74 - 120
2-Butanone (MEK)	2.50	2.84		mg/Kg		114	63 - 142
2-Hexanone	2.50	2.34		mg/Kg		93	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.37		mg/Kg		95	62 - 142
Acetone	2.50	2.84		mg/Kg		114	58 - 160
Benzene	1.25	1.16		mg/Kg		93	76 - 121
Dichlorobromomethane	1.25	1.12		mg/Kg		90	71 - 138
Bromoform	1.25	1.02		mg/Kg		82	57 - 140
Bromomethane	1.25	0.639		mg/Kg		51	10 - 171
Carbon disulfide	1.25	0.964		mg/Kg		77	43 - 152
Carbon tetrachloride	1.25	1.14		mg/Kg		91	64 - 144
Chlorobenzene	1.25	1.10		mg/Kg		88	80 - 120
Chloroethane	1.25	0.926		mg/Kg		74	11 - 164
Chloroform	1.25	1.17		mg/Kg		93	78 - 120
Chloromethane	1.25	0.832		mg/Kg		67	41 - 142
cis-1,2-Dichloroethene	1.25	1.12		mg/Kg		90	78 - 124
cis-1,3-Dichloropropene	1.25	1.05		mg/Kg		84	70 - 133
Cyclohexane	1.25	1.13		mg/Kg		90	65 - 137
Chlorodibromomethane	1.25	1.04		mg/Kg		83	68 - 131
Dichlorodifluoromethane	1.25	0.847		mg/Kg		68	21 - 150
Ethylbenzene	1.25	1.16		mg/Kg		93	80 - 120
Isopropylbenzene	1.25	1.20		mg/Kg		96	80 - 130
Methyl acetate	2.50	2.34		mg/Kg		94	60 - 133
Methyl tert-butyl ether	1.25	1.16		mg/Kg		92	70 - 130
Methylcyclohexane	1.25	1.15		mg/Kg		92	70 - 138
Methylene Chloride	1.25	0.921		mg/Kg		74	71 - 124
Styrene	1.25	1.22		mg/Kg		98	75 - 140
Tetrachloroethene	1.25	1.13		mg/Kg		90	76 - 127
Toluene	1.25	1.13		mg/Kg		91	80 - 120
trans-1,2-Dichloroethene	1.25	1.15		mg/Kg		92	76 - 130
trans-1,3-Dichloropropene	1.25	0.983		mg/Kg		79	61 - 121
Trichloroethene	1.25	1.17		mg/Kg		94	74 - 130
Trichlorofluoromethane	1.25	0.979		mg/Kg		78	50 - 154
Vinyl chloride	1.25	0.976		mg/Kg		78	49 - 146
Xylenes, Total	2.50	2.39		mg/Kg		96	80 - 122
m-Xylene & p-Xylene	1.25	1.18		mg/Kg		94	80 - 122
o-Xylene	1.25	1.21		mg/Kg		97	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	81		56 - 125
Dibromofluoromethane (Surr)	80		41 - 138
4-Bromofluorobenzene (Surr)	75		41 - 143
1,2-Dichloroethane-d4 (Surr)	75		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.00	1.08		mg/Kg		108	49 - 146
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
Toluene-d8 (Surr)	101		56 - 125				
Dibromofluoromethane (Surr)	90		41 - 138				
4-Bromofluorobenzene (Surr)	101		41 - 143				
1,2-Dichloroethane-d4 (Surr)	97		58 - 125				

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563234

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.00	1.34		mg/Kg		134	49 - 146
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
Toluene-d8 (Surr)	101		56 - 125				
Dibromofluoromethane (Surr)	88		41 - 138				
4-Bromofluorobenzene (Surr)	96		41 - 143				
1,2-Dichloroethane-d4 (Surr)	98		58 - 125				

Lab Sample ID: 240-180646-3 MS
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: WC-WS2-03 (2-3)
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	ND		1.09	1.36		mg/Kg	☼	125	32 - 163
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
Toluene-d8 (Surr)	105		56 - 125						
Dibromofluoromethane (Surr)	88		41 - 138						
4-Bromofluorobenzene (Surr)	97		41 - 143						
1,2-Dichloroethane-d4 (Surr)	94		58 - 125						

Lab Sample ID: 240-180646-3 MSD
Matrix: Solid
Analysis Batch: 563099

Client Sample ID: WC-WS2-03 (2-3)
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Vinyl chloride	ND		1.09	1.28		mg/Kg	☼	118	32 - 163	6	38
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
Toluene-d8 (Surr)	107		56 - 125								
Dibromofluoromethane (Surr)	84		41 - 138								
4-Bromofluorobenzene (Surr)	96		41 - 143								
1,2-Dichloroethane-d4 (Surr)	91		58 - 125								

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 240-562615/1-A MB
Matrix: Solid
Analysis Batch: 562664

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/20/23 18:22	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/20/23 18:22	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/20/23 18:22	1
Benzene	ND		0.025	0.00042	mg/L			02/20/23 18:22	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/20/23 18:22	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/20/23 18:22	1
Chloroform	ND		0.025	0.00047	mg/L			02/20/23 18:22	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/20/23 18:22	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/20/23 18:22	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/20/23 18:22	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
Toluene-d8 (Surr)	95		80 - 120				02/20/23 18:22	1	
Dibromofluoromethane (Surr)	105		71 - 121				02/20/23 18:22	1	
4-Bromofluorobenzene (Surr)	108		80 - 120				02/20/23 18:22	1	
1,2-Dichloroethane-d4 (Surr)	102		76 - 120				02/20/23 18:22	1	

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-562719/1-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562719

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/20/23 10:04	02/22/23 15:15	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562719/1-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562719

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Atrazine	ND		0.20	0.036	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Carbazole	ND		0.050	0.019	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Isophorone	ND		0.050	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Phenol	ND		0.050	0.0080	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/20/23 10:04	02/22/23 15:15	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac			
	%Recovery	Qualifier							
Terphenyl-d14 (Surr)	112		46 - 137	02/20/23 10:04	02/22/23 15:15	1			
Phenol-d5 (Surr)	56		26 - 120	02/20/23 10:04	02/22/23 15:15	1			
Nitrobenzene-d5 (Surr)	56		25 - 120	02/20/23 10:04	02/22/23 15:15	1			
2-Fluorophenol (Surr)	51		20 - 120	02/20/23 10:04	02/22/23 15:15	1			
2-Fluorobiphenyl (Surr)	81		34 - 120	02/20/23 10:04	02/22/23 15:15	1			

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562719/1-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol (Surr)	45		10 - 120	02/20/23 10:04	02/22/23 15:15	1

Lab Sample ID: LCS 240-562719/25-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	128		46 - 137
Phenol-d5 (Surr)	59		26 - 120
Nitrobenzene-d5 (Surr)	57		25 - 120
2-Fluorophenol (Surr)	54		20 - 120
2-Fluorobiphenyl (Surr)	85		34 - 120
2,4,6-Tribromophenol (Surr)	41		10 - 120

Lab Sample ID: LCS 240-562719/26-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	132		46 - 137
Phenol-d5 (Surr)	64		26 - 120
Nitrobenzene-d5 (Surr)	61		25 - 120
2-Fluorophenol (Surr)	56		20 - 120
2-Fluorobiphenyl (Surr)	88		34 - 120
2,4,6-Tribromophenol (Surr)	43		10 - 120

Lab Sample ID: LCS 240-562719/2-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1'-Biphenyl	0.667	0.567		mg/Kg		85	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.361		mg/Kg		54	38 - 120
2,4,5-Trichlorophenol	0.667	0.649		mg/Kg		97	50 - 120
2,4,6-Trichlorophenol	0.667	0.650		mg/Kg		97	50 - 120
2,4-Dichlorophenol	0.667	0.629		mg/Kg		94	50 - 120
2,4-Dimethylphenol	0.667	0.450		mg/Kg		67	24 - 120
2,4-Dinitrophenol	1.33	0.881		mg/Kg		66	19 - 132
2,4-Dinitrotoluene	0.667	0.590		mg/Kg		89	64 - 120
2,6-Dinitrotoluene	0.667	0.656		mg/Kg		98	62 - 120
2-Chloronaphthalene	0.667	0.552		mg/Kg		83	51 - 120
2-Chlorophenol	0.667	0.523		mg/Kg		78	47 - 120
2-Methylnaphthalene	0.667	0.487		mg/Kg		73	38 - 120
2-Methylphenol	0.667	0.454		mg/Kg		68	45 - 120
2-Nitroaniline	0.667	0.458		mg/Kg		69	57 - 120
2-Nitrophenol	0.667	0.627		mg/Kg		94	51 - 120
3,3'-Dichlorobenzidine	1.33	1.07		mg/Kg		80	27 - 199
3-Nitroaniline	0.667	0.490		mg/Kg		74	41 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562719/2-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,6-Dinitro-2-methylphenol	1.33	0.954		mg/Kg		72	46 - 126
4-Bromophenyl phenyl ether	0.667	0.683		mg/Kg		102	65 - 120
4-Chloro-3-methylphenol	0.667	0.512		mg/Kg		77	51 - 120
4-Chloroaniline	0.667	0.383		mg/Kg		57	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.592		mg/Kg		89	59 - 120
4-Nitroaniline	0.667	0.598		mg/Kg		90	48 - 128
4-Nitrophenol	1.33	0.927		mg/Kg		70	43 - 120
Acenaphthene	0.667	0.582		mg/Kg		87	52 - 120
Acenaphthylene	0.667	0.621		mg/Kg		93	52 - 120
Acetophenone	0.667	0.449		mg/Kg		67	47 - 120
Anthracene	0.667	0.616		mg/Kg		92	64 - 120
Atrazine	1.33	1.50		mg/Kg		113	71 - 125
Benzaldehyde	1.33	0.820		mg/Kg		61	42 - 120
Benzo[a]anthracene	0.667	0.683		mg/Kg		102	70 - 120
Benzo[a]pyrene	0.667	0.615		mg/Kg		92	63 - 125
Benzo[b]fluoranthene	0.667	0.609		mg/Kg		91	64 - 121
Benzo[g,h,i]perylene	0.667	0.637		mg/Kg		96	62 - 120
Benzo[k]fluoranthene	0.667	0.607		mg/Kg		91	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.460		mg/Kg		69	50 - 120
Bis(2-chloroethyl)ether	0.667	0.388		mg/Kg		58	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.611		mg/Kg		92	63 - 133
Butyl benzyl phthalate	0.667	0.592		mg/Kg		89	66 - 127
Caprolactam	1.33	1.11		mg/Kg		83	67 - 120
Carbazole	0.667	0.619		mg/Kg		93	61 - 129
Chrysene	0.667	0.643		mg/Kg		96	67 - 120
Dibenz(a,h)anthracene	0.667	0.641		mg/Kg		96	62 - 120
Dibenzofuran	0.667	0.561		mg/Kg		84	55 - 120
Diethyl phthalate	0.667	0.566		mg/Kg		85	61 - 120
Dimethyl phthalate	0.667	0.566		mg/Kg		85	64 - 120
Di-n-butyl phthalate	0.667	0.652		mg/Kg		98	70 - 129
Di-n-octyl phthalate	0.667	0.510		mg/Kg		76	64 - 129
Fluoranthene	0.667	0.600		mg/Kg		90	71 - 124
Fluorene	0.667	0.587		mg/Kg		88	58 - 120
Hexachlorobenzene	0.667	0.609		mg/Kg		91	59 - 120
Hexachlorobutadiene	0.667	0.521		mg/Kg		78	45 - 120
Hexachlorocyclopentadiene	0.667	0.363		mg/Kg		55	10 - 120
Hexachloroethane	0.667	0.406		mg/Kg		61	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.664		mg/Kg		100	65 - 122
Isophorone	0.667	0.459		mg/Kg		69	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.420		mg/Kg		63	48 - 120
N-Nitrosodiphenylamine	0.667	0.554		mg/Kg		83	64 - 120
Naphthalene	0.667	0.502		mg/Kg		75	34 - 120
Nitrobenzene	0.667	0.416		mg/Kg		62	48 - 120
Pentachlorophenol	1.33	0.681		mg/Kg		51	10 - 120
Phenanthrene	0.667	0.586		mg/Kg		88	60 - 120
Phenol	0.667	0.437		mg/Kg		66	48 - 120
Pyrene	0.667	0.670		mg/Kg		101	67 - 120
3 & 4 Methylphenol	0.667	0.476		mg/Kg		71	49 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562719/2-A
Matrix: Solid
Analysis Batch: 563049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562719

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	110		46 - 137
Phenol-d5 (Surr)	74		26 - 120
Nitrobenzene-d5 (Surr)	62		25 - 120
2-Fluorophenol (Surr)	75		20 - 120
2-Fluorobiphenyl (Surr)	92		34 - 120
2,4,6-Tribromophenol (Surr)	107		10 - 120

Lab Sample ID: MB 240-562821/9-A
Matrix: Solid
Analysis Batch: 563180

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562821

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/21/23 08:07	02/23/23 13:52	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/21/23 08:07	02/23/23 13:52	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/21/23 08:07	02/23/23 13:52	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/21/23 08:07	02/23/23 13:52	1
Pyridine	ND		0.0040	0.00036	mg/L		02/21/23 08:07	02/23/23 13:52	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/21/23 08:07	02/23/23 13:52	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/21/23 08:07	02/23/23 13:52	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/21/23 08:07	02/23/23 13:52	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/21/23 08:07	02/23/23 13:52	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/21/23 08:07	02/23/23 13:52	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/21/23 08:07	02/23/23 13:52	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/21/23 08:07	02/23/23 13:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	119		46 - 137	02/21/23 08:07	02/23/23 13:52	1
Phenol-d5 (Surr)	59		26 - 120	02/21/23 08:07	02/23/23 13:52	1
Nitrobenzene-d5 (Surr)	74		24 - 120	02/21/23 08:07	02/23/23 13:52	1
2-Fluorophenol (Surr)	71		19 - 120	02/21/23 08:07	02/23/23 13:52	1
2-Fluorobiphenyl (Surr)	97		33 - 120	02/21/23 08:07	02/23/23 13:52	1
2,4,6-Tribromophenol (Surr)	97		10 - 120	02/21/23 08:07	02/23/23 13:52	1

Lab Sample ID: LCS 240-562821/10-A
Matrix: Solid
Analysis Batch: 563180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562821

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,4-Dichlorobenzene	0.0800	0.0539		mg/L		67	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0746		mg/L		93	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0726		mg/L		91	51 - 120
2,4-Dinitrotoluene	0.0800	0.0658		mg/L		82	58 - 125
Pyridine	0.160	0.0504		mg/L		31	10 - 120
2-Methylphenol	0.0800	0.0613		mg/L		77	45 - 120
Hexachlorobenzene	0.0800	0.0638		mg/L		80	55 - 120
Hexachlorobutadiene	0.0800	0.0582		mg/L		73	41 - 120
Hexachloroethane	0.0800	0.0498		mg/L		62	39 - 120
Nitrobenzene	0.0800	0.0490		mg/L		61	47 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562821/10-A
Matrix: Solid
Analysis Batch: 563180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562821

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Pentachlorophenol	0.160	0.108		mg/L		68	19 - 132
3 & 4 Methylphenol	0.0800	0.0533		mg/L		67	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
<i>Terphenyl-d14 (Surr)</i>	105		46 - 137
<i>Phenol-d5 (Surr)</i>	60		26 - 120
<i>Nitrobenzene-d5 (Surr)</i>	67		24 - 120
<i>2-Fluorophenol (Surr)</i>	67		19 - 120
<i>2-Fluorobiphenyl (Surr)</i>	91		33 - 120
<i>2,4,6-Tribromophenol (Surr)</i>	99		10 - 120

Lab Sample ID: MB 240-562873/1-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Atrazine	ND		0.20	0.036	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/21/23 09:46	02/23/23 09:46	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562873/1-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562873

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Carbazole	ND		0.050	0.019	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Isophorone	ND		0.050	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Phenol	ND		0.050	0.0080	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/21/23 09:46	02/23/23 09:46	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	118		46 - 137	02/21/23 09:46	02/23/23 09:46	1
Phenol-d5 (Surr)	93		26 - 120	02/21/23 09:46	02/23/23 09:46	1
Nitrobenzene-d5 (Surr)	82		25 - 120	02/21/23 09:46	02/23/23 09:46	1
2-Fluorophenol (Surr)	75		20 - 120	02/21/23 09:46	02/23/23 09:46	1
2-Fluorobiphenyl (Surr)	91		34 - 120	02/21/23 09:46	02/23/23 09:46	1
2,4,6-Tribromophenol (Surr)	53		10 - 120	02/21/23 09:46	02/23/23 09:46	1

Lab Sample ID: LCS 240-562873/2-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562873/2-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
bis (2-chloroisopropyl) ether	0.667	0.558		mg/Kg		84	38 - 120
2,4,5-Trichlorophenol	0.667	0.585		mg/Kg		88	50 - 120
2,4,6-Trichlorophenol	0.667	0.627		mg/Kg		94	50 - 120
2,4-Dichlorophenol	0.667	0.593		mg/Kg		89	50 - 120
2,4-Dimethylphenol	0.667	0.527		mg/Kg		79	24 - 120
2,4-Dinitrophenol	1.33	1.24		mg/Kg		93	19 - 132
2,4-Dinitrotoluene	0.667	0.671		mg/Kg		101	64 - 120
2,6-Dinitrotoluene	0.667	0.640		mg/Kg		96	62 - 120
2-Chloronaphthalene	0.667	0.602		mg/Kg		90	51 - 120
2-Chlorophenol	0.667	0.536		mg/Kg		80	47 - 120
2-Methylnaphthalene	0.667	0.532		mg/Kg		80	38 - 120
2-Methylphenol	0.667	0.530		mg/Kg		79	45 - 120
2-Nitroaniline	0.667	0.627		mg/Kg		94	57 - 120
2-Nitrophenol	0.667	0.551		mg/Kg		83	51 - 120
3,3'-Dichlorobenzidine	1.33	1.20		mg/Kg		90	27 - 199
3-Nitroaniline	0.667	0.487		mg/Kg		73	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.25		mg/Kg		94	46 - 126
4-Bromophenyl phenyl ether	0.667	0.579		mg/Kg		87	65 - 120
4-Chloro-3-methylphenol	0.667	0.588		mg/Kg		88	51 - 120
4-Chloroaniline	0.667	0.365		mg/Kg		55	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.540		mg/Kg		81	59 - 120
4-Nitroaniline	0.667	0.601		mg/Kg		90	48 - 128
4-Nitrophenol	1.33	1.33		mg/Kg		99	43 - 120
Acenaphthene	0.667	0.561		mg/Kg		84	52 - 120
Acenaphthylene	0.667	0.575		mg/Kg		86	52 - 120
Acetophenone	0.667	0.550		mg/Kg		82	47 - 120
Anthracene	0.667	0.589		mg/Kg		88	64 - 120
Atrazine	1.33	1.34		mg/Kg		100	71 - 125
Benzaldehyde	1.33	1.13		mg/Kg		85	42 - 120
Benzo[a]anthracene	0.667	0.674		mg/Kg		101	70 - 120
Benzo[a]pyrene	0.667	0.596		mg/Kg		89	63 - 125
Benzo[b]fluoranthene	0.667	0.631		mg/Kg		95	64 - 121
Benzo[g,h,i]perylene	0.667	0.652		mg/Kg		98	62 - 120
Benzo[k]fluoranthene	0.667	0.618		mg/Kg		93	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.556		mg/Kg		83	50 - 120
Bis(2-chloroethyl)ether	0.667	0.494		mg/Kg		74	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.736		mg/Kg		110	63 - 133
Butyl benzyl phthalate	0.667	0.711		mg/Kg		107	66 - 127
Caprolactam	1.33	1.29		mg/Kg		97	67 - 120
Carbazole	0.667	0.595		mg/Kg		89	61 - 129
Chrysene	0.667	0.655		mg/Kg		98	67 - 120
Dibenz(a,h)anthracene	0.667	0.652		mg/Kg		98	62 - 120
Dibenzofuran	0.667	0.559		mg/Kg		84	55 - 120
Diethyl phthalate	0.667	0.631		mg/Kg		95	61 - 120
Dimethyl phthalate	0.667	0.619		mg/Kg		93	64 - 120
Di-n-butyl phthalate	0.667	0.616		mg/Kg		92	70 - 129
Di-n-octyl phthalate	0.667	0.677		mg/Kg		102	64 - 129
Fluoranthene	0.667	0.600		mg/Kg		90	71 - 124
Fluorene	0.667	0.548		mg/Kg		82	58 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562873/2-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorobenzene	0.667	0.557		mg/Kg		83	59 - 120
Hexachlorobutadiene	0.667	0.510		mg/Kg		77	45 - 120
Hexachlorocyclopentadiene	0.667	0.417		mg/Kg		63	10 - 120
Hexachloroethane	0.667	0.496		mg/Kg		74	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.663		mg/Kg		99	65 - 122
Isophorone	0.667	0.584		mg/Kg		88	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.578		mg/Kg		87	48 - 120
N-Nitrosodiphenylamine	0.667	0.574		mg/Kg		86	64 - 120
Naphthalene	0.667	0.511		mg/Kg		77	34 - 120
Nitrobenzene	0.667	0.562		mg/Kg		84	48 - 120
Pentachlorophenol	1.33	0.837		mg/Kg		63	10 - 120
Phenanthrene	0.667	0.583		mg/Kg		87	60 - 120
Phenol	0.667	0.557		mg/Kg		84	48 - 120
Pyrene	0.667	0.687		mg/Kg		103	67 - 120
3 & 4 Methylphenol	0.667	0.572		mg/Kg		86	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	107		46 - 137
Phenol-d5 (Surr)	90		26 - 120
Nitrobenzene-d5 (Surr)	85		25 - 120
2-Fluorophenol (Surr)	81		20 - 120
2-Fluorobiphenyl (Surr)	92		34 - 120
2,4,6-Tribromophenol (Surr)	85		10 - 120

Lab Sample ID: LCS 240-562873/3-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	111		46 - 137
Phenol-d5 (Surr)	81		26 - 120
Nitrobenzene-d5 (Surr)	69		25 - 120
2-Fluorophenol (Surr)	67		20 - 120
2-Fluorobiphenyl (Surr)	79		34 - 120
2,4,6-Tribromophenol (Surr)	51		10 - 120

Lab Sample ID: LCS 240-562873/4-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	111		46 - 137
Phenol-d5 (Surr)	82		26 - 120
Nitrobenzene-d5 (Surr)	69		25 - 120
2-Fluorophenol (Surr)	71		20 - 120
2-Fluorobiphenyl (Surr)	79		34 - 120
2,4,6-Tribromophenol (Surr)	60		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180646-3 MS
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: WC-WS2-03 (2-3)
Prep Type: Total/NA
Prep Batch: 562873

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,1'-Biphenyl	ND		0.832	0.768	J	mg/Kg	☼	92		29 - 120
bis (2-chloroisopropyl) ether	ND		0.832	0.994	J	mg/Kg	☼	120		10 - 120
2,4,5-Trichlorophenol	ND		0.832	ND		mg/Kg	☼	NC		35 - 120
2,4,6-Trichlorophenol	ND		0.832	ND		mg/Kg	☼	NC		18 - 120
2,4-Dichlorophenol	ND		0.832	ND		mg/Kg	☼	NC		21 - 120
2,4-Dimethylphenol	ND		0.832	ND		mg/Kg	☼	NC		10 - 120
2,4-Dinitrophenol	ND		1.66	ND		mg/Kg	☼	NC		10 - 126
2,4-Dinitrotoluene	ND		0.832	ND		mg/Kg	☼	NC		46 - 120
2,6-Dinitrotoluene	ND		0.832	ND		mg/Kg	☼	NC		44 - 120
2-Chloronaphthalene	ND		0.832	0.527	J	mg/Kg	☼	63		33 - 120
2-Chlorophenol	ND		0.832	0.407	J	mg/Kg	☼	49		19 - 120
2-Methylnaphthalene	2.3		0.832	3.15		mg/Kg	☼	101		13 - 122
2-Methylphenol	ND	F1	0.832	ND	F1	mg/Kg	☼	0		12 - 120
2-Nitroaniline	ND		0.832	ND		mg/Kg	☼	NC		36 - 122
2-Nitrophenol	ND		0.832	0.465	J	mg/Kg	☼	56		28 - 120
3,3'-Dichlorobenzidine	ND	F1	1.66	ND	F1	mg/Kg	☼	0		10 - 179
3-Nitroaniline	ND		0.832	ND		mg/Kg	☼	NC		10 - 123
4,6-Dinitro-2-methylphenol	ND		1.66	ND		mg/Kg	☼	NC		11 - 120
4-Bromophenyl phenyl ether	ND		0.832	0.424	J	mg/Kg	☼	51		49 - 120
4-Chloro-3-methylphenol	ND		0.832	ND		mg/Kg	☼	NC		35 - 120
4-Chloroaniline	ND	F1	0.832	ND	F1	mg/Kg	☼	0		10 - 120
4-Chlorophenyl phenyl ether	ND		0.832	0.476	J	mg/Kg	☼	57		45 - 120
4-Nitroaniline	ND		0.832	ND		mg/Kg	☼	NC		13 - 129
4-Nitrophenol	ND		1.66	ND		mg/Kg	☼	NC		28 - 123
Acenaphthene	0.12	J	0.832	0.706		mg/Kg	☼	71		33 - 120
Acenaphthylene	ND		0.832	0.615		mg/Kg	☼	74		39 - 120
Acetophenone	ND		0.832	0.848	J	mg/Kg	☼	102		11 - 120
Anthracene	0.20	J	0.832	0.726		mg/Kg	☼	64		30 - 127
Atrazine	ND		1.66	1.05	J	mg/Kg	☼	63		52 - 126
Benzaldehyde	ND		1.66	0.763	J	mg/Kg	☼	46		13 - 120
Benzo[a]anthracene	0.57		0.832	1.18		mg/Kg	☼	73		24 - 137
Benzo[a]pyrene	0.41		0.832	0.923		mg/Kg	☼	62		28 - 136
Benzo[b]fluoranthene	0.72		0.832	1.32		mg/Kg	☼	73		21 - 142
Benzo[g,h,i]perylene	0.29	J	0.832	0.562		mg/Kg	☼	33		10 - 144
Benzo[k]fluoranthene	0.28	J	0.832	0.907		mg/Kg	☼	75		36 - 135
Bis(2-chloroethoxy)methane	ND		0.832	0.528	J	mg/Kg	☼	63		25 - 120
Bis(2-chloroethyl)ether	ND		0.832	0.323	J	mg/Kg	☼	39		16 - 120
Bis(2-ethylhexyl) phthalate	ND		0.832	ND		mg/Kg	☼	NC		37 - 143
Butyl benzyl phthalate	ND	F1	0.832	ND	F1	mg/Kg	☼	0		49 - 130
Caprolactam	ND		1.66	ND		mg/Kg	☼	NC		37 - 127
Carbazole	ND		0.832	0.650	J	mg/Kg	☼	78		33 - 132
Chrysene	0.68		0.832	1.42		mg/Kg	☼	88		28 - 129
Dibenz(a,h)anthracene	ND		0.832	0.402		mg/Kg	☼	48		10 - 132
Dibenzofuran	0.75	J	0.832	1.28		mg/Kg	☼	64		33 - 120
Diethyl phthalate	ND	F1	0.832	ND	F1	mg/Kg	☼	0		48 - 120
Dimethyl phthalate	ND		0.832	0.489	J	mg/Kg	☼	59		45 - 120
Di-n-butyl phthalate	ND		0.832	ND		mg/Kg	☼	NC		40 - 137
Di-n-octyl phthalate	ND	F1	0.832	ND	F1	mg/Kg	☼	0		34 - 152

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180646-3 MS

Matrix: Solid

Analysis Batch: 563114

Client Sample ID: WC-WS2-03 (2-3)

Prep Type: Total/NA

Prep Batch: 562873

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Fluoranthene	1.2		0.832	1.70		mg/Kg	⊛	66	31 - 140	
Fluorene	0.15	J	0.832	0.654		mg/Kg	⊛	60	43 - 120	
Hexachlorobenzene	ND		0.832	0.408		mg/Kg	⊛	49	44 - 120	
Hexachlorobutadiene	ND		0.832	0.458	J	mg/Kg	⊛	55	13 - 120	
Hexachlorocyclopentadiene	ND		0.832	ND		mg/Kg	⊛	NC	10 - 120	
Hexachloroethane	ND		0.832	0.654	J	mg/Kg	⊛	79	10 - 120	
Indeno[1,2,3-cd]pyrene	0.22	J	0.832	0.554		mg/Kg	⊛	40	10 - 139	
Isophorone	ND		0.832	0.539	J	mg/Kg	⊛	65	27 - 120	
N-Nitrosodi-n-propylamine	ND		0.832	0.590	J	mg/Kg	⊛	71	23 - 120	
N-Nitrosodiphenylamine	ND		0.832	0.698	J	mg/Kg	⊛	84	30 - 128	
Naphthalene	1.3		0.832	2.30		mg/Kg	⊛	115	10 - 120	
Nitrobenzene	ND		0.832	0.506	J	mg/Kg	⊛	61	19 - 120	
Pentachlorophenol	ND	F1	1.66	ND	F1	mg/Kg	⊛	0	10 - 120	
Phenanthrene	1.5		0.832	2.11		mg/Kg	⊛	67	36 - 120	
Phenol	ND		0.832	0.394	J	mg/Kg	⊛	47	10 - 120	
Pyrene	1.0		0.832	1.69		mg/Kg	⊛	79	31 - 134	
3 & 4 Methylphenol	ND	F1	0.832	ND	F1	mg/Kg	⊛	0	10 - 122	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	64		46 - 137
Phenol-d5 (Surr)	53		26 - 120
Nitrobenzene-d5 (Surr)	63		25 - 120
2-Fluorophenol (Surr)	61		20 - 120
2-Fluorobiphenyl (Surr)	66		34 - 120
2,4,6-Tribromophenol (Surr)	92		10 - 120

Lab Sample ID: 240-180646-3 MSD

Matrix: Solid

Analysis Batch: 563114

Client Sample ID: WC-WS2-03 (2-3)

Prep Type: Total/NA

Prep Batch: 562873

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
1,1'-Biphenyl	ND		0.811	0.800	J	mg/Kg	⊛	99	29 - 120	4	45	
bis (2-chloroisopropyl) ether	ND		0.811	0.848	J	mg/Kg	⊛	105	10 - 120	16	45	
2,4,5-Trichlorophenol	ND		0.811	ND		mg/Kg	⊛	NC	35 - 120	NC	39	
2,4,6-Trichlorophenol	ND		0.811	ND		mg/Kg	⊛	NC	18 - 120	NC	45	
2,4-Dichlorophenol	ND		0.811	ND		mg/Kg	⊛	NC	21 - 120	NC	44	
2,4-Dimethylphenol	ND		0.811	ND		mg/Kg	⊛	NC	10 - 120	NC	45	
2,4-Dinitrophenol	ND		1.62	ND		mg/Kg	⊛	NC	10 - 126	NC	45	
2,4-Dinitrotoluene	ND		0.811	ND		mg/Kg	⊛	NC	46 - 120	NC	45	
2,6-Dinitrotoluene	ND		0.811	ND		mg/Kg	⊛	NC	44 - 120	NC	45	
2-Chloronaphthalene	ND		0.811	0.549	J	mg/Kg	⊛	68	33 - 120	4	45	
2-Chlorophenol	ND		0.811	0.553	J	mg/Kg	⊛	68	19 - 120	30	45	
2-Methylnaphthalene	2.3		0.811	3.06		mg/Kg	⊛	93	13 - 122	3	45	
2-Methylphenol	ND	F1	0.811	ND	F1	mg/Kg	⊛	0	12 - 120	NC	45	
2-Nitroaniline	ND		0.811	ND		mg/Kg	⊛	NC	36 - 122	NC	42	
2-Nitrophenol	ND		0.811	0.530	J	mg/Kg	⊛	65	28 - 120	13	45	
3,3'-Dichlorobenzidine	ND	F1	1.62	ND	F1	mg/Kg	⊛	0	10 - 179	NC	45	
3-Nitroaniline	ND		0.811	ND		mg/Kg	⊛	NC	10 - 123	NC	45	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180646-3 MSD

Matrix: Solid

Analysis Batch: 563114

Client Sample ID: WC-WS2-03 (2-3)

Prep Type: Total/NA

Prep Batch: 562873

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
4,6-Dinitro-2-methylphenol	ND		1.62	ND		mg/Kg	✳	NC	11 - 120	NC	40
4-Bromophenyl phenyl ether	ND		0.811	0.513	J	mg/Kg	✳	63	49 - 120	19	42
4-Chloro-3-methylphenol	ND		0.811	ND		mg/Kg	✳	NC	35 - 120	NC	42
4-Chloroaniline	ND	F1	0.811	ND	F1	mg/Kg	✳	0	10 - 120	NC	45
4-Chlorophenyl phenyl ether	ND		0.811	0.561	J	mg/Kg	✳	69	45 - 120	16	44
4-Nitroaniline	ND		0.811	ND		mg/Kg	✳	NC	13 - 129	NC	38
4-Nitrophenol	ND		1.62	ND		mg/Kg	✳	NC	28 - 123	NC	45
Acenaphthene	0.12	J	0.811	0.701		mg/Kg	✳	72	33 - 120	1	45
Acenaphthylene	ND		0.811	0.661		mg/Kg	✳	81	39 - 120	7	45
Acetophenone	ND		0.811	0.830	J	mg/Kg	✳	102	11 - 120	2	45
Anthracene	0.20	J	0.811	0.760		mg/Kg	✳	69	30 - 127	5	45
Atrazine	ND		1.62	1.23	J	mg/Kg	✳	76	52 - 126	16	34
Benzaldehyde	ND		1.62	0.847	J	mg/Kg	✳	52	13 - 120	10	45
Benzo[a]anthracene	0.57		0.811	1.15		mg/Kg	✳	71	24 - 137	3	42
Benzo[a]pyrene	0.41		0.811	0.939		mg/Kg	✳	66	28 - 136	2	41
Benzo[b]fluoranthene	0.72		0.811	1.29		mg/Kg	✳	71	21 - 142	2	42
Benzo[g,h,i]perylene	0.29	J	0.811	0.518		mg/Kg	✳	29	10 - 144	8	40
Benzo[k]fluoranthene	0.28	J	0.811	0.933		mg/Kg	✳	81	36 - 135	3	44
Bis(2-chloroethoxy)methane	ND		0.811	0.588	J	mg/Kg	✳	73	25 - 120	11	45
Bis(2-chloroethyl)ether	ND		0.811	0.350	J	mg/Kg	✳	43	16 - 120	8	45
Bis(2-ethylhexyl) phthalate	ND		0.811	ND		mg/Kg	✳	NC	37 - 143	NC	38
Butyl benzyl phthalate	ND	F1	0.811	0.608	J	mg/Kg	✳	75	49 - 130	NC	41
Caprolactam	ND		1.62	ND		mg/Kg	✳	NC	37 - 127	NC	45
Carbazole	ND		0.811	0.711	J	mg/Kg	✳	88	33 - 132	9	45
Chrysene	0.68		0.811	1.41		mg/Kg	✳	90	28 - 129	1	42
Dibenz(a,h)anthracene	ND		0.811	0.385		mg/Kg	✳	47	10 - 132	4	37
Dibenzofuran	0.75	J	0.811	1.27		mg/Kg	✳	65	33 - 120	1	43
Diethyl phthalate	ND	F1	0.811	ND	F1	mg/Kg	✳	0	48 - 120	NC	38
Dimethyl phthalate	ND		0.811	0.537	J	mg/Kg	✳	66	45 - 120	9	43
Di-n-butyl phthalate	ND		0.811	ND		mg/Kg	✳	NC	40 - 137	NC	42
Di-n-octyl phthalate	ND	F1	0.811	ND	F1	mg/Kg	✳	0	34 - 152	NC	39
Fluoranthene	1.2		0.811	1.81		mg/Kg	✳	81	31 - 140	6	45
Fluorene	0.15	J	0.811	0.721		mg/Kg	✳	70	43 - 120	10	39
Hexachlorobenzene	ND		0.811	0.446		mg/Kg	✳	55	44 - 120	9	39
Hexachlorobutadiene	ND		0.811	0.466	J	mg/Kg	✳	58	13 - 120	2	45
Hexachlorocyclopentadiene	ND		0.811	ND		mg/Kg	✳	NC	10 - 120	NC	45
Hexachloroethane	ND		0.811	0.559	J	mg/Kg	✳	69	10 - 120	16	45
Indeno[1,2,3-cd]pyrene	0.22	J	0.811	0.525		mg/Kg	✳	38	10 - 139	5	41
Isophorone	ND		0.811	0.603	J	mg/Kg	✳	74	27 - 120	11	45
N-Nitrosodi-n-propylamine	ND		0.811	0.556	J	mg/Kg	✳	69	23 - 120	6	45
N-Nitrosodiphenylamine	ND		0.811	0.720	J	mg/Kg	✳	89	30 - 128	3	44
Naphthalene	1.3		0.811	2.26		mg/Kg	✳	112	10 - 120	2	45
Nitrobenzene	ND		0.811	0.542	J	mg/Kg	✳	67	19 - 120	7	45
Pentachlorophenol	ND	F1	1.62	ND	F1	mg/Kg	✳	0	10 - 120	NC	45
Phenanthrene	1.5		0.811	2.09		mg/Kg	✳	67	36 - 120	1	41
Phenol	ND		0.811	0.447	J	mg/Kg	✳	55	10 - 120	13	45
Pyrene	1.0		0.811	1.61		mg/Kg	✳	72	31 - 134	5	43
3 & 4 Methylphenol	ND	F1	0.811	ND	F1	mg/Kg	✳	0	10 - 122	NC	45

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180646-3 MSD
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: WC-WS2-03 (2-3)
Prep Type: Total/NA
Prep Batch: 562873

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Terphenyl-d14 (Surr)	67		46 - 137
Phenol-d5 (Surr)	49		26 - 120
Nitrobenzene-d5 (Surr)	67		25 - 120
2-Fluorophenol (Surr)	61		20 - 120
2-Fluorobiphenyl (Surr)	72		34 - 120
2,4,6-Tribromophenol (Surr)	90		10 - 120

Lab Sample ID: 240-180646-6 MS
Matrix: Solid
Analysis Batch: 563180

Client Sample ID: WC-WS2-COMP (01-07)
Prep Type: TCLP
Prep Batch: 562821

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	ND		0.0800	0.0654		mg/L		82	37 - 120
2,4,5-Trichlorophenol	ND		0.0800	0.0789		mg/L		99	25 - 128
2,4,6-Trichlorophenol	ND		0.0800	0.0873		mg/L		109	23 - 122
2,4-Dinitrotoluene	ND		0.0800	0.0721		mg/L		90	27 - 127
Pyridine	ND		0.160	0.0682		mg/L		43	10 - 120
2-Methylphenol	ND		0.0800	0.0673		mg/L		84	22 - 120
Hexachlorobenzene	ND		0.0800	0.0730		mg/L		91	18 - 123
Hexachlorobutadiene	ND		0.0800	0.0701		mg/L		88	10 - 120
Hexachloroethane	ND		0.0800	0.0603		mg/L		75	10 - 120
Nitrobenzene	ND		0.0800	0.0607		mg/L		76	26 - 120
Pentachlorophenol	ND		0.160	0.125		mg/L		78	10 - 132
3 & 4 Methylphenol	ND		0.0800	0.0659		mg/L		82	16 - 123

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14 (Surr)	116		46 - 137
Phenol-d5 (Surr)	75		26 - 120
Nitrobenzene-d5 (Surr)	79		24 - 120
2-Fluorophenol (Surr)	83		19 - 120
2-Fluorobiphenyl (Surr)	104		33 - 120
2,4,6-Tribromophenol (Surr)	113		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-562822/6-A
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562822

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/21/23 08:09	02/22/23 11:07	1
Endrin	ND		0.00050	0.0000065	mg/L		02/21/23 08:09	02/22/23 11:07	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/21/23 08:09	02/22/23 11:07	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/21/23 08:09	02/22/23 11:07	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/21/23 08:09	02/22/23 11:07	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/21/23 08:09	02/22/23 11:07	1
Toxaphene	ND		0.020	0.000058	mg/L		02/21/23 08:09	02/22/23 11:07	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 240-562822/6-A
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562822

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	92		10 - 145	02/21/23 08:09	02/22/23 11:07	1
DCB Decachlorobiphenyl	92		10 - 145	02/21/23 08:09	02/22/23 11:07	1
Tetrachloro-m-xylene	67		10 - 123	02/21/23 08:09	02/22/23 11:07	1
Tetrachloro-m-xylene	69		10 - 123	02/21/23 08:09	02/22/23 11:07	1

Lab Sample ID: LCS 240-562822/7-A
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562822

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	Limits
Heptachlor	0.00100	0.000957		mg/L		96	29 - 120	
Heptachlor epoxide	0.00100	0.000999		mg/L		100	36 - 120	
gamma-BHC (Lindane)	0.00100	0.000920		mg/L		92	23 - 120	
Methoxychlor	0.00100	0.00110		mg/L		110	23 - 140	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	90		10 - 145
DCB Decachlorobiphenyl	90		10 - 145
Tetrachloro-m-xylene	69		10 - 123
Tetrachloro-m-xylene	71		10 - 123

Lab Sample ID: 240-180646-12 MS
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: WC-WS2-COMP (08-14)
Prep Type: TCLP
Prep Batch: 562822

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	Limits
Heptachlor	ND		0.00100	0.000938		mg/L		94	42 - 120	
Heptachlor epoxide	ND		0.00100	0.00100		mg/L		100	54 - 120	
gamma-BHC (Lindane)	ND		0.00100	0.000886		mg/L		89	32 - 120	
Methoxychlor	ND		0.00100	0.00114		mg/L		114	11 - 159	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	89		10 - 145
DCB Decachlorobiphenyl	88		10 - 145
Tetrachloro-m-xylene	65		10 - 123
Tetrachloro-m-xylene	61		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-562650/1-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562650

Analyte	Result	MB MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1221	ND		50	30	ug/Kg		02/20/23 08:20	02/20/23 19:48	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 240-562650/1-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562650

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1232	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1242	ND		50	19	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1248	ND		50	17	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1254	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1260	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1262	ND		50	22	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1268	ND		50	16	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Polychlorinated biphenyls, Total	ND		50	30	ug/Kg		02/20/23 08:20	02/20/23 19:48	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	53		10 - 149	02/20/23 08:20	02/20/23 19:48	1
DCB Decachlorobiphenyl	93		10 - 174	02/20/23 08:20	02/20/23 19:48	1

Lab Sample ID: LCS 240-562650/2-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562650

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Aroclor-1016	1000	780		ug/Kg		78	28 - 140
Aroclor-1260	1000	955		ug/Kg		96	39 - 153

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	94		10 - 149
DCB Decachlorobiphenyl	123		10 - 174

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-346721/1-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 04:58	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 04:58	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136	02/21/23 20:16	02/22/23 04:58	1

Lab Sample ID: MB 410-346721/2-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 05:26	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 05:26	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid (Surr)	55		26 - 136	02/21/23 20:16	02/22/23 05:26	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-346721/3-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 05:54	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 05:54	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136				02/21/23 20:16	02/22/23 05:54	1

Lab Sample ID: MB 410-346721/4-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 06:22	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 06:22	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136				02/21/23 20:16	02/22/23 06:22	1

Lab Sample ID: MB 410-346721/5-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 06:49	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 06:49	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	58		26 - 136				02/21/23 20:16	02/22/23 06:49	1

Lab Sample ID: LCS 410-346721/6-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silvex (2,4,5-TP)	0.00500	0.00397	J	mg/L		79	58 - 148
2,4-D	0.0502	0.0389	J	mg/L		78	42 - 147
Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits				
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136				

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-346502/1-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		02/21/23 12:53	02/21/23 16:49	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-346502/1-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		02/21/23 12:53	02/21/23 16:49	1
Isotope Dilution									
	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	74		26 - 159				02/21/23 12:53	02/21/23 16:49	1
13C8 PFOS	89		41 - 154				02/21/23 12:53	02/21/23 16:49	1

Lab Sample ID: LCS 410-346502/2-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanoic acid	25.0	20.9		ng/g		84	59 - 131
Perfluorooctanesulfonic acid	23.1	20.9		ng/g		90	61 - 126
Isotope Dilution							
	LCS %Recovery	LCS Qualifier	Limits				
13C8 PFOA	85		26 - 159				
13C8 PFOS	91		41 - 154				

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-562706/2-A
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562706

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 08:57	1
Barium	ND		0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 08:57	1
Cadmium	0.000220	J	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 08:57	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 08:57	1
Lead	ND		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 08:57	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 08:57	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 08:57	1

Lab Sample ID: LCS 240-562706/3-A
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562706

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	1.99		mg/L		99	50 - 150
Barium	2.00	1.87		mg/L		93	50 - 150
Cadmium	1.00	0.976		mg/L		98	50 - 150
Chromium	1.00	0.958		mg/L		96	50 - 150
Lead	1.00	0.916		mg/L		92	50 - 150
Selenium	2.00	2.00		mg/L		100	50 - 150
Silver	0.100	0.102		mg/L		102	50 - 150

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 240-562607/1-B
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562706

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 08:52	1
Barium	0.00326	J	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 08:52	1
Cadmium	ND		0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 08:52	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 08:52	1
Lead	ND		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 08:52	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 08:52	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 08:52	1

Lab Sample ID: 240-180646-1 MS
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: WC-WS2-01 (1-1.5)
Prep Type: TCLP
Prep Batch: 562706

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Arsenic	ND		5.00	4.91		mg/L		98	75 - 125
Barium	0.38	J B	50.0	48.1		mg/L		95	75 - 125
Cadmium	0.0016	J B	1.00	0.997		mg/L		100	75 - 125
Chromium	ND		5.00	4.83		mg/L		97	75 - 125
Lead	0.0093	J	5.00	4.70		mg/L		94	75 - 125
Selenium	ND		1.00	0.998		mg/L		100	75 - 125
Silver	ND		1.00	1.00		mg/L		100	75 - 125

Lab Sample ID: 240-180646-1 MSD
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: WC-WS2-01 (1-1.5)
Prep Type: TCLP
Prep Batch: 562706

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
Arsenic	ND		5.00	5.07		mg/L		101	75 - 125	3	20
Barium	0.38	J B	50.0	47.0		mg/L		93	75 - 125	2	20
Cadmium	0.0016	J B	1.00	1.04		mg/L		104	75 - 125	4	20
Chromium	ND		5.00	4.89		mg/L		98	75 - 125	1	20
Lead	0.0093	J	5.00	4.84		mg/L		97	75 - 125	3	20
Selenium	ND		1.00	1.00		mg/L		100	75 - 125	0	20
Silver	ND		1.00	1.02		mg/L		102	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-562707/2-A
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562707

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:35	1

Lab Sample ID: LCS 240-562707/3-A
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562707

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Mercury	0.00500	0.00481		mg/L		96	80 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LB 240-562607/1-C
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562707

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	Result	Qualifier	0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:33	1
	ND								

Lab Sample ID: 240-180646-1 MS
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: WC-WS2-01 (1-1.5)
Prep Type: TCLP
Prep Batch: 562707

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Mercury	ND		0.00500	0.00514		mg/L		103	80 - 120

Lab Sample ID: 240-180646-1 MSD
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: WC-WS2-01 (1-1.5)
Prep Type: TCLP
Prep Batch: 562707

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits	Limit
Mercury	ND		0.00500	0.00496		mg/L		99	80 - 120	4 20

Method: Moisture - Percent Moisture

Lab Sample ID: 240-180646-1 DU
Matrix: Solid
Analysis Batch: 562608

Client Sample ID: WC-WS2-01 (1-1.5)
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Percent Solids	83.3		86.6		%		4	20
Percent Moisture	16.7		13.4	F3	%		22	20

Lab Sample ID: 240-180646-10 DU
Matrix: Solid
Analysis Batch: 562608

Client Sample ID: WC-WS2-09 (5-6)
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Percent Solids	82.2		79.9		%		3	20
Percent Moisture	17.8		20.1		%		12	20

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

GC/MS VOA

Composite Batch: 562584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	Composite	
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	Composite	

Leach Batch: 562615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	1311	562584
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	1311	562584
LB 240-562615/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 562664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	8260D	562615
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	8260D	562615
LB 240-562615/1-A MB	Method Blank	TCLP	Solid	8260D	562615
LCS 240-562664/20	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 562783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	Total/NA	Solid	5035	
MB 240-562783/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562783/2-A	Lab Control Sample	Total/NA	Solid	5035	

Prep Batch: 562918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-2	WC-WS2-02 (1-2)	Total/NA	Solid	5035	
240-180646-3	WC-WS2-03 (2-3)	Total/NA	Solid	5035	
240-180646-4	WC-WS2-04 (3-4)	Total/NA	Solid	5035	
240-180646-5	WC-WS2-05 (2-3)	Total/NA	Solid	5035	
240-180646-7	WC-WS2-06 (3-4)	Total/NA	Solid	5035	
240-180646-8	WC-WS2-07 (2-3)	Total/NA	Solid	5035	
240-180646-9	WC-WS2-08 (4-5)	Total/NA	Solid	5035	
240-180646-10	WC-WS2-09 (5-6)	Total/NA	Solid	5035	
240-180646-11	WC-WS2-10 (3-4)	Total/NA	Solid	5035	
MB 240-562918/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-180646-3 MS	WC-WS2-03 (2-3)	Total/NA	Solid	5035	
240-180646-3 MSD	WC-WS2-03 (2-3)	Total/NA	Solid	5035	

Analysis Batch: 563099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-3	WC-WS2-03 (2-3)	Total/NA	Solid	8260D	562918
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918
240-180646-3 MS	WC-WS2-03 (2-3)	Total/NA	Solid	8260D	562918
240-180646-3 MSD	WC-WS2-03 (2-3)	Total/NA	Solid	8260D	562918

Analysis Batch: 563103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-4	WC-WS2-04 (3-4)	Total/NA	Solid	8260D	562918
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

GC/MS VOA

Analysis Batch: 563234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	Total/NA	Solid	8260D	562783
240-180646-2	WC-WS2-02 (1-2)	Total/NA	Solid	8260D	562918
240-180646-4	WC-WS2-04 (3-4)	Total/NA	Solid	8260D	562918
240-180646-5	WC-WS2-05 (2-3)	Total/NA	Solid	8260D	562918
240-180646-7	WC-WS2-06 (3-4)	Total/NA	Solid	8260D	562918
240-180646-8	WC-WS2-07 (2-3)	Total/NA	Solid	8260D	562918
240-180646-9	WC-WS2-08 (4-5)	Total/NA	Solid	8260D	562918
240-180646-10	WC-WS2-09 (5-6)	Total/NA	Solid	8260D	562918
240-180646-11	WC-WS2-10 (3-4)	Total/NA	Solid	8260D	562918
MB 240-562783/1-A	Method Blank	Total/NA	Solid	8260D	562783
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
LCS 240-562783/2-A	Lab Control Sample	Total/NA	Solid	8260D	562783
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918

Analysis Batch: 563303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	Total/NA	Solid	8260D	562783
240-180646-2	WC-WS2-02 (1-2)	Total/NA	Solid	8260D	562918
240-180646-3	WC-WS2-03 (2-3)	Total/NA	Solid	8260D	562918
240-180646-5	WC-WS2-05 (2-3)	Total/NA	Solid	8260D	562918
240-180646-7	WC-WS2-06 (3-4)	Total/NA	Solid	8260D	562918
240-180646-8	WC-WS2-07 (2-3)	Total/NA	Solid	8260D	562918
240-180646-9	WC-WS2-08 (4-5)	Total/NA	Solid	8260D	562918
240-180646-10	WC-WS2-09 (5-6)	Total/NA	Solid	8260D	562918
240-180646-11	WC-WS2-10 (3-4)	Total/NA	Solid	8260D	562918

GC/MS Semi VOA

Composite Batch: 562584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	Composite	
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	Composite	
240-180646-6 MS	WC-WS2-COMP (01-07)	TCLP	Solid	Composite	

Leach Batch: 562606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	1311	562584
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	1311	562584
240-180646-6 MS	WC-WS2-COMP (01-07)	TCLP	Solid	1311	562584

Prep Batch: 562719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	Total/NA	Solid	3540C	
240-180646-2	WC-WS2-02 (1-2)	Total/NA	Solid	3540C	
MB 240-562719/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-562719/25-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562719/26-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562719/2-A	Lab Control Sample	Total/NA	Solid	3540C	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

GC/MS Semi VOA

Prep Batch: 562821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	3510C	562606
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	3510C	562606
MB 240-562821/9-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-562821/10-A	Lab Control Sample	Total/NA	Solid	3510C	
240-180646-6 MS	WC-WS2-COMP (01-07)	TCLP	Solid	3510C	562606

Prep Batch: 562873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-3	WC-WS2-03 (2-3)	Total/NA	Solid	3540C	
240-180646-4	WC-WS2-04 (3-4)	Total/NA	Solid	3540C	
240-180646-5	WC-WS2-05 (2-3)	Total/NA	Solid	3540C	
240-180646-7	WC-WS2-06 (3-4)	Total/NA	Solid	3540C	
240-180646-8	WC-WS2-07 (2-3)	Total/NA	Solid	3540C	
240-180646-9	WC-WS2-08 (4-5)	Total/NA	Solid	3540C	
240-180646-10	WC-WS2-09 (5-6)	Total/NA	Solid	3540C	
240-180646-11	WC-WS2-10 (3-4)	Total/NA	Solid	3540C	
MB 240-562873/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-562873/2-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562873/3-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562873/4-A	Lab Control Sample	Total/NA	Solid	3540C	
240-180646-3 MS	WC-WS2-03 (2-3)	Total/NA	Solid	3540C	
240-180646-3 MSD	WC-WS2-03 (2-3)	Total/NA	Solid	3540C	

Analysis Batch: 563049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	Total/NA	Solid	8270E	562719
240-180646-2	WC-WS2-02 (1-2)	Total/NA	Solid	8270E	562719
MB 240-562719/1-A	Method Blank	Total/NA	Solid	8270E	562719
LCS 240-562719/25-A	Lab Control Sample	Total/NA	Solid	8270E	562719
LCS 240-562719/26-A	Lab Control Sample	Total/NA	Solid	8270E	562719
LCS 240-562719/2-A	Lab Control Sample	Total/NA	Solid	8270E	562719

Analysis Batch: 563114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-3	WC-WS2-03 (2-3)	Total/NA	Solid	8270E	562873
240-180646-4	WC-WS2-04 (3-4)	Total/NA	Solid	8270E	562873
240-180646-5	WC-WS2-05 (2-3)	Total/NA	Solid	8270E	562873
240-180646-7	WC-WS2-06 (3-4)	Total/NA	Solid	8270E	562873
240-180646-8	WC-WS2-07 (2-3)	Total/NA	Solid	8270E	562873
240-180646-9	WC-WS2-08 (4-5)	Total/NA	Solid	8270E	562873
240-180646-10	WC-WS2-09 (5-6)	Total/NA	Solid	8270E	562873
240-180646-11	WC-WS2-10 (3-4)	Total/NA	Solid	8270E	562873
MB 240-562873/1-A	Method Blank	Total/NA	Solid	8270E	562873
LCS 240-562873/2-A	Lab Control Sample	Total/NA	Solid	8270E	562873
LCS 240-562873/3-A	Lab Control Sample	Total/NA	Solid	8270E	562873
LCS 240-562873/4-A	Lab Control Sample	Total/NA	Solid	8270E	562873
240-180646-3 MS	WC-WS2-03 (2-3)	Total/NA	Solid	8270E	562873
240-180646-3 MSD	WC-WS2-03 (2-3)	Total/NA	Solid	8270E	562873

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

GC/MS Semi VOA

Analysis Batch: 563180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	8270E	562821
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	8270E	562821
MB 240-562821/9-A	Method Blank	Total/NA	Solid	8270E	562821
LCS 240-562821/10-A	Lab Control Sample	Total/NA	Solid	8270E	562821
240-180646-6 MS	WC-WS2-COMP (01-07)	TCLP	Solid	8270E	562821

GC Semi VOA

Leach Batch: 346499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	1311	
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	1311	

Prep Batch: 346721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	8151A	346499
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	8151A	346499
MB 410-346721/1-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/2-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/3-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/4-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/5-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-346721/6-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 346737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	8151A	346721
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	8151A	346721
MB 410-346721/1-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/2-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/3-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/4-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/5-A	Method Blank	Total/NA	Solid	8151A	346721
LCS 410-346721/6-A	Lab Control Sample	Total/NA	Solid	8151A	346721

Composite Batch: 562584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	Composite	
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	Composite	
240-180646-12 MS	WC-WS2-COMP (08-14)	TCLP	Solid	Composite	

Composite Batch: 562585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	Composite	
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	Composite	

Leach Batch: 562606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	1311	562584
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	1311	562584
240-180646-12 MS	WC-WS2-COMP (08-14)	TCLP	Solid	1311	562584

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

GC Semi VOA

Prep Batch: 562650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	3546	562585
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	3546	562585
MB 240-562650/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-562650/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 562759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	8082A	562650
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	8082A	562650
MB 240-562650/1-A	Method Blank	Total/NA	Solid	8082A	562650
LCS 240-562650/2-A	Lab Control Sample	Total/NA	Solid	8082A	562650

Prep Batch: 562822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	3510C	562606
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	3510C	562606
MB 240-562822/6-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-562822/7-A	Lab Control Sample	Total/NA	Solid	3510C	
240-180646-12 MS	WC-WS2-COMP (08-14)	TCLP	Solid	3510C	562606

Analysis Batch: 563004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	TCLP	Solid	8081B	562822
240-180646-12	WC-WS2-COMP (08-14)	TCLP	Solid	8081B	562822
MB 240-562822/6-A	Method Blank	Total/NA	Solid	8081B	562822
LCS 240-562822/7-A	Lab Control Sample	Total/NA	Solid	8081B	562822
240-180646-12 MS	WC-WS2-COMP (08-14)	TCLP	Solid	8081B	562822

LCMS

Prep Batch: 346502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	537 (mod)	
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	537 (mod)	
MB 410-346502/1-B	Method Blank	Total/NA	Solid	537 (mod)	
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	537 (mod)	

Cleanup Batch: 346507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	Extract Aliquot	346502
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	Extract Aliquot	346502
MB 410-346502/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	346502
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	346502

Analysis Batch: 346558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	537 IDA	346507
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	537 IDA	346507
MB 410-346502/1-B	Method Blank	Total/NA	Solid	537 IDA	346507
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	346507

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Metals

Leach Batch: 562607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	TCLP	Solid	1311	
240-180646-2	WC-WS2-02 (1-2)	TCLP	Solid	1311	
240-180646-3	WC-WS2-03 (2-3)	TCLP	Solid	1311	
240-180646-4	WC-WS2-04 (3-4)	TCLP	Solid	1311	
240-180646-5	WC-WS2-05 (2-3)	TCLP	Solid	1311	
240-180646-7	WC-WS2-06 (3-4)	TCLP	Solid	1311	
240-180646-8	WC-WS2-07 (2-3)	TCLP	Solid	1311	
240-180646-9	WC-WS2-08 (4-5)	TCLP	Solid	1311	
240-180646-10	WC-WS2-09 (5-6)	TCLP	Solid	1311	
240-180646-11	WC-WS2-10 (3-4)	TCLP	Solid	1311	
LB 240-562607/1-B	Method Blank	TCLP	Solid	1311	
LB 240-562607/1-C	Method Blank	TCLP	Solid	1311	
240-180646-1 MS	WC-WS2-01 (1-1.5)	TCLP	Solid	1311	
240-180646-1 MSD	WC-WS2-01 (1-1.5)	TCLP	Solid	1311	

Prep Batch: 562706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	TCLP	Solid	3010A	562607
240-180646-2	WC-WS2-02 (1-2)	TCLP	Solid	3010A	562607
240-180646-3	WC-WS2-03 (2-3)	TCLP	Solid	3010A	562607
240-180646-4	WC-WS2-04 (3-4)	TCLP	Solid	3010A	562607
240-180646-5	WC-WS2-05 (2-3)	TCLP	Solid	3010A	562607
240-180646-7	WC-WS2-06 (3-4)	TCLP	Solid	3010A	562607
240-180646-8	WC-WS2-07 (2-3)	TCLP	Solid	3010A	562607
240-180646-9	WC-WS2-08 (4-5)	TCLP	Solid	3010A	562607
240-180646-10	WC-WS2-09 (5-6)	TCLP	Solid	3010A	562607
240-180646-11	WC-WS2-10 (3-4)	TCLP	Solid	3010A	562607
LB 240-562607/1-B	Method Blank	TCLP	Solid	3010A	562607
MB 240-562706/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-562706/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180646-1 MS	WC-WS2-01 (1-1.5)	TCLP	Solid	3010A	562607
240-180646-1 MSD	WC-WS2-01 (1-1.5)	TCLP	Solid	3010A	562607

Prep Batch: 562707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	TCLP	Solid	7470A	562607
240-180646-2	WC-WS2-02 (1-2)	TCLP	Solid	7470A	562607
240-180646-3	WC-WS2-03 (2-3)	TCLP	Solid	7470A	562607
240-180646-4	WC-WS2-04 (3-4)	TCLP	Solid	7470A	562607
240-180646-5	WC-WS2-05 (2-3)	TCLP	Solid	7470A	562607
240-180646-7	WC-WS2-06 (3-4)	TCLP	Solid	7470A	562607
240-180646-8	WC-WS2-07 (2-3)	TCLP	Solid	7470A	562607
240-180646-9	WC-WS2-08 (4-5)	TCLP	Solid	7470A	562607
240-180646-10	WC-WS2-09 (5-6)	TCLP	Solid	7470A	562607
240-180646-11	WC-WS2-10 (3-4)	TCLP	Solid	7470A	562607
LB 240-562607/1-C	Method Blank	TCLP	Solid	7470A	562607
MB 240-562707/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-562707/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180646-1 MS	WC-WS2-01 (1-1.5)	TCLP	Solid	7470A	562607
240-180646-1 MSD	WC-WS2-01 (1-1.5)	TCLP	Solid	7470A	562607

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Metals

Analysis Batch: 562870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	TCLP	Solid	6010D	562706
240-180646-2	WC-WS2-02 (1-2)	TCLP	Solid	6010D	562706
240-180646-3	WC-WS2-03 (2-3)	TCLP	Solid	6010D	562706
240-180646-4	WC-WS2-04 (3-4)	TCLP	Solid	6010D	562706
240-180646-5	WC-WS2-05 (2-3)	TCLP	Solid	6010D	562706
240-180646-7	WC-WS2-06 (3-4)	TCLP	Solid	6010D	562706
240-180646-8	WC-WS2-07 (2-3)	TCLP	Solid	6010D	562706
240-180646-9	WC-WS2-08 (4-5)	TCLP	Solid	6010D	562706
240-180646-10	WC-WS2-09 (5-6)	TCLP	Solid	6010D	562706
240-180646-11	WC-WS2-10 (3-4)	TCLP	Solid	6010D	562706
LB 240-562607/1-B	Method Blank	TCLP	Solid	6010D	562706
MB 240-562706/2-A	Method Blank	Total/NA	Solid	6010D	562706
LCS 240-562706/3-A	Lab Control Sample	Total/NA	Solid	6010D	562706
240-180646-1 MS	WC-WS2-01 (1-1.5)	TCLP	Solid	6010D	562706
240-180646-1 MSD	WC-WS2-01 (1-1.5)	TCLP	Solid	6010D	562706

Analysis Batch: 562913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	TCLP	Solid	7470A	562707
240-180646-2	WC-WS2-02 (1-2)	TCLP	Solid	7470A	562707
240-180646-3	WC-WS2-03 (2-3)	TCLP	Solid	7470A	562707
240-180646-4	WC-WS2-04 (3-4)	TCLP	Solid	7470A	562707
240-180646-5	WC-WS2-05 (2-3)	TCLP	Solid	7470A	562707
240-180646-7	WC-WS2-06 (3-4)	TCLP	Solid	7470A	562707
240-180646-8	WC-WS2-07 (2-3)	TCLP	Solid	7470A	562707
240-180646-9	WC-WS2-08 (4-5)	TCLP	Solid	7470A	562707
240-180646-10	WC-WS2-09 (5-6)	TCLP	Solid	7470A	562707
240-180646-11	WC-WS2-10 (3-4)	TCLP	Solid	7470A	562707
LB 240-562607/1-C	Method Blank	TCLP	Solid	7470A	562707
MB 240-562707/2-A	Method Blank	Total/NA	Solid	7470A	562707
LCS 240-562707/3-A	Lab Control Sample	Total/NA	Solid	7470A	562707
240-180646-1 MS	WC-WS2-01 (1-1.5)	TCLP	Solid	7470A	562707
240-180646-1 MSD	WC-WS2-01 (1-1.5)	TCLP	Solid	7470A	562707

General Chemistry

Analysis Batch: 562608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-1	WC-WS2-01 (1-1.5)	Total/NA	Solid	Moisture	
240-180646-2	WC-WS2-02 (1-2)	Total/NA	Solid	Moisture	
240-180646-3	WC-WS2-03 (2-3)	Total/NA	Solid	Moisture	
240-180646-4	WC-WS2-04 (3-4)	Total/NA	Solid	Moisture	
240-180646-5	WC-WS2-05 (2-3)	Total/NA	Solid	Moisture	
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	Moisture	
240-180646-7	WC-WS2-06 (3-4)	Total/NA	Solid	Moisture	
240-180646-8	WC-WS2-07 (2-3)	Total/NA	Solid	Moisture	
240-180646-9	WC-WS2-08 (4-5)	Total/NA	Solid	Moisture	
240-180646-10	WC-WS2-09 (5-6)	Total/NA	Solid	Moisture	
240-180646-11	WC-WS2-10 (3-4)	Total/NA	Solid	Moisture	
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	Moisture	
240-180646-1 DU	WC-WS2-01 (1-1.5)	Total/NA	Solid	Moisture	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

General Chemistry (Continued)

Analysis Batch: 562608 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-10 DU	WC-WS2-09 (5-6)	Total/NA	Solid	Moisture	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-01 (1-1.5)

Date Collected: 02/18/23 15:55

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 09:54
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 10:39
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-01 (1-1.5)

Date Collected: 02/18/23 15:55

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-1

Matrix: Solid

Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/23/23 22:27
Total/NA	Prep	5035			562783	LAM	EET CAN	02/20/23 16:48
Total/NA	Analysis	8260D		50	563303	CS	EET CAN	02/24/23 18:11
Total/NA	Prep	3540C			562719	BMB	EET CAN	02/20/23 10:04
Total/NA	Analysis	8270E		25	563049	JMG	EET CAN	02/22/23 17:39

Client Sample ID: WC-WS2-02 (1-2)

Date Collected: 02/18/23 16:10

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 09:58
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 10:46
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-02 (1-2)

Date Collected: 02/18/23 16:10

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-2

Matrix: Solid

Percent Solids: 79.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/23/23 23:40
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		50	563303	CS	EET CAN	02/24/23 12:29
Total/NA	Prep	3540C			562719	BMB	EET CAN	02/20/23 10:04
Total/NA	Analysis	8270E		25	563049	JMG	EET CAN	02/22/23 18:03

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Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Date Collected: 02/18/23 16:15

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:03
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 10:48
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-03 (2-3)

Lab Sample ID: 240-180646-3

Date Collected: 02/18/23 16:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 81.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563099	SAM	EET CAN	02/23/23 17:59
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		50	563303	CS	EET CAN	02/24/23 12:50
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 11:30

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Date Collected: 02/18/23 16:30

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:07
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 10:50
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-04 (3-4)

Lab Sample ID: 240-180646-4

Date Collected: 02/18/23 16:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 00:28
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		100	563103	CS	EET CAN	02/23/23 10:10
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 12:48

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Date Collected: 02/18/23 16:35

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:12
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 10:52
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-05 (2-3)

Lab Sample ID: 240-180646-5

Date Collected: 02/18/23 16:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 00:53
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		100	563303	CS	EET CAN	02/24/23 13:12
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 13:14

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562615	DRJ	EET CAN	02/19/23 16:35 - 02/20/23 08:55 ¹
TCLP	Analysis	8260D		1	562664	HMB	EET CAN	02/20/23 19:54
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562821	SDE	EET CAN	02/21/23 08:07
TCLP	Analysis	8270E		1	563180	JMG	EET CAN	02/23/23 14:40
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562822	SDE	EET CAN	02/21/23 08:09
TCLP	Analysis	8081B		1	563004	BPM	EET CAN	02/22/23 11:32
TCLP	Leach	1311			346499	UNWS	ELLE	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	8151A			346721	UKL2	ELLE	02/21/23 20:16
TCLP	Analysis	8151A		1	346737	UAMZ	ELLE	02/22/23 08:41
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562585	DRJ	EET CAN	02/19/23 10:38
Total/NA	Prep	3546			562650	AJ	EET CAN	02/20/23 08:20
Total/NA	Analysis	8082A		1	562759	MBB	EET CAN	02/21/23 01:31
Total/NA	Prep	537 (mod)			346502	Q5YX	ELLE	02/21/23 12:53
Total/NA	Cleanup	Extract Aliquot			346507	Q5YX	ELLE	02/21/23 13:13
Total/NA	Analysis	537 IDA		1	346558	UUV6	ELLE	02/21/23 17:33

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Date Collected: 02/18/23 16:52

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:16
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 10:59
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-06 (3-4)

Lab Sample ID: 240-180646-7

Date Collected: 02/18/23 16:52

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 76.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 01:17
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		66.667	563303	CS	EET CAN	02/24/23 13:34
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 13:39

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Date Collected: 02/18/23 17:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:21
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:01
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-07 (2-3)

Lab Sample ID: 240-180646-8

Date Collected: 02/18/23 17:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 79.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 01:41
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		66.667	563303	CS	EET CAN	02/24/23 13:55
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 14:05

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Date Collected: 02/18/23 17:10

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:25
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:03
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-08 (4-5)

Lab Sample ID: 240-180646-9

Date Collected: 02/18/23 17:10

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 02:06
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		66.667	563303	CS	EET CAN	02/24/23 14:16
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 14:31

Client Sample ID: WC-WS2-09 (5-6)

Lab Sample ID: 240-180646-10

Date Collected: 02/18/23 17:20

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:29
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:05
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-09 (5-6)

Date Collected: 02/18/23 17:20

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-10

Matrix: Solid

Percent Solids: 82.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 02:30
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		66.667	563303	CS	EET CAN	02/24/23 14:38
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 14:57

Client Sample ID: WC-WS2-10 (3-4)

Date Collected: 02/18/23 17:28

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:42
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:07
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-10 (3-4)

Date Collected: 02/18/23 17:28

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-11

Matrix: Solid

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 02:54
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		66.667	563303	CS	EET CAN	02/24/23 14:59
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563114	MRU	EET CAN	02/23/23 15:23

Client Sample ID: WC-WS2-COMP (08-14)

Date Collected: 02/18/23 00:00

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180646-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562615	DRJ	EET CAN	02/19/23 16:35 - 02/20/23 08:55 ¹
TCLP	Analysis	8260D		1	562664	HMB	EET CAN	02/20/23 20:17
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562821	SDE	EET CAN	02/21/23 08:07
TCLP	Analysis	8270E		2.5	563180	JMG	EET CAN	02/23/23 15:52

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562822	SDE	EET CAN	02/21/23 08:09
TCLP	Analysis	8081B		1	563004	BPM	EET CAN	02/22/23 11:44
TCLP	Leach	1311			346499	UNWS	ELLE	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	8151A			346721	UKL2	ELLE	02/21/23 20:16
TCLP	Analysis	8151A		1	346737	UAMZ	ELLE	02/22/23 09:09
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562585	DRJ	EET CAN	02/19/23 10:38
Total/NA	Prep	3546			562650	AJ	EET CAN	02/20/23 08:20
Total/NA	Analysis	8082A		1	562759	MBB	EET CAN	02/21/23 01:47
Total/NA	Prep	537 (mod)			346502	Q5YX	ELLE	02/21/23 12:53
Total/NA	Cleanup	Extract Aliquot			346507	Q5YX	ELLE	02/21/23 13:13
Total/NA	Analysis	537 IDA		1	346558	UUV6	ELLE	02/21/23 17:44

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-23 *
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

645237  eurofins

Environment Testing
America

TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager:		Site Contact:		Date:		COC No.:	
Company Name: Arcadia		Tel/Email:		Lab Contact: Mike Delmonico		Carrier:		3 of COCs	
Address: 55 Monument Creek Ste 300B		Analysis Turnaround Time		Perform MS/MSD (Y/N)		Sampler:		For Lab Use Only:	
City/State/Zip: Indianapolis, IN 46203		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Filtered Sample (Y/N)		Walk-in Client:		Lab Sampling:	
Phone:		TAT if different from Below		Total VOC		Job/SDG No.:		Sample Specific Notes:	
Fax:		2 weeks		Total SVOC				LAB TO GENERATE COMPOSITE	
Project Name: Norfolk Southern		1 week		Total PCBs					
Site: E. Palestine, OH		2 days		TCLP Metals					
PO #:		1 day		TCLP SVOC					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			
WC-WS2-01 (1-1.5)		2/18/23	1555	G	S	7	X	X	X
WC-WS2-02 (1-2)		2/18/23	1610	G	S	7	X	X	X
WC-WS2-03 (2-3)		2/18/23	1615	G	S	7	X	X	X
WC-WS2-04 (3-4)		2/18/23	1630	G	S	7	X	X	X
WC-WS2-05 (2-3)		2/18/23	1635	G	S	7	X	X	X
WC-WS2-Comp (01-07)		2/18/23	-	LAB Comp	S	X	X	X	X
WC-WS2-06 (3-4)		2/18/23	1652	G	S	7	X	X	X
WC-WS2-07 (2-3)		2/18/23	1700	G	S	7	X	X	X
WC-WS2-08 (4-5)		2/18/23	1710	G	S	7	X	X	X
WC-WS2-09 (5-6)		2/18/23	1720	G	S	7	X	X	X
WC-WS2-2-10 (3-4)		2/18/23	1728	G	S	7	X	X	X
WC-WS2-Comp (08-14)		2/18/23	-	LAB Comp	S	X	X	X	X
<p>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other</p> <p>Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. None BUTYL ALYLIC</p> <p><input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown</p> <p>Special Instructions/QC Requirements & Comments: LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 5 GRAB SAMPLES</p>									
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by:		Company:		Date/Time:		Relinquished by:		Company:	
Relinquished by:		Company:		Date/Time:		Relinquished by:		Company:	
Relinquished by:		Company:		Date/Time:		Relinquished by:		Company:	



240-180646 Chain of Custody

LAB TO GENERATE COMPOSITE



Barberton Facility

Client Arcadis Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-18-23 Opened on 2-18-23

me

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap, Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt... IR GUN # IR-13... IR GUN # IR-16... IR GUN # IR-17...
2. Were tamper/custody seals on the outside of the cooler(s)?...
3. Shippers' packing slip attached to the cooler(s)?...
4. Did custody papers accompany the sample(s)?...
5. Were the custody papers relinquished & signed in the appropriate place?...
6. Was/were the person(s) who collected the samples clearly identified on the COC?...
7. Did all bottles arrive in good condition (Unbroken)?...
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?...
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?...
10. Were correct bottle(s) used for the test(s) indicated?...
11. Sufficient quantity received to perform indicated analyses?...
12. Are these work share samples and all listed on the COC?...
13. Were all preserved sample(s) at the correct pH upon receipt?...
14. Were VOAs on the COC?...
15. Were air bubbles >6 mm in any VOA vials?...
16. Was a VOA trip blank present in the cooler(s)?...
17. Was a LL Hg or Me Hg trip blank present?...

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Eurofins - Canton Sample Receipt Multiple Cooler Form											
Cooler Description (Circle)				IR Gun # (Circle)			Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
EC	Client	Box	Other	IR-13	IR-16	IR-17	4.6	4.4	Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17	3.4	3.4	Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17	3.8	3.6	Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	
EC	Client	Box	Other	IR-13	IR-16	IR-17			Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other	IR-13	IR-16	IR-17			Water	None	

See Temperature Excursion Form

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)			Sampler:			Lab PM: DelMonico, Michael			Carrier Tracking No(s):			COC No: 240-164099.1			
Client Contact: Shipping/Receiving			Phone:			E-Mail: Michael.DelMonico@et.eurofinsus.com			State of Origin: Ohio			Page: Page 1 of 1			
Company: Eurofins Lancaster Laboratories Environm						Accreditations Required (See note):						Job #: 240-180646-1			
Address: 2425 New Holland Pike,			Due Date Requested: 2/22/2023			Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)			
City: Lancaster			TAT Requested (days):												
State, Zip: PA, 17601			PO #:			Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) PFC_IDA/Shake_SonicBath PFOA, PFOS 8151A/1311_T TCLP Analyte List			Total Number of containers			Special Instructions/Note:			
Phone: 717-656-2300(Tel)			WC #:												
Email:			WO #:												
Project Name: NS East Palestine			Project #: 24030745												
Site:			SSOW#:												
Sample Identification - Client ID (Lab ID)			Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT= tissue, A=Air)									
Preservation Code:															
WC-WS2-COMP (01-07) (240-180646-6)			2/18/23	Eastern		Solid		X	X					3	Composite sample using plastic jars only
WC-WS2-COMP (08-14) (240-180646-12)			2/18/23	Eastern		Solid		X	X					2	Composite sample using plastic jars only

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification
 Unconfirmed Return To Client Disposal By Lab Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2 Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: <i>[Signature]</i>	Date/Time: <i>2/23 1500</i>	Company: <i>FEIN</i>	Received by: _____	Date/Time: _____	Company: _____
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: _____	Date/Time: _____	Company: _____
Relinquished by: _____	Date/Time: _____	Company: _____	Received by: <i>[Signature]</i>	Date/Time: <i>2/21/23 0920</i>	Company: <i>[Signature]</i>

Custody Seals Intact: Yes No Custody Seal No.: _____ Cooler Temperature(s) C and Other Remarks: *2.1*

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Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180646-1

Login Number: 180646

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/21/23 09:17 AM

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		C8PFOA (26-159)	C8PFOS (41-154)
240-180646-6	WC-WS2-COMP (01-07)	74	84
240-180646-12	WC-WS2-COMP (08-14)	69	82
LCS 410-346502/2-B	Lab Control Sample	85	91
MB 410-346502/1-B	Method Blank	74	89

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/10/2023 9:31:14 AM Revision 1

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180646-2

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396

Generated
3/10/2023 9:31:14 AM
Revision 1



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Job ID: 240-180646-2

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-180646-2**

Receipt

The samples were received on 2/18/2023 7:05 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.4°C, 3.6°C and 4.4°C

Report revised on 3/10/2023 to report Total Dioxins calculations.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Method	Method Description	Protocol	Laboratory
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180646-6	WC-WS2-COMP (01-07)	Solid	02/18/23 00:00	02/18/23 19:05
240-180646-12	WC-WS2-COMP (08-14)	Solid	02/18/23 00:00	02/18/23 19:05

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Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	110		5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	14		5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	2.9	J	5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	0.77	J	1.2	0.24	ng/Kg	1	✳	8290A	Total/NA
OCDD	1100		12	2.4	ng/Kg	1	✳	8290A	Total/NA
OCDF	48		12	2.4	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	53		5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	24	I	5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	360		5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	43	I	5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	12	I	5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	13	I	5.9	2.4	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	9.8	I	1.2	0.24	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	14	I	1.2	0.24	ng/Kg	1	✳	8290A	Total/NA

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	110		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	20		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	3.1	J	6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	3.2	J	6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	2.6	J	6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	2.8	J	6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	0.96	J	1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
OCDD	1100		12	2.5	ng/Kg	1	✳	8290A	Total/NA
OCDF	51		12	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	50		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	30		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	340		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	52		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	14	I	6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	19	I	6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	9.8	I	1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	21	I	1.2	0.25	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	110		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,4,6,7,8-HpCDF	14		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,4,7,8-HxCDD	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,4,7,8-HxCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,4,7,8,9-HpCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,6,7,8-HxCDD	2.9	J	5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,6,7,8-HxCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,7,8-PeCDD	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,7,8-PeCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,7,8,9-HxCDD	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
1,2,3,7,8,9-HxCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
2,3,4,6,7,8-HxCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
2,3,4,7,8-PeCDF	ND		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
2,3,7,8-TCDD	ND		1.2	0.24	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
2,3,7,8-TCDF	0.77	J	1.2	0.24	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
OCDD	1100		12	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
OCDF	48		12	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total HxCDD	53		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total HxCDF	24	I	5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total HpCDD	360		5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total HpCDF	43	I	5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total PeCDD	12	I	5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total PeCDF	13	I	5.9	2.4	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total TCDD	9.8	I	1.2	0.24	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1
Total TCDF	14	I	1.2	0.24	ng/Kg	✧	03/06/23 12:43	03/08/23 01:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	65		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-OCDD	67		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-2,3,7,8-TCDF	69		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-2,3,7,8-TCDD	65		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-2,3,4,7,8-PeCDF	66		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-2,3,4,6,7,8-HxCDF	65		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,7,8,9-HxCDF	65		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,7,8,9-HxCDD	65		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,7,8-PeCDF	64		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,7,8-PeCDD	62		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,6,7,8-HxCDF	68		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,6,7,8-HxCDD	64		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,4,7,8,9-HpCDF	68		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,4,7,8-HxCDF	68		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,4,7,8-HxCDD	61		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,4,6,7,8-HpCDF	68		40 - 135	03/06/23 12:43	03/08/23 01:09	1
13C-1,2,3,4,6,7,8-HpCDD	66		40 - 135	03/06/23 12:43	03/08/23 01:09	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 80.9

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	110		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,4,6,7,8-HpCDF	20		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,4,7,8-HxCDD	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,4,7,8-HxCDF	3.1	J	6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,4,7,8,9-HpCDF	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,6,7,8-HxCDD	3.2	J	6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,6,7,8-HxCDF	2.6	J	6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,7,8-PeCDD	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,7,8-PeCDF	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,7,8,9-HxCDD	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
1,2,3,7,8,9-HxCDF	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
2,3,4,6,7,8-HxCDF	ND		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
2,3,4,7,8-PeCDF	2.8	J	6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
2,3,7,8-TCDD	ND		1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
2,3,7,8-TCDF	0.96	J	1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
OCDD	1100		12	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
OCDF	51		12	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total HxCDD	50		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total HxCDF	30		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total HpCDD	340		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total HpCDF	52		6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total PeCDD	14	I	6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total PeCDF	19	I	6.2	2.5	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total TCDD	9.8	I	1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1
Total TCDF	21	I	1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/08/23 01:59	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	68		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-OCDD	69		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-2,3,7,8-TCDF	69		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-2,3,7,8-TCDD	69		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-2,3,4,7,8-PeCDF	66		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-2,3,4,6,7,8-HxCDF	74		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,7,8,9-HxCDF	75		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,7,8,9-HxCDD	74		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,7,8-PeCDF	66		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,7,8-PeCDD	62		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,6,7,8-HxCDF	71		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,6,7,8-HxCDD	73		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,4,7,8,9-HpCDF	71		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,4,7,8-HxCDF	70		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,4,7,8-HxCDD	72		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,4,6,7,8-HpCDF	72		40 - 135	03/06/23 12:43	03/08/23 01:59	1
13C-1,2,3,4,6,7,8-HpCDD	74		40 - 135	03/06/23 12:43	03/08/23 01:59	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-350542/1-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350542

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3,4,6,7,8-HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,6,7,8-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDD	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDF	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-OCDF	89		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-OCDD	88		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDD	68		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,7,8-PeCDF	76		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,6,7,8-HxCDF	81		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDF	82		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDD	83		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDD	69		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDF	84		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDD	80		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8,9-HpCDF	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDF	85		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDD	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-350542/2-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3,4,6,7,8-HpCDD	100	93.6		ng/Kg		94	77 - 127
1,2,3,4,6,7,8-HpCDF	100	94.3		ng/Kg		94	77 - 127
1,2,3,4,7,8-HxCDD	100	98.7		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDF	100	97.8		ng/Kg		98	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.8		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	103		ng/Kg		103	76 - 127
1,2,3,6,7,8-HxCDF	100	97.3		ng/Kg		97	77 - 129
1,2,3,7,8-PeCDD	100	105		ng/Kg		105	77 - 127
1,2,3,7,8-PeCDF	100	101		ng/Kg		101	75 - 129
1,2,3,7,8,9-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,7,8,9-HxCDF	100	97.4		ng/Kg		97	76 - 126
2,3,4,6,7,8-HxCDF	100	94.2		ng/Kg		94	78 - 128
2,3,4,7,8-PeCDF	100	104		ng/Kg		104	75 - 131
2,3,7,8-TCDD	20.0	19.9		ng/Kg		99	68 - 142
2,3,7,8-TCDF	20.0	17.7		ng/Kg		88	70 - 133
OCDD	200	202		ng/Kg		101	77 - 125
OCDF	200	199		ng/Kg		99	75 - 128

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-OCDF	91		40 - 135
13C-OCDD	92		40 - 135
13C-2,3,7,8-TCDF	75		40 - 135
13C-2,3,7,8-TCDD	72		40 - 135
13C-2,3,4,7,8-PeCDF	77		40 - 135
13C-2,3,4,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDD	89		40 - 135
13C-1,2,3,7,8-PeCDF	76		40 - 135
13C-1,2,3,7,8-PeCDD	70		40 - 135
13C-1,2,3,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,6,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	92		40 - 135
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,4,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	91		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	90		40 - 135

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Specialty Organics

Prep Batch: 350542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	HRMS-Soxtherm	
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-350542/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 350921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-350542/1-A	Method Blank	Total/NA	Solid	8290A	350542
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	8290A	350542

Analysis Batch: 351132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180646-6	WC-WS2-COMP (01-07)	Total/NA	Solid	8290A	350542
240-180646-12	WC-WS2-COMP (08-14)	Total/NA	Solid	8290A	350542

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Client Sample ID: WC-WS2-COMP (01-07)

Lab Sample ID: 240-180646-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	HRMS-Soxtherm			350542	RGA5	ELLE	03/06/23 12:43
Total/NA	Analysis	8290A		1	351132	DZ6A	ELLE	03/08/23 01:09

Client Sample ID: WC-WS2-COMP (08-14)

Lab Sample ID: 240-180646-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	HRMS-Soxtherm			350542	RGA5	ELLE	03/06/23 12:43
Total/NA	Analysis	8290A		1	351132	DZ6A	ELLE	03/08/23 01:59

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180646-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	03-08-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	0001.01	11-30-24

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Chain of Custody Record

645237  eurofins


Environment Testing
America

TAL-8210

Address: _____

Regulatory Program: DW NPDES RCRA Other: _____

Client Contact		Project Manager:		Site Contact:		Date:		COC No.:	
Company Name: <u>ARCADIP</u>		Tel/Email: _____		Lab Contact: <u>MICK DELMONACO</u>		Carrier: _____		COCs: <u>3</u> of _____	
Address: <u>55 Monument Creek Ste 300B</u>		Analysis Turnaround Time		Perform MS/MSD (Y/N)		Sampler:		For Lab Use Only:	
City/State/Zip: <u>Indianapolis, IN 46203</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Filtered Sample (Y/N)		Walk-in Client:		Lab Sampling:	
Phone: _____		TAT if different from Below: <u>RUSH</u>		Sample Date		Job/SDG No.:		Sample Specific Notes:	
Fax: _____		2 weeks		Sample Time		Total VOC		LAB TO GENERATE COMPOSITE	
Project Name: <u>Norfolk Southern</u>		1 week		Matrix		Total SVOC		LAB TO GENERATE COMPOSITE	
Site: <u>E. Palustrine, OH</u>		2 days		# of Cont.		Total PCBs		LAB TO GENERATE COMPOSITE	
PO # _____		1 day		Sample Type (C=Comp, G=Grab)		Total PCBs		LAB TO GENERATE COMPOSITE	
WC-WS2-01 (1-1.5)	2/18/23	1555	G	S	7	X			
WC-WS2-02 (1-2)	2/18/23	1610	G	S	7	X			
WC-WS2-03 (2-3)	2/18/23	1615	G	S	7	X			
WC-WS2-04 (3-4)	2/18/23	1630	G	S	7	X			
WC-WS2-05 (2-3)	2/18/23	1635	G	S	7	X			
WC-WS2-Comp (01-07)	2/18/23	-	LAB Comp	S	X				
WC-WS2-06 (3-4)	2/18/23	1652	G	S	7	X			
WC-WS2-07 (2-3)	2/18/23	1700	G	S	7	X			
WC-WS2-08 (4-5)	2/18/23	1710	G	S	7	X			
WC-WS2-09 (5-6)	2/18/23	1720	G	S	7	X			
WC-WS2-10 (3-4)	2/18/23	1728	G	S	7	X			
WC-WS2-Comp (08-14)	2/18/23	-	LAB Comp	S	X				



240-180646 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. None BUTYL ALYLIC

Non-Hazard Flammable Skin Irritant Unknown

Special Instructions/QC Requirements & Comments:
LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 5 GRAB SAMPLES

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.:	Company:	Therm ID No.:
Relinquished by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:



Barberton Facility

Client Arcadis Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-18-23 Opened on 2-18-23

me

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt... IR GUN # IR-13... IR GUN # IR-16... IR GUN # IR-17...
2. Were tamper/custody seals on the outside of the cooler(s)?...
3. Shippers' packing slip attached to the cooler(s)?...
4. Did custody papers accompany the sample(s)?...
5. Were the custody papers relinquished & signed in the appropriate place?...
6. Was/were the person(s) who collected the samples clearly identified on the COC?...
7. Did all bottles arrive in good condition (Unbroken)?...
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?...
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?...
10. Were correct bottle(s) used for the test(s) indicated?...
11. Sufficient quantity received to perform indicated analyses?...
12. Are these work share samples and all listed on the COC?...
13. Were all preserved sample(s) at the correct pH upon receipt?...
14. Were VOAs on the COC?...
15. Were air bubbles >6 mm in any VOA vials?...
16. Was a VOA trip blank present in the cooler(s)?...
17. Was a LL Hg or Me Hg trip blank present?...

Tests that are not checked for pH by Receiving: VOAs Oil and Grease TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Eurofins - Canton Sample Receipt Multiple Cooler Form										
Cooler Description (Circle)				IR Gun # (Circle)			Observed Temp °C	Corrected Temp °C	Coolant (Circle)	
<input checked="" type="radio"/>	EC	Client	Box	<input checked="" type="radio"/>	IR-13	IR-16	IR-17	4.6	4.4	<input checked="" type="radio"/> Wet Ice Blue Ice Dry Ice Water None
<input checked="" type="radio"/>	EC	Client	Box	<input checked="" type="radio"/>	IR-13	IR-16	IR-17	3.4	3.4	<input checked="" type="radio"/> Wet Ice Blue Ice Dry Ice Water None
<input checked="" type="radio"/>	EC	Client	Box	<input checked="" type="radio"/>	IR-13	IR-16	IR-17	3.8	3.6	<input checked="" type="radio"/> Wet Ice Blue Ice Dry Ice Water None
<input type="radio"/>	EC	Client	Box	<input type="radio"/>	IR-13	IR-16	IR-17			<input type="radio"/> Wet Ice Blue Ice Dry Ice Water None
<input type="radio"/>	EC	Client	Box	<input type="radio"/>	IR-13	IR-16	IR-17			<input type="radio"/> Wet Ice Blue Ice Dry Ice Water None
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<input type="radio"/>	EC	Client	Box	<input type="radio"/>	IR-13	IR-16	IR-17			<input type="radio"/> Wet Ice Blue Ice Dry Ice Water None
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<input type="radio"/>	EC	Client	Box	<input type="radio"/>	IR-13	IR-16	IR-17			<input type="radio"/> Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180646-2

Login Number: 180646

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/21/23 09:17 AM

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180646-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-180646-6	WC-WS2-COMP (01-07)	65	67	69	65	66	65	65	65
240-180646-12	WC-WS2-COMP (08-14)	68	69	69	69	66	74	75	74
LCS 410-350542/2-A	Lab Control Sample	91	92	75	72	77	87	87	89
MB 410-350542/1-A	Method Blank	89	88	72	68	76	81	82	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-180646-6	WC-WS2-COMP (01-07)	64	62	68	64	68	68	61	68
240-180646-12	WC-WS2-COMP (08-14)	66	62	71	73	71	70	72	72
LCS 410-350542/2-A	Lab Control Sample	76	70	87	84	92	83	84	91
MB 410-350542/1-A	Method Blank	72	69	84	80	86	79	78	85

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-180646-6	WC-WS2-COMP (01-07)	66
240-180646-12	WC-WS2-COMP (08-14)	74
LCS 410-350542/2-A	Lab Control Sample	90
MB 410-350542/1-A	Method Blank	86

Surrogate Legend

- OCDF = 13C-OCDF
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- TCDD = 13C-2,3,7,8-TCDD
- PeCF = 13C-2,3,4,7,8-PeCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 2/25/2023 12:18:12 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180647-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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2/25/2023 12:18:12 PM

Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Job ID: 240-180647-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180647-1

Receipt

The samples were received on 2/18/2023 7:05 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.6°C and 4.6°C

GC/MS VOA

Method 8260D: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-WS1-B1 (5-6) (240-180647-1), WC-WS1-B2 (3-4) (240-180647-2), WC-WS1-B3 (3-4) (240-180647-3), WC-WS1-B4 (4-5) (240-180647-4), WC-WS1-B5 (2-3) (240-180647-5), WC-WS1-B6 (4-5) (240-180647-7), WC-WS1-B7 (5-6) (240-180647-8), WC-WS1-B8 (4-5) (240-180647-9), WC-WS1-B9 (5-6) (240-180647-10), WC-WS1-B10 (3-4) (240-180647-11), (240-180647-C-11 MS) and (240-180647-C-11 MSD).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563103 was outside the method criteria for the following analytes: Carbon disulfide, Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563303 was outside the method criteria for the following analytes: Carbon disulfide, Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The MS/MSD for preparation batch 240-562918 and analytical batch 240-563103 is not reported because of high analyte concentrations in the parent sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 8270E: The following sample was diluted due to the nature of the sample matrix: WC-WS1-COMP (B1-B5) (240-180647-6). Elevated reporting limits (RLs) are provided.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563180 recovered outside acceptance criteria, low biased, for Pyridine. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples: WC-WS1-COMP (B1-B5) (240-180647-6) and WC-WS1-COMP (B6-B10) (240-180647-12) were non-detect for the analyte, the data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-WS1-COMP (B1-B5) (240-180647-6) and WC-WS1-COMP (B6-B10) (240-180647-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides

Method 8081B: The continuing calibration verification (CCV) associated with batch 240-563004 was outside %D criteria for the individual peaks 4 and 5 used for the quantitation of Toxaphene. The average %D is in control for this analyte and samples associated with this CCV were non-detects for the affected analyte; therefore, corrective action was not performed. The associated samples are impacted:

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Job ID: 240-180647-1 (Continued)

Laboratory: Eurofins Canton (Continued)

WC-WS1-COMP (B1-B5) (240-180647-6), WC-WS1-COMP (B6-B10) (240-180647-12) and (240-180646-A-12-G).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
537 (mod)	EPA 537 Isotope Dilution	EPA	ELLE
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180647-1	WC-WS1-B1 (5-6)	Solid	02/18/23 13:15	02/18/23 19:05
240-180647-2	WC-WS1-B2 (3-4)	Solid	02/18/23 13:35	02/18/23 19:05
240-180647-3	WC-WS1-B3 (3-4)	Solid	02/18/23 13:45	02/18/23 19:05
240-180647-4	WC-WS1-B4 (4-5)	Solid	02/18/23 14:00	02/18/23 19:05
240-180647-5	WC-WS1-B5 (2-3)	Solid	02/18/23 14:05	02/18/23 19:05
240-180647-6	WC-WS1-COMP (B1-B5)	Solid	02/18/23 00:00	02/18/23 19:05
240-180647-7	WC-WS1-B6 (4-5)	Solid	02/18/23 14:15	02/18/23 19:05
240-180647-8	WC-WS1-B7 (5-6)	Solid	02/18/23 14:25	02/18/23 19:05
240-180647-9	WC-WS1-B8 (4-5)	Solid	02/18/23 14:30	02/18/23 19:05
240-180647-10	WC-WS1-B9 (5-6)	Solid	02/18/23 14:45	02/18/23 19:05
240-180647-11	WC-WS1-B10 (3-4)	Solid	02/18/23 14:55	02/18/23 19:05
240-180647-12	WC-WS1-COMP (B6-B10)	Solid	02/18/23 00:00	02/18/23 19:05



Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B1 (5-6)

Lab Sample ID: 240-180647-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	8.6		0.31	0.15	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.9		0.38	0.049	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.33	J	0.38	0.072	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.32	J	0.38	0.060	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.56		0.38	0.085	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.36	J	0.38	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.61		0.38	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.24	J	0.38	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.26	J	0.38	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.82		0.38	0.037	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.73	J	1.3	0.33	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	1.4		0.38	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.32	J	0.38	0.069	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.19	J	0.38	0.18	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.3		0.38	0.060	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.0		0.38	0.056	mg/Kg	20	✳	8270E	Total/NA
Pyrene	1.2		0.38	0.054	mg/Kg	20	✳	8270E	Total/NA
Barium	0.60	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0086	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B2 (3-4)

Lab Sample ID: 240-180647-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.16	J	0.23	0.11	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.2		0.35	0.046	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.22	J	0.35	0.067	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.19	J	0.35	0.057	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	0.35		0.35	0.080	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.23	J	0.35	0.22	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.39		0.35	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.18	J	0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.37		0.35	0.035	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.49	J	1.2	0.31	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.90		0.35	0.10	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.22	J	0.35	0.064	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	0.77		0.35	0.057	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	1.3		0.35	0.052	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.74		0.35	0.050	mg/Kg	20	✳	8270E	Total/NA
Barium	0.54	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0020	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.012	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.25		0.25	0.12	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.6	J	3.6	0.47	mg/Kg	200	✳	8270E	Total/NA
Naphthalene	1.1	J	3.6	0.58	mg/Kg	200	✳	8270E	Total/NA
Phenanthrene	1.3	J	3.6	0.54	mg/Kg	200	✳	8270E	Total/NA
Barium	0.46	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J B	0.050	0.00020	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B3 (3-4) (Continued)

Lab Sample ID: 240-180647-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.0097	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	12		0.37	0.18	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.8	J	2.1	0.27	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	0.78	J	2.1	0.61	mg/Kg	100	✳	8270E	Total/NA
Naphthalene	1.2	J	2.1	0.33	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	1.4	J	2.1	0.31	mg/Kg	100	✳	8270E	Total/NA
Pyrene	0.76	J	2.1	0.29	mg/Kg	100	✳	8270E	Total/NA
Barium	0.51	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	7.0		0.31	0.15	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.3		0.88	0.11	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]anthracene	0.34	J	0.88	0.20	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.38	J	0.88	0.38	mg/Kg	50	✳	8270E	Total/NA
Chrysene	0.46	J	0.88	0.087	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	0.77	J	0.88	0.26	mg/Kg	50	✳	8270E	Total/NA
Naphthalene	0.96		0.88	0.14	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	1.1		0.88	0.13	mg/Kg	50	✳	8270E	Total/NA
Pyrene	0.70	J	0.88	0.13	mg/Kg	50	✳	8270E	Total/NA
Barium	0.48	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0097	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.012	J	0.25	0.0012	mg/L	1		8260D	TCLP
Vinyl chloride	0.27		0.025	0.00045	mg/L	1		8260D	TCLP

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	19		0.34	0.17	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.3	J	2.0	0.26	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	0.96	J	2.0	0.58	mg/Kg	100	✳	8270E	Total/NA
Naphthalene	0.96	J	2.0	0.31	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	1.3	J	2.0	0.29	mg/Kg	100	✳	8270E	Total/NA
Pyrene	0.87	J	2.0	0.28	mg/Kg	100	✳	8270E	Total/NA
Barium	0.52	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0017	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0096	J	0.050	0.0028	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	17		0.69	0.34	mg/Kg	2.5	✳	8260D	Total/NA
2-Methylnaphthalene	1.7		0.45	0.059	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.20	J	0.45	0.085	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.19	J	0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.38	J	0.45	0.10	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.42	J	0.45	0.19	mg/Kg	25	✳	8270E	Total/NA
Chrysene	0.46		0.45	0.044	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	0.60	J	1.5	0.39	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	0.91		0.45	0.13	mg/Kg	25	✳	8270E	Total/NA
Fluorene	0.20	J	0.45	0.082	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	1.1		0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	1.4		0.45	0.067	mg/Kg	25	✳	8270E	Total/NA
Pyrene	0.85		0.45	0.064	mg/Kg	25	✳	8270E	Total/NA
Barium	0.56	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.010	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	4.0		0.27	0.13	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	2.0		0.45	0.059	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.16	J	0.45	0.086	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.18	J	0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.46		0.45	0.10	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	0.31	J	0.45	0.28	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.50		0.45	0.19	mg/Kg	25	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.23	J	0.45	0.21	mg/Kg	25	✳	8270E	Total/NA
Chrysene	0.62		0.45	0.045	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	0.63	J	1.5	0.39	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	0.86		0.45	0.13	mg/Kg	25	✳	8270E	Total/NA
Fluorene	0.17	J	0.45	0.082	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	1.3		0.45	0.072	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	1.4		0.45	0.067	mg/Kg	25	✳	8270E	Total/NA
Pyrene	0.91		0.45	0.064	mg/Kg	25	✳	8270E	Total/NA
Arsenic	0.0048	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.59	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0092	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	4.0		0.35	0.17	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	2.0		0.51	0.067	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.58		0.51	0.098	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.75		0.51	0.082	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	0.82		0.51	0.12	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	0.34	J	0.51	0.32	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.61		0.51	0.22	mg/Kg	25	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.24	J	0.51	0.24	mg/Kg	25	✳	8270E	Total/NA
Chrysene	1.0		0.51	0.051	mg/Kg	25	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B9 (5-6) (Continued)

Lab Sample ID: 240-180647-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibenzofuran	0.96	J	1.7	0.44	mg/Kg	25	⊛	8270E	Total/NA
Fluoranthene	2.5		0.51	0.15	mg/Kg	25	⊛	8270E	Total/NA
Fluorene	0.89		0.51	0.094	mg/Kg	25	⊛	8270E	Total/NA
Naphthalene	1.2		0.51	0.082	mg/Kg	25	⊛	8270E	Total/NA
Phenanthrene	4.4		0.51	0.076	mg/Kg	25	⊛	8270E	Total/NA
Pyrene	2.3		0.51	0.073	mg/Kg	25	⊛	8270E	Total/NA
Barium	0.66	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00063	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0099	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	7.8		0.31	0.15	mg/Kg	1	⊛	8260D	Total/NA
2-Methylnaphthalene	0.94		0.38	0.050	mg/Kg	20	⊛	8270E	Total/NA
Acenaphthene	0.091	J	0.38	0.073	mg/Kg	20	⊛	8270E	Total/NA
Anthracene	0.12	J	0.38	0.062	mg/Kg	20	⊛	8270E	Total/NA
Benzo[a]anthracene	0.23	J	0.38	0.087	mg/Kg	20	⊛	8270E	Total/NA
Benzo[b]fluoranthene	0.23	J	0.38	0.17	mg/Kg	20	⊛	8270E	Total/NA
Chrysene	0.26	J	0.38	0.038	mg/Kg	20	⊛	8270E	Total/NA
Dibenzofuran	0.37	J	1.3	0.33	mg/Kg	20	⊛	8270E	Total/NA
Fluoranthene	0.47		0.38	0.11	mg/Kg	20	⊛	8270E	Total/NA
Fluorene	0.13	J	0.38	0.070	mg/Kg	20	⊛	8270E	Total/NA
Naphthalene	0.55		0.38	0.062	mg/Kg	20	⊛	8270E	Total/NA
Phenanthrene	0.94		0.38	0.057	mg/Kg	20	⊛	8270E	Total/NA
Pyrene	0.47		0.38	0.055	mg/Kg	20	⊛	8270E	Total/NA
Arsenic	0.0044	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.55	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0096	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS1-COMP (B6-B10)

Lab Sample ID: 240-180647-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.44		0.025	0.00045	mg/L	1		8260D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B1 (5-6)

Lab Sample ID: 240-180647-1

Date Collected: 02/18/23 13:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		310	96	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,1,2,2-Tetrachloroethane	ND		310	180	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		310	82	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,1,2-Trichloroethane	ND		310	70	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,1-Dichloroethane	ND		310	59	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,1-Dichloroethene	ND		310	100	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,2,4-Trichlorobenzene	ND		310	160	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,2-Dibromo-3-Chloropropane	ND		620	270	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Ethylene Dibromide	ND		310	97	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,2-Dichlorobenzene	ND		310	150	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,2-Dichloroethane	ND		310	58	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,2-Dichloropropane	ND		310	46	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,3-Dichlorobenzene	ND		310	57	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
1,4-Dichlorobenzene	ND		310	68	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
2-Butanone (MEK)	ND		1200	190	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
2-Hexanone	ND		1200	320	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
4-Methyl-2-pentanone (MIBK)	ND		1200	290	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Acetone	ND		1200	300	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Benzene	ND		310	52	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Dichlorobromomethane	ND		310	75	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Bromoform	ND		310	280	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Bromomethane	ND		310	200	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Carbon disulfide	ND		310	130	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Carbon tetrachloride	ND		310	130	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Chlorobenzene	ND		310	43	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Chloroethane	ND		310	180	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Chloroform	ND		310	66	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Chloromethane	ND		310	81	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
cis-1,2-Dichloroethene	ND		310	49	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
cis-1,3-Dichloropropene	ND		310	150	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Cyclohexane	ND		620	200	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Chlorodibromomethane	ND		310	140	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Dichlorodifluoromethane	ND		310	65	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Ethylbenzene	ND		310	58	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Isopropylbenzene	ND		310	47	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Methyl acetate	ND		1500	210	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Methyl tert-butyl ether	ND		310	46	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Methylcyclohexane	ND		620	81	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Methylene Chloride	ND		620	470	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Styrene	ND		310	64	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Tetrachloroethene	ND		310	120	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Toluene	ND		310	300	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
trans-1,2-Dichloroethene	ND		310	76	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
trans-1,3-Dichloropropene	ND		310	130	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Trichloroethene	ND		310	180	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Trichlorofluoromethane	ND		310	170	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000
Vinyl chloride	8.6		0.31	0.15	mg/Kg	✱	02/21/23 13:30	02/24/23 03:18	1
Xylenes, Total	ND		620	110	mg/Kg	✱	02/21/23 13:30	02/23/23 12:41	1000

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B1 (5-6)

Lab Sample ID: 240-180647-1

Date Collected: 02/18/23 13:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/23/23 12:41	1000
Toluene-d8 (Surr)	96		56 - 125	02/21/23 13:30	02/24/23 03:18	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/23/23 12:41	1000
Dibromofluoromethane (Surr)	110		41 - 138	02/21/23 13:30	02/24/23 03:18	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/21/23 13:30	02/23/23 12:41	1000
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/24/23 03:18	1
1,2-Dichloroethane-d4 (Surr)	83		58 - 125	02/21/23 13:30	02/23/23 12:41	1000
1,2-Dichloroethane-d4 (Surr)	118		58 - 125	02/21/23 13:30	02/24/23 03:18	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.3	0.43	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,4,5-Trichlorophenol	ND		3.8	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,4,6-Trichlorophenol	ND		3.8	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,4-Dichlorophenol	ND		3.8	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,4-Dimethylphenol	ND		3.8	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,4-Dinitrophenol	ND		8.3	3.6	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,4-Dinitrotoluene	ND		5.0	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2,6-Dinitrotoluene	ND		5.0	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2-Chloronaphthalene	ND		1.3	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2-Chlorophenol	ND		1.3	0.25	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2-Methylnaphthalene	1.9		0.38	0.049	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2-Methylphenol	ND		5.0	0.78	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2-Nitroaniline	ND		5.0	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
2-Nitrophenol	ND		1.3	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
3-Nitroaniline	ND		5.0	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4,6-Dinitro-2-methylphenol	ND		8.3	2.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4-Bromophenyl phenyl ether	ND		1.3	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4-Chloro-3-methylphenol	ND		3.8	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4-Chloroaniline	ND		3.8	0.75	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4-Chlorophenyl phenyl ether	ND		1.3	0.35	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4-Nitroaniline	ND		5.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
4-Nitrophenol	ND		8.3	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Acenaphthene	0.33	J	0.38	0.072	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Acenaphthylene	ND		0.38	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Acetophenone	ND		2.5	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Anthracene	0.32	J	0.38	0.060	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Atrazine	ND		5.0	0.90	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Benzaldehyde	ND		2.5	0.58	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Benzo[a]anthracene	0.56		0.38	0.085	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Benzo[a]pyrene	0.36	J	0.38	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Benzo[b]fluoranthene	0.61		0.38	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Benzo[g,h,i]perylene	0.24	J	0.38	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Benzo[k]fluoranthene	0.26	J	0.38	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20
Butyl benzyl phthalate	ND		1.8	0.55	mg/Kg	☼	02/21/23 09:46	02/23/23 12:16	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B1 (5-6)

Lab Sample ID: 240-180647-1

Date Collected: 02/18/23 13:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.3	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Carbazole	ND		1.3	0.48	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Chrysene	0.82		0.38	0.037	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Dibenz(a,h)anthracene	ND		0.38	0.17	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Dibenzofuran	0.73	J	1.3	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Diethyl phthalate	ND		1.8	0.78	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Dimethyl phthalate	ND		1.8	0.35	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Di-n-octyl phthalate	ND		1.8	0.70	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Fluoranthene	1.4		0.38	0.11	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Fluorene	0.32	J	0.38	0.069	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Hexachlorobenzene	ND		0.38	0.071	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Hexachlorobutadiene	ND		1.3	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Hexachlorocyclopentadiene	ND		8.3	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Hexachloroethane	ND		1.3	0.23	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Indeno[1,2,3-cd]pyrene	0.19	J	0.38	0.18	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Isophorone	ND		1.3	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
N-Nitrosodiphenylamine	ND		1.3	0.30	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Naphthalene	1.3		0.38	0.060	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Nitrobenzene	ND		2.5	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Pentachlorophenol	ND		3.8	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Phenanthrene	2.0		0.38	0.056	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Phenol	ND		1.3	0.20	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
Pyrene	1.2		0.38	0.054	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20
3 & 4 Methylphenol	ND		10	0.73	mg/Kg	✳	02/21/23 09:46	02/23/23 12:16	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	66		46 - 137	02/21/23 09:46	02/23/23 12:16	20
Phenol-d5 (Surr)	66		26 - 120	02/21/23 09:46	02/23/23 12:16	20
Nitrobenzene-d5 (Surr)	42		25 - 120	02/21/23 09:46	02/23/23 12:16	20
2-Fluorophenol (Surr)	53		20 - 120	02/21/23 09:46	02/23/23 12:16	20
2-Fluorobiphenyl (Surr)	58		34 - 120	02/21/23 09:46	02/23/23 12:16	20
2,4,6-Tribromophenol (Surr)	47		10 - 120	02/21/23 09:46	02/23/23 12:16	20

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RA

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	71		46 - 137	02/21/23 09:46	02/23/23 16:10	100
Phenol-d5 (Surr)	77		26 - 120	02/21/23 09:46	02/23/23 16:10	100
Nitrobenzene-d5 (Surr)	55		25 - 120	02/21/23 09:46	02/23/23 16:10	100
2-Fluorophenol (Surr)	62		20 - 120	02/21/23 09:46	02/23/23 16:10	100
2-Fluorobiphenyl (Surr)	63		34 - 120	02/21/23 09:46	02/23/23 16:10	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/21/23 09:46	02/23/23 16:10	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:46	1
Barium	0.60	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:46	1
Cadmium	0.0015	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:46	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:46	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B1 (5-6)

Lab Sample ID: 240-180647-1

Date Collected: 02/18/23 13:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.0086	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:46	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:46	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:46	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.6		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	21.4		0.1	0.1	%			02/19/23 15:02	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B2 (3-4)

Lab Sample ID: 240-180647-2

Date Collected: 02/18/23 13:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		28	8.8	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,1,2,2-Tetrachloroethane	ND		28	17	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		28	7.6	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,1,2-Trichloroethane	ND		28	6.4	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,1-Dichloroethane	ND		28	5.4	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,1-Dichloroethene	ND		28	9.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,2,4-Trichlorobenzene	ND		28	15	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,2-Dibromo-3-Chloropropane	ND		57	25	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Ethylene Dibromide	ND		28	8.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,2-Dichlorobenzene	ND		28	14	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,2-Dichloroethane	ND		28	5.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,2-Dichloropropane	ND		28	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,3-Dichlorobenzene	ND		28	5.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
1,4-Dichlorobenzene	ND		28	6.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
2-Butanone (MEK)	ND		110	18	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
2-Hexanone	ND		110	30	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
4-Methyl-2-pentanone (MIBK)	ND		110	27	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Acetone	ND		110	28	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Benzene	ND		28	4.8	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Dichlorobromomethane	ND		28	6.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Bromoform	ND		28	26	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Bromomethane	ND		28	19	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Carbon disulfide	ND		28	12	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Carbon tetrachloride	ND		28	12	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Chlorobenzene	ND		28	4.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Chloroethane	ND		28	17	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Chloroform	ND		28	6.1	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Chloromethane	ND		28	7.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
cis-1,2-Dichloroethene	ND		28	4.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
cis-1,3-Dichloropropene	ND		28	14	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Cyclohexane	ND		57	18	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Chlorodibromomethane	ND		28	13	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Dichlorodifluoromethane	ND		28	6.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Ethylbenzene	ND		28	5.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Isopropylbenzene	ND		28	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Methyl acetate	ND		140	19	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Methyl tert-butyl ether	ND		28	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Methylcyclohexane	ND		57	7.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Methylene Chloride	ND		57	43	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Styrene	ND		28	5.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Tetrachloroethene	ND		28	11	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Toluene	ND		28	27	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
trans-1,2-Dichloroethene	ND		28	7.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
trans-1,3-Dichloropropene	ND		28	12	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Trichloroethene	ND		28	16	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Trichlorofluoromethane	ND		28	16	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125
Vinyl chloride	0.16	J	0.23	0.11	mg/Kg	✱	02/21/23 13:30	02/24/23 03:43	1
Xylenes, Total	ND		57	10	mg/Kg	✱	02/21/23 13:30	02/24/23 15:20	125

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B2 (3-4)

Lab Sample ID: 240-180647-2

Date Collected: 02/18/23 13:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		56 - 125	02/21/23 13:30	02/24/23 03:43	1
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/24/23 15:20	125
Dibromofluoromethane (Surr)	89		41 - 138	02/21/23 13:30	02/24/23 03:43	1
Dibromofluoromethane (Surr)	81		41 - 138	02/21/23 13:30	02/24/23 15:20	125
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/24/23 03:43	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/21/23 13:30	02/24/23 15:20	125
1,2-Dichloroethane-d4 (Surr)	95		58 - 125	02/21/23 13:30	02/24/23 03:43	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/24/23 15:20	125

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,4-Dimethylphenol	ND		3.5	0.94	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,4-Dinitrophenol	ND		7.8	3.3	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2-Methylnaphthalene	1.2		0.35	0.046	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2-Methylphenol	ND		4.7	0.73	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2-Nitroaniline	ND		4.7	0.94	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
2-Nitrophenol	ND		1.2	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
3-Nitroaniline	ND		4.7	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4,6-Dinitro-2-methylphenol	ND		7.8	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4-Chloroaniline	ND		3.5	0.70	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
4-Nitrophenol	ND		7.8	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Acenaphthene	0.22 J		0.35	0.067	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Acenaphthylene	ND		0.35	0.094	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Acetophenone	ND		2.3	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Anthracene	0.19 J		0.35	0.057	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Atrazine	ND		4.7	0.85	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Benzaldehyde	ND		2.3	0.54	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Benzo[a]anthracene	0.35		0.35	0.080	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Benzo[a]pyrene	0.23 J		0.35	0.22	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Benzo[b]fluoranthene	0.39		0.35	0.15	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Benzo[g,h,i]perylene	0.18 J		0.35	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Benzo[k]fluoranthene	ND		0.35	0.16	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20
Butyl benzyl phthalate	ND		1.6	0.52	mg/Kg	☼	02/21/23 09:46	02/23/23 12:40	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B2 (3-4)

Lab Sample ID: 240-180647-2

Date Collected: 02/18/23 13:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		7.8	1.8	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Carbazole	ND		1.2	0.45	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Chrysene	0.37		0.35	0.035	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Dibenzofuran	0.49	J	1.2	0.31	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Diethyl phthalate	ND		1.6	0.73	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Di-n-octyl phthalate	ND		1.6	0.66	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Fluoranthene	0.90		0.35	0.10	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Fluorene	0.22	J	0.35	0.064	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Hexachlorocyclopentadiene	ND		7.8	1.5	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Indeno[1,2,3-cd]pyrene	ND		0.35	0.17	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Isophorone	ND		1.2	0.28	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Naphthalene	0.77		0.35	0.057	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Nitrobenzene	ND		2.3	0.31	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Phenanthrene	1.3		0.35	0.052	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Phenol	ND		1.2	0.19	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
Pyrene	0.74		0.35	0.050	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20
3 & 4 Methylphenol	ND		9.4	0.68	mg/Kg	✱	02/21/23 09:46	02/23/23 12:40	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	55		46 - 137	02/21/23 09:46	02/23/23 12:40	20
Phenol-d5 (Surr)	48		26 - 120	02/21/23 09:46	02/23/23 12:40	20
Nitrobenzene-d5 (Surr)	38		25 - 120	02/21/23 09:46	02/23/23 12:40	20
2-Fluorophenol (Surr)	45		20 - 120	02/21/23 09:46	02/23/23 12:40	20
2-Fluorobiphenyl (Surr)	44		34 - 120	02/21/23 09:46	02/23/23 12:40	20
2,4,6-Tribromophenol (Surr)	31		10 - 120	02/21/23 09:46	02/23/23 12:40	20

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RA

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/21/23 09:46	02/23/23 16:33	100
Phenol-d5 (Surr)	53		26 - 120	02/21/23 09:46	02/23/23 16:33	100
Nitrobenzene-d5 (Surr)	0	S1-	25 - 120	02/21/23 09:46	02/23/23 16:33	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	02/21/23 09:46	02/23/23 16:33	100
2-Fluorobiphenyl (Surr)	52		34 - 120	02/21/23 09:46	02/23/23 16:33	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/21/23 09:46	02/23/23 16:33	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:51	1
Barium	0.54	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:51	1
Cadmium	0.0020	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:51	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:51	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B2 (3-4)

Lab Sample ID: 240-180647-2

Date Collected: 02/18/23 13:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.012	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:51	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:51	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:51	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.1		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	15.9		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Date Collected: 02/18/23 13:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		250	77	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,1,2,2-Tetrachloroethane	ND		250	150	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		250	66	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,1,2-Trichloroethane	ND		250	56	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,1-Dichloroethane	ND		250	47	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,1-Dichloroethene	ND		250	81	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,2,4-Trichlorobenzene	ND		250	130	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,2-Dibromo-3-Chloropropane	ND		490	220	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Ethylene Dibromide	ND		250	78	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,2-Dichlorobenzene	ND		250	120	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,2-Dichloroethane	ND		250	46	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,2-Dichloropropane	ND		250	37	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,3-Dichlorobenzene	ND		250	46	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
1,4-Dichlorobenzene	ND		250	54	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
2-Butanone (MEK)	ND		990	160	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
2-Hexanone	ND		990	260	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
4-Methyl-2-pentanone (MIBK)	ND		990	240	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Acetone	ND		990	240	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Benzene	ND		250	42	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Dichlorobromomethane	ND		250	60	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Bromoform	ND		250	230	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Bromomethane	ND		250	160	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Carbon disulfide	ND		250	110	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Carbon tetrachloride	ND		250	100	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Chlorobenzene	ND		250	35	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Chloroethane	ND		250	150	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Chloroform	ND		250	53	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Chloromethane	ND		250	65	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
cis-1,2-Dichloroethene	ND		250	40	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
cis-1,3-Dichloropropene	ND		250	120	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Cyclohexane	ND		490	160	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Chlorodibromomethane	ND		250	120	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Dichlorodifluoromethane	ND		250	52	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Ethylbenzene	ND		250	46	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Isopropylbenzene	ND		250	38	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Methyl acetate	ND		1200	170	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Methyl tert-butyl ether	ND		250	37	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Methylcyclohexane	ND		490	65	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Methylene Chloride	ND		490	380	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Styrene	ND		250	51	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Tetrachloroethene	ND		250	96	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Toluene	ND		250	240	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
trans-1,2-Dichloroethene	ND		250	61	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
trans-1,3-Dichloropropene	ND		250	100	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Trichloroethene	ND		250	140	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Trichlorofluoromethane	ND		250	140	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000
Vinyl chloride	0.25		0.25	0.12	mg/Kg	✳	02/21/23 13:30	02/24/23 04:07	1
Xylenes, Total	ND		490	90	mg/Kg	✳	02/21/23 13:30	02/23/23 13:24	1000

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Date Collected: 02/18/23 13:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/23/23 13:24	1000
Toluene-d8 (Surr)	102		56 - 125	02/21/23 13:30	02/24/23 04:07	1
Dibromofluoromethane (Surr)	78		41 - 138	02/21/23 13:30	02/23/23 13:24	1000
Dibromofluoromethane (Surr)	97		41 - 138	02/21/23 13:30	02/24/23 04:07	1
4-Bromofluorobenzene (Surr)	68		41 - 143	02/21/23 13:30	02/23/23 13:24	1000
4-Bromofluorobenzene (Surr)	99		41 - 143	02/21/23 13:30	02/24/23 04:07	1
1,2-Dichloroethane-d4 (Surr)	79		58 - 125	02/21/23 13:30	02/23/23 13:24	1000
1,2-Dichloroethane-d4 (Surr)	100		58 - 125	02/21/23 13:30	02/24/23 04:07	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		12	4.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
bis (2-chloroisopropyl) ether	ND		24	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,4,5-Trichlorophenol	ND		36	17	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,4,6-Trichlorophenol	ND		36	15	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,4-Dichlorophenol	ND		36	11	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,4-Dimethylphenol	ND		36	9.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,4-Dinitrophenol	ND		80	34	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,4-Dinitrotoluene	ND		48	15	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2,6-Dinitrotoluene	ND		48	13	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2-Chloronaphthalene	ND		12	3.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2-Chlorophenol	ND		12	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2-Methylnaphthalene	1.6	J	3.6	0.47	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2-Methylphenol	ND		48	7.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2-Nitroaniline	ND		48	9.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
2-Nitrophenol	ND		12	3.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
3,3'-Dichlorobenzidine	ND		24	10	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
3-Nitroaniline	ND		48	12	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4,6-Dinitro-2-methylphenol	ND		80	19	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4-Bromophenyl phenyl ether	ND		12	3.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4-Chloro-3-methylphenol	ND		36	11	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4-Chloroaniline	ND		36	7.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4-Chlorophenyl phenyl ether	ND		12	3.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4-Nitroaniline	ND		48	14	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
4-Nitrophenol	ND		80	23	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Acenaphthene	ND		3.6	0.69	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Acenaphthylene	ND		3.6	0.97	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Acetophenone	ND		24	2.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Anthracene	ND		3.6	0.58	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Atrazine	ND		48	8.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Benzaldehyde	ND		24	5.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Benzo[a]anthracene	ND		3.6	0.82	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Benzo[a]pyrene	ND		3.6	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Benzo[b]fluoranthene	ND		3.6	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Benzo[g,h,i]perylene	ND		3.6	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Benzo[k]fluoranthene	ND		3.6	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Bis(2-chloroethoxy)methane	ND		24	2.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Bis(2-chloroethyl)ether	ND		24	2.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Bis(2-ethylhexyl) phthalate	ND		17	12	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200
Butyl benzyl phthalate	ND		17	5.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:03	200

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Date Collected: 02/18/23 13:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		80	18	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Carbazole	ND		12	4.6	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Chrysene	ND		3.6	0.36	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Dibenz(a,h)anthracene	ND		3.6	1.7	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Dibenzofuran	ND		12	3.1	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Diethyl phthalate	ND		17	7.5	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Dimethyl phthalate	ND		17	3.4	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Di-n-butyl phthalate	ND		17	12	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Di-n-octyl phthalate	ND		17	6.7	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Fluoranthene	ND		3.6	1.1	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Fluorene	ND		3.6	0.66	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Hexachlorobenzene	ND		3.6	0.69	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Hexachlorobutadiene	ND		12	2.9	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Hexachlorocyclopentadiene	ND		80	15	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Hexachloroethane	ND		12	2.2	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Indeno[1,2,3-cd]pyrene	ND		3.6	1.8	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Isophorone	ND		12	2.9	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
N-Nitrosodi-n-propylamine	ND		12	2.7	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
N-Nitrosodiphenylamine	ND		12	2.9	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Naphthalene	1.1	J	3.6	0.58	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Nitrobenzene	ND		24	3.1	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Pentachlorophenol	ND		36	14	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Phenanthrene	1.3	J	3.6	0.54	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Phenol	ND		12	1.9	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
Pyrene	ND		3.6	0.52	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200
3 & 4 Methylphenol	ND		96	7.0	mg/Kg	☆	02/21/23 09:46	02/23/23 13:03	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/21/23 09:46	02/23/23 13:03	200
Phenol-d5 (Surr)	0	S1-	26 - 120	02/21/23 09:46	02/23/23 13:03	200
Nitrobenzene-d5 (Surr)	0	S1-	25 - 120	02/21/23 09:46	02/23/23 13:03	200
2-Fluorophenol (Surr)	0	S1-	20 - 120	02/21/23 09:46	02/23/23 13:03	200
2-Fluorobiphenyl (Surr)	0	S1-	34 - 120	02/21/23 09:46	02/23/23 13:03	200
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/21/23 09:46	02/23/23 13:03	200

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 10:55	1
Barium	0.46	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 10:55	1
Cadmium	0.0015	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 10:55	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 10:55	1
Lead	0.0097	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 10:55	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 10:55	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 10:55	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:13	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Date Collected: 02/18/23 13:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.1		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	15.9		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Date Collected: 02/18/23 14:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 72.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		37	11	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,1,2,2-Tetrachloroethane	ND		37	22	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		37	9.8	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,1,2-Trichloroethane	ND		37	8.3	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,1-Dichloroethane	ND		37	7.0	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,1-Dichloroethene	ND		37	12	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,2,4-Trichlorobenzene	ND		37	19	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,2-Dibromo-3-Chloropropane	ND		73	32	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Ethylene Dibromide	ND		37	12	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,2-Dichlorobenzene	ND		37	18	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,2-Dichloroethane	ND		37	6.9	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,2-Dichloropropane	ND		37	5.4	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,3-Dichlorobenzene	ND		37	6.7	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
1,4-Dichlorobenzene	ND		37	8.1	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
2-Butanone (MEK)	ND		150	23	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
2-Hexanone	ND		150	38	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
4-Methyl-2-pentanone (MIBK)	ND		150	35	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Acetone	ND		150	36	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Benzene	ND		37	6.1	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Dichlorobromomethane	ND		37	8.9	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Bromoform	ND		37	33	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Bromomethane	ND		37	24	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Carbon disulfide	ND		37	16	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Carbon tetrachloride	ND		37	15	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Chlorobenzene	ND		37	5.1	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Chloroethane	ND		37	22	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Chloroform	ND		37	7.9	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Chloromethane	ND		37	9.7	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
cis-1,2-Dichloroethene	ND		37	5.9	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
cis-1,3-Dichloropropene	ND		37	18	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Cyclohexane	ND		73	24	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Chlorodibromomethane	ND		37	17	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Dichlorodifluoromethane	ND		37	7.8	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Ethylbenzene	ND		37	6.9	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Isopropylbenzene	ND		37	5.6	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Methyl acetate	ND		180	25	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Methyl tert-butyl ether	ND		37	5.4	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Methylcyclohexane	ND		73	9.7	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Methylene Chloride	ND		73	56	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Styrene	ND		37	7.6	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Tetrachloroethene	ND		37	14	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Toluene	ND		37	35	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
trans-1,2-Dichloroethene	ND		37	9.1	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
trans-1,3-Dichloropropene	ND		37	15	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Trichloroethene	ND		37	21	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Trichlorofluoromethane	ND		37	20	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100
Vinyl chloride	12		0.37	0.18	mg/Kg	✳	02/21/23 13:30	02/24/23 04:31	1
Xylenes, Total	ND		73	13	mg/Kg	✳	02/21/23 13:30	02/23/23 13:46	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Date Collected: 02/18/23 14:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 72.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	76		56 - 125	02/21/23 13:30	02/23/23 13:46	100
Toluene-d8 (Surr)	103		56 - 125	02/21/23 13:30	02/24/23 04:31	1
Dibromofluoromethane (Surr)	81		41 - 138	02/21/23 13:30	02/23/23 13:46	100
Dibromofluoromethane (Surr)	89		41 - 138	02/21/23 13:30	02/24/23 04:31	1
4-Bromofluorobenzene (Surr)	69		41 - 143	02/21/23 13:30	02/23/23 13:46	100
4-Bromofluorobenzene (Surr)	99		41 - 143	02/21/23 13:30	02/24/23 04:31	1
1,2-Dichloroethane-d4 (Surr)	82		58 - 125	02/21/23 13:30	02/23/23 13:46	100
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/21/23 13:30	02/24/23 04:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.9	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
bis (2-chloroisopropyl) ether	ND		14	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,4,5-Trichlorophenol	ND		21	9.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,4,6-Trichlorophenol	ND		21	8.8	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,4-Dichlorophenol	ND		21	6.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,4-Dimethylphenol	ND		21	5.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,4-Dinitrophenol	ND		45	19	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,4-Dinitrotoluene	ND		27	8.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2,6-Dinitrotoluene	ND		27	7.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2-Chloronaphthalene	ND		6.9	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2-Chlorophenol	ND		6.9	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2-Methylnaphthalene	1.8	J	2.1	0.27	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2-Methylphenol	ND		27	4.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2-Nitroaniline	ND		27	5.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
2-Nitrophenol	ND		6.9	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
3,3'-Dichlorobenzidine	ND		14	5.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
3-Nitroaniline	ND		27	6.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4,6-Dinitro-2-methylphenol	ND		45	11	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4-Bromophenyl phenyl ether	ND		6.9	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4-Chloro-3-methylphenol	ND		21	6.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4-Chloroaniline	ND		21	4.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4-Chlorophenyl phenyl ether	ND		6.9	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4-Nitroaniline	ND		27	8.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
4-Nitrophenol	ND		45	13	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Acenaphthene	ND		2.1	0.39	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Acenaphthylene	ND		2.1	0.55	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Acetophenone	ND		14	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Anthracene	ND		2.1	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Atrazine	ND		27	4.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Benzaldehyde	ND		14	3.2	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Benzo[a]anthracene	ND		2.1	0.47	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Benzo[a]pyrene	ND		2.1	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Benzo[b]fluoranthene	ND		2.1	0.89	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Benzo[g,h,i]perylene	ND		2.1	0.97	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Benzo[k]fluoranthene	ND		2.1	0.95	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Bis(2-chloroethoxy)methane	ND		14	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Bis(2-chloroethyl)ether	ND		14	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Bis(2-ethylhexyl) phthalate	ND		9.6	7.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100
Butyl benzyl phthalate	ND		9.6	3.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:26	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Date Collected: 02/18/23 14:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 72.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		45	10	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Carbazole	ND		6.9	2.6	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Chrysene	ND		2.1	0.20	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Dibenz(a,h)anthracene	ND		2.1	0.95	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Dibenzofuran	ND		6.9	1.8	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Diethyl phthalate	ND		9.6	4.3	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Dimethyl phthalate	ND		9.6	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Di-n-butyl phthalate	ND		9.6	6.9	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Di-n-octyl phthalate	ND		9.6	3.8	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Fluoranthene	0.78	J	2.1	0.61	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Fluorene	ND		2.1	0.38	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Hexachlorobenzene	ND		2.1	0.39	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Hexachlorobutadiene	ND		6.9	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Hexachlorocyclopentadiene	ND		45	8.5	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Hexachloroethane	ND		6.9	1.2	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Indeno[1,2,3-cd]pyrene	ND		2.1	1.0	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Isophorone	ND		6.9	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
N-Nitrosodi-n-propylamine	ND		6.9	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
N-Nitrosodiphenylamine	ND		6.9	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Naphthalene	1.2	J	2.1	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Nitrobenzene	ND		14	1.8	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Pentachlorophenol	ND		21	8.0	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Phenanthrene	1.4	J	2.1	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Phenol	ND		6.9	1.1	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
Pyrene	0.76	J	2.1	0.29	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100
3 & 4 Methylphenol	ND		55	4.0	mg/Kg	✳	02/21/23 09:46	02/23/23 13:26	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/21/23 09:46	02/23/23 13:26	100
Phenol-d5 (Surr)	0	S1-	26 - 120	02/21/23 09:46	02/23/23 13:26	100
Nitrobenzene-d5 (Surr)	0	S1-	25 - 120	02/21/23 09:46	02/23/23 13:26	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	02/21/23 09:46	02/23/23 13:26	100
2-Fluorobiphenyl (Surr)	0	S1-	34 - 120	02/21/23 09:46	02/23/23 13:26	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/21/23 09:46	02/23/23 13:26	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:00	1
Barium	0.51	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:00	1
Cadmium	0.0013	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:00	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:00	1
Lead	0.011	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:00	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:00	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:00	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:15	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Date Collected: 02/18/23 14:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 72.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	72.8		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	27.2		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Date Collected: 02/18/23 14:05

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		77	24	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,1,2,2-Tetrachloroethane	ND		77	46	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		77	21	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,1,2-Trichloroethane	ND		77	17	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,1-Dichloroethane	ND		77	15	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,1-Dichloroethene	ND		77	25	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,2,4-Trichlorobenzene	ND		77	41	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,2-Dibromo-3-Chloropropane	ND		150	68	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Ethylene Dibromide	ND		77	24	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,2-Dichlorobenzene	ND		77	37	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,2-Dichloroethane	ND		77	14	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,2-Dichloropropane	ND		77	11	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,3-Dichlorobenzene	ND		77	14	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
1,4-Dichlorobenzene	ND		77	17	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
2-Butanone (MEK)	ND		310	48	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
2-Hexanone	ND		310	80	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
4-Methyl-2-pentanone (MIBK)	ND		310	73	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Acetone	ND		310	75	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Benzene	ND		77	13	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Dichlorobromomethane	ND		77	19	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Bromoform	ND		77	70	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Bromomethane	ND		77	51	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Carbon disulfide	ND		77	33	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Carbon tetrachloride	ND		77	31	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Chlorobenzene	ND		77	11	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Chloroethane	ND		77	46	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Chloroform	ND		77	17	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Chloromethane	ND		77	20	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
cis-1,2-Dichloroethene	ND		77	12	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
cis-1,3-Dichloropropene	ND		77	38	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Cyclohexane	ND		150	50	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Chlorodibromomethane	ND		77	36	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Dichlorodifluoromethane	ND		77	16	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Ethylbenzene	ND		77	14	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Isopropylbenzene	ND		77	12	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Methyl acetate	ND		380	51	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Methyl tert-butyl ether	ND		77	11	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Methylcyclohexane	ND		150	20	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Methylene Chloride	ND		150	120	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Styrene	ND		77	16	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Tetrachloroethene	ND		77	30	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Toluene	ND		77	73	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
trans-1,2-Dichloroethene	ND		77	19	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
trans-1,3-Dichloropropene	ND		77	32	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Trichloroethene	ND		77	44	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Trichlorofluoromethane	ND		77	42	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250
Vinyl chloride	7.0		0.31	0.15	mg/Kg	✱	02/21/23 13:30	02/24/23 04:55	1
Xylenes, Total	ND		150	28	mg/Kg	✱	02/21/23 13:30	02/23/23 14:07	250

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Date Collected: 02/18/23 14:05

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125	02/21/23 13:30	02/23/23 14:07	250
Toluene-d8 (Surr)	100		56 - 125	02/21/23 13:30	02/24/23 04:55	1
Dibromofluoromethane (Surr)	80		41 - 138	02/21/23 13:30	02/23/23 14:07	250
Dibromofluoromethane (Surr)	85		41 - 138	02/21/23 13:30	02/24/23 04:55	1
4-Bromofluorobenzene (Surr)	72		41 - 143	02/21/23 13:30	02/23/23 14:07	250
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/24/23 04:55	1
1,2-Dichloroethane-d4 (Surr)	82		58 - 125	02/21/23 13:30	02/23/23 14:07	250
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	02/21/23 13:30	02/24/23 04:55	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.9	0.99	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
bis (2-chloroisopropyl) ether	ND		5.8	0.58	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,4,5-Trichlorophenol	ND		8.8	4.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,4,6-Trichlorophenol	ND		8.8	3.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,4-Dichlorophenol	ND		8.8	2.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,4-Dimethylphenol	ND		8.8	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,4-Dinitrophenol	ND		19	8.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,4-Dinitrotoluene	ND		12	3.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2,6-Dinitrotoluene	ND		12	3.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2-Chloronaphthalene	ND		2.9	0.82	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2-Chlorophenol	ND		2.9	0.58	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2-Methylnaphthalene	1.3		0.88	0.11	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2-Methylphenol	ND		12	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2-Nitroaniline	ND		12	2.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
2-Nitrophenol	ND		2.9	0.76	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
3,3'-Dichlorobenzidine	ND		5.8	2.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
3-Nitroaniline	ND		12	2.9	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4,6-Dinitro-2-methylphenol	ND		19	4.7	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4-Bromophenyl phenyl ether	ND		2.9	0.82	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4-Chloro-3-methylphenol	ND		8.8	2.6	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4-Chloroaniline	ND		8.8	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4-Chlorophenyl phenyl ether	ND		2.9	0.82	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4-Nitroaniline	ND		12	3.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
4-Nitrophenol	ND		19	5.5	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Acenaphthene	ND		0.88	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Acenaphthylene	ND		0.88	0.23	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Acetophenone	ND		5.8	0.64	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Anthracene	ND		0.88	0.14	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Atrazine	ND		12	2.1	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Benzaldehyde	ND		5.8	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Benzo[a]anthracene	0.34	J	0.88	0.20	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Benzo[a]pyrene	ND		0.88	0.55	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Benzo[b]fluoranthene	0.38	J	0.88	0.38	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Benzo[g,h,i]perylene	ND		0.88	0.41	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Benzo[k]fluoranthene	ND		0.88	0.41	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Bis(2-chloroethoxy)methane	ND		5.8	0.70	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Bis(2-chloroethyl)ether	ND		5.8	0.70	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Bis(2-ethylhexyl) phthalate	ND		4.1	3.0	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50
Butyl benzyl phthalate	ND		4.1	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 13:50	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Date Collected: 02/18/23 14:05

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		19	4.4	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Carbazole	ND		2.9	1.1	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Chrysene	0.46	J	0.88	0.087	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Dibenz(a,h)anthracene	ND		0.88	0.40	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Dibenzofuran	ND		2.9	0.76	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Diethyl phthalate	ND		4.1	1.8	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Dimethyl phthalate	ND		4.1	0.82	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Di-n-butyl phthalate	ND		4.1	3.0	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Di-n-octyl phthalate	ND		4.1	1.6	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Fluoranthene	0.77	J	0.88	0.26	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Fluorene	ND		0.88	0.16	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Hexachlorobenzene	ND		0.88	0.17	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Hexachlorobutadiene	ND		2.9	0.70	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Hexachlorocyclopentadiene	ND		19	3.6	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Hexachloroethane	ND		2.9	0.53	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Indeno[1,2,3-cd]pyrene	ND		0.88	0.43	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Isophorone	ND		2.9	0.70	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
N-Nitrosodi-n-propylamine	ND		2.9	0.64	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
N-Nitrosodiphenylamine	ND		2.9	0.70	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Naphthalene	0.96		0.88	0.14	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Nitrobenzene	ND		5.8	0.76	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Pentachlorophenol	ND		8.8	3.4	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Phenanthrene	1.1		0.88	0.13	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Phenol	ND		2.9	0.47	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
Pyrene	0.70	J	0.88	0.13	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50
3 & 4 Methylphenol	ND		23	1.7	mg/Kg	☆	02/21/23 09:46	02/23/23 13:50	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	50		46 - 137	02/21/23 09:46	02/23/23 13:50	50
Phenol-d5 (Surr)	49		26 - 120	02/21/23 09:46	02/23/23 13:50	50
Nitrobenzene-d5 (Surr)	36		25 - 120	02/21/23 09:46	02/23/23 13:50	50
2-Fluorophenol (Surr)	35		20 - 120	02/21/23 09:46	02/23/23 13:50	50
2-Fluorobiphenyl (Surr)	45		34 - 120	02/21/23 09:46	02/23/23 13:50	50
2,4,6-Tribromophenol (Surr)	30		10 - 120	02/21/23 09:46	02/23/23 13:50	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:04	1
Barium	0.48	J B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:04	1
Cadmium	0.0018	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:04	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:04	1
Lead	0.0097	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:04	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:04	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:04	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Date Collected: 02/18/23 14:05

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.1		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	14.9		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/20/23 20:40	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/20/23 20:40	1
2-Butanone (MEK)	0.012	J	0.25	0.0012	mg/L			02/20/23 20:40	1
Benzene	ND		0.025	0.00042	mg/L			02/20/23 20:40	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/20/23 20:40	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/20/23 20:40	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/20/23 20:40	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/20/23 20:40	1
Vinyl chloride	0.27		0.025	0.00045	mg/L			02/20/23 20:40	1
Chloroform	ND		0.025	0.00047	mg/L			02/20/23 20:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	98		80 - 120		02/20/23 20:40	1
<i>Dibromofluoromethane (Surr)</i>	102		71 - 121		02/20/23 20:40	1
<i>4-Bromofluorobenzene (Surr)</i>	113		80 - 120		02/20/23 20:40	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	96		76 - 120		02/20/23 20:40	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.016	0.0013	mg/L		02/21/23 08:07	02/23/23 16:16	4
2,4,5-Trichlorophenol	ND		0.016	0.0079	mg/L		02/21/23 08:07	02/23/23 16:16	4
2,4,6-Trichlorophenol	ND		0.016	0.0072	mg/L		02/21/23 08:07	02/23/23 16:16	4
2,4-Dinitrotoluene	ND		0.016	0.0083	mg/L		02/21/23 08:07	02/23/23 16:16	4
Hexachlorobenzene	ND		0.0032	0.00064	mg/L		02/21/23 08:07	02/23/23 16:16	4
Hexachlorobutadiene	ND		0.016	0.0022	mg/L		02/21/23 08:07	02/23/23 16:16	4
Hexachloroethane	ND		0.016	0.0016	mg/L		02/21/23 08:07	02/23/23 16:16	4
2-Methylphenol	ND		0.016	0.00084	mg/L		02/21/23 08:07	02/23/23 16:16	4
3 & 4 Methylphenol	ND		0.016	0.00076	mg/L		02/21/23 08:07	02/23/23 16:16	4
Nitrobenzene	ND		0.016	0.0021	mg/L		02/21/23 08:07	02/23/23 16:16	4
Pentachlorophenol	ND		0.064	0.012	mg/L		02/21/23 08:07	02/23/23 16:16	4
Pyridine	ND		0.016	0.0014	mg/L		02/21/23 08:07	02/23/23 16:16	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	114		46 - 137	02/21/23 08:07	02/23/23 16:16	4
<i>Phenol-d5 (Surr)</i>	62		26 - 120	02/21/23 08:07	02/23/23 16:16	4
<i>Nitrobenzene-d5 (Surr)</i>	73		24 - 120	02/21/23 08:07	02/23/23 16:16	4
<i>2-Fluorophenol (Surr)</i>	70		19 - 120	02/21/23 08:07	02/23/23 16:16	4
<i>2-Fluorobiphenyl (Surr)</i>	97		33 - 120	02/21/23 08:07	02/23/23 16:16	4
<i>2,4,6-Tribromophenol (Surr)</i>	108		10 - 120	02/21/23 08:07	02/23/23 16:16	4

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/21/23 08:09	02/22/23 12:08	1
Endrin	ND		0.00050	0.0000065	mg/L		02/21/23 08:09	02/22/23 12:08	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/21/23 08:09	02/22/23 12:08	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/21/23 08:09	02/22/23 12:08	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/21/23 08:09	02/22/23 12:08	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/21/23 08:09	02/22/23 12:08	1
Toxaphene	ND		0.020	0.000058	mg/L		02/21/23 08:09	02/22/23 12:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	83		10 - 145	02/21/23 08:09	02/22/23 12:08	1
DCB Decachlorobiphenyl	83		10 - 145	02/21/23 08:09	02/22/23 12:08	1
Tetrachloro-m-xylene	53		10 - 123	02/21/23 08:09	02/22/23 12:08	1
Tetrachloro-m-xylene	54		10 - 123	02/21/23 08:09	02/22/23 12:08	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 10:33	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 10:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	70		26 - 136	02/21/23 20:16	02/22/23 10:33	1
2,4-Dichlorophenylacetic acid (Surr)	71		26 - 136	02/21/23 20:16	02/22/23 10:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.6		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	21.4		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		63	32	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1221	ND		63	38	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1232	ND		63	27	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1242	ND		63	24	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1248	ND		63	22	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1254	ND		63	27	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1260	ND		63	27	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1262	ND		63	28	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Aroclor-1268	ND		63	20	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1
Polychlorinated biphenyls, Total	ND		63	38	ug/Kg	✳	02/20/23 08:20	02/21/23 02:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	61		10 - 149	02/20/23 08:20	02/21/23 02:03	1
DCB Decachlorobiphenyl	54		10 - 174	02/20/23 08:20	02/21/23 02:03	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.73	0.24	ng/g	✳	02/21/23 12:53	02/21/23 17:56	1
Perfluorooctanesulfonic acid	ND		0.73	0.24	ng/g	✳	02/21/23 12:53	02/21/23 17:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	65		26 - 159	02/21/23 12:53	02/21/23 17:56	1
13C8 PFOS	83		41 - 154	02/21/23 12:53	02/21/23 17:56	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Date Collected: 02/18/23 14:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 75.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		68	21	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,1,2,2-Tetrachloroethane	ND		68	41	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		68	18	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,1,2-Trichloroethane	ND		68	16	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,1-Dichloroethane	ND		68	13	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,1-Dichloroethene	ND		68	22	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,2,4-Trichlorobenzene	ND		68	36	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,2-Dibromo-3-Chloropropane	ND		140	60	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Ethylene Dibromide	ND		68	22	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,2-Dichlorobenzene	ND		68	33	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,2-Dichloroethane	ND		68	13	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,2-Dichloropropane	ND		68	10	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,3-Dichlorobenzene	ND		68	13	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
1,4-Dichlorobenzene	ND		68	15	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
2-Butanone (MEK)	ND		270	43	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
2-Hexanone	ND		270	72	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
4-Methyl-2-pentanone (MIBK)	ND		270	65	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Acetone	ND		270	66	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Benzene	ND		68	11	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Dichlorobromomethane	ND		68	17	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Bromoform	ND		68	62	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Bromomethane	ND		68	45	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Carbon disulfide	ND		68	29	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Carbon tetrachloride	ND		68	28	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Chlorobenzene	ND		68	9.5	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Chloroethane	ND		68	41	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Chloroform	ND		68	15	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Chloromethane	ND		68	18	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
cis-1,2-Dichloroethene	ND		68	11	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
cis-1,3-Dichloropropene	ND		68	34	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Cyclohexane	ND		140	44	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Chlorodibromomethane	ND		68	32	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Dichlorodifluoromethane	ND		68	14	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Ethylbenzene	ND		68	13	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Isopropylbenzene	ND		68	10	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Methyl acetate	ND		340	46	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Methyl tert-butyl ether	ND		68	10	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Methylcyclohexane	ND		140	18	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Methylene Chloride	ND		140	100	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Styrene	ND		68	14	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Tetrachloroethene	ND		68	26	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Toluene	ND		68	65	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
trans-1,2-Dichloroethene	ND		68	17	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
trans-1,3-Dichloropropene	ND		68	29	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Trichloroethene	ND		68	39	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Trichlorofluoromethane	ND		68	37	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200
Vinyl chloride	19		0.34	0.17	mg/Kg	✱	02/21/23 13:30	02/24/23 05:20	1
Xylenes, Total	ND		140	25	mg/Kg	✱	02/21/23 13:30	02/23/23 14:28	200

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Date Collected: 02/18/23 14:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 75.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	83		56 - 125	02/21/23 13:30	02/23/23 14:28	200
Toluene-d8 (Surr)	101		56 - 125	02/21/23 13:30	02/24/23 05:20	1
Dibromofluoromethane (Surr)	84		41 - 138	02/21/23 13:30	02/23/23 14:28	200
Dibromofluoromethane (Surr)	88		41 - 138	02/21/23 13:30	02/24/23 05:20	1
4-Bromofluorobenzene (Surr)	75		41 - 143	02/21/23 13:30	02/23/23 14:28	200
4-Bromofluorobenzene (Surr)	96		41 - 143	02/21/23 13:30	02/24/23 05:20	1
1,2-Dichloroethane-d4 (Surr)	88		58 - 125	02/21/23 13:30	02/23/23 14:28	200
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	02/21/23 13:30	02/24/23 05:20	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.5	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
bis (2-chloroisopropyl) ether	ND		13	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,4,5-Trichlorophenol	ND		20	9.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,4,6-Trichlorophenol	ND		20	8.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,4-Dichlorophenol	ND		20	5.7	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,4-Dimethylphenol	ND		20	5.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,4-Dinitrophenol	ND		43	18	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,4-Dinitrotoluene	ND		26	8.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2,6-Dinitrotoluene	ND		26	7.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2-Chloronaphthalene	ND		6.5	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2-Chlorophenol	ND		6.5	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2-Methylnaphthalene	1.3	J	2.0	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2-Methylphenol	ND		26	4.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2-Nitroaniline	ND		26	5.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
2-Nitrophenol	ND		6.5	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
3,3'-Dichlorobenzidine	ND		13	5.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
3-Nitroaniline	ND		26	6.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4,6-Dinitro-2-methylphenol	ND		43	10	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4-Bromophenyl phenyl ether	ND		6.5	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4-Chloro-3-methylphenol	ND		20	5.9	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4-Chloroaniline	ND		20	3.9	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4-Chlorophenyl phenyl ether	ND		6.5	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4-Nitroaniline	ND		26	7.8	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
4-Nitrophenol	ND		43	12	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Acenaphthene	ND		2.0	0.37	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Acenaphthylene	ND		2.0	0.52	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Acetophenone	ND		13	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Anthracene	ND		2.0	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Atrazine	ND		26	4.7	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Benzaldehyde	ND		13	3.0	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Benzo[a]anthracene	ND		2.0	0.44	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Benzo[a]pyrene	ND		2.0	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Benzo[b]fluoranthene	ND		2.0	0.85	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Benzo[g,h,i]perylene	ND		2.0	0.92	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Benzo[k]fluoranthene	ND		2.0	0.90	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Bis(2-chloroethoxy)methane	ND		13	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Bis(2-chloroethyl)ether	ND		13	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Bis(2-ethylhexyl) phthalate	ND		9.1	6.6	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100
Butyl benzyl phthalate	ND		9.1	2.9	mg/Kg	☼	02/21/23 09:46	02/23/23 14:13	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Date Collected: 02/18/23 14:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 75.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		43	9.8	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Carbazole	ND		6.5	2.5	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Chrysene	ND		2.0	0.19	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Dibenz(a,h)anthracene	ND		2.0	0.90	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Dibenzofuran	ND		6.5	1.7	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Diethyl phthalate	ND		9.1	4.0	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Dimethyl phthalate	ND		9.1	1.8	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Di-n-butyl phthalate	ND		9.1	6.6	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Di-n-octyl phthalate	ND		9.1	3.6	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Fluoranthene	0.96	J	2.0	0.58	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Fluorene	ND		2.0	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Hexachlorobenzene	ND		2.0	0.37	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Hexachlorobutadiene	ND		6.5	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Hexachlorocyclopentadiene	ND		43	8.1	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Hexachloroethane	ND		6.5	1.2	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Indeno[1,2,3-cd]pyrene	ND		2.0	0.96	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Isophorone	ND		6.5	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
N-Nitrosodi-n-propylamine	ND		6.5	1.4	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
N-Nitrosodiphenylamine	ND		6.5	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Naphthalene	0.96	J	2.0	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Nitrobenzene	ND		13	1.7	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Pentachlorophenol	ND		20	7.6	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Phenanthrene	1.3	J	2.0	0.29	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Phenol	ND		6.5	1.0	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
Pyrene	0.87	J	2.0	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100
3 & 4 Methylphenol	ND		52	3.8	mg/Kg	✳	02/21/23 09:46	02/23/23 14:13	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/21/23 09:46	02/23/23 14:13	100
Phenol-d5 (Surr)	0	S1-	26 - 120	02/21/23 09:46	02/23/23 14:13	100
Nitrobenzene-d5 (Surr)	0	S1-	25 - 120	02/21/23 09:46	02/23/23 14:13	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	02/21/23 09:46	02/23/23 14:13	100
2-Fluorobiphenyl (Surr)	0	S1-	34 - 120	02/21/23 09:46	02/23/23 14:13	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/21/23 09:46	02/23/23 14:13	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:09	1
Barium	0.52	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:09	1
Cadmium	0.0017	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:09	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:09	1
Lead	0.0096	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:09	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:09	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:09	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:24	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Date Collected: 02/18/23 14:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 75.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	75.8		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	24.2		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Date Collected: 02/18/23 14:25

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		280	86	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,1,2,2-Tetrachloroethane	ND		280	170	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		280	74	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,1,2-Trichloroethane	ND		280	63	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,1-Dichloroethane	ND		280	53	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,1-Dichloroethene	ND		280	90	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,2,4-Trichlorobenzene	ND		280	150	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,2-Dibromo-3-Chloropropane	ND		550	240	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Ethylene Dibromide	ND		280	87	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,2-Dichlorobenzene	ND		280	130	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,2-Dichloroethane	ND		280	52	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,2-Dichloropropane	ND		280	41	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,3-Dichlorobenzene	ND		280	51	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
1,4-Dichlorobenzene	ND		280	61	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
2-Butanone (MEK)	ND		1100	170	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
2-Hexanone	ND		1100	290	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
4-Methyl-2-pentanone (MIBK)	ND		1100	260	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Acetone	ND		1100	270	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Benzene	ND		280	46	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Dichlorobromomethane	ND		280	67	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Bromoform	ND		280	250	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Bromomethane	ND		280	180	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Carbon disulfide	ND		280	120	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Carbon tetrachloride	ND		280	110	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Chlorobenzene	ND		280	39	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Chloroethane	ND		280	170	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Chloroform	ND		280	59	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Chloromethane	ND		280	73	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
cis-1,2-Dichloroethene	ND		280	44	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
cis-1,3-Dichloropropene	ND		280	140	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Cyclohexane	ND		550	180	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Chlorodibromomethane	ND		280	130	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Dichlorodifluoromethane	ND		280	58	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Ethylbenzene	ND		280	52	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Isopropylbenzene	ND		280	42	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Methyl acetate	ND		1400	190	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Methyl tert-butyl ether	ND		280	41	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Methylcyclohexane	ND		550	73	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Methylene Chloride	ND		550	420	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Styrene	ND		280	57	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Tetrachloroethene	ND		280	110	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Toluene	ND		280	260	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
trans-1,2-Dichloroethene	ND		280	68	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
trans-1,3-Dichloropropene	ND		280	120	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Trichloroethene	ND		280	160	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Trichlorofluoromethane	ND		280	150	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000
Vinyl chloride	17		0.69	0.34	mg/Kg	✱	02/21/23 13:30	02/24/23 17:01	2.5
Xylenes, Total	ND		550	100	mg/Kg	✱	02/21/23 13:30	02/23/23 14:49	1000

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Date Collected: 02/18/23 14:25

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125	02/21/23 13:30	02/23/23 14:49	1000
Toluene-d8 (Surr)	101		56 - 125	02/21/23 13:30	02/24/23 17:01	2.5
Dibromofluoromethane (Surr)	77		41 - 138	02/21/23 13:30	02/23/23 14:49	1000
Dibromofluoromethane (Surr)	90		41 - 138	02/21/23 13:30	02/24/23 17:01	2.5
4-Bromofluorobenzene (Surr)	70		41 - 143	02/21/23 13:30	02/23/23 14:49	1000
4-Bromofluorobenzene (Surr)	98		41 - 143	02/21/23 13:30	02/24/23 17:01	2.5
1,2-Dichloroethane-d4 (Surr)	80		58 - 125	02/21/23 13:30	02/23/23 14:49	1000
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	02/21/23 13:30	02/24/23 17:01	2.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,4-Dinitrophenol	ND		9.9	4.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2-Methylnaphthalene	1.7		0.45	0.059	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2-Methylphenol	ND		6.0	0.93	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4,6-Dinitro-2-methylphenol	ND		9.9	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4-Chloro-3-methylphenol	ND		4.5	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4-Chloroaniline	ND		4.5	0.90	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
4-Nitrophenol	ND		9.9	2.8	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Acenaphthene	0.20	J	0.45	0.085	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Acenaphthylene	ND		0.45	0.12	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Acetophenone	ND		3.0	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Anthracene	0.19	J	0.45	0.072	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Benzo[a]anthracene	0.38	J	0.45	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Benzo[a]pyrene	ND		0.45	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Benzo[b]fluoranthene	0.42	J	0.45	0.19	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Benzo[g,h,i]perylene	ND		0.45	0.21	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Benzo[k]fluoranthene	ND		0.45	0.21	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/21/23 09:46	02/23/23 14:36	25

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Date Collected: 02/18/23 14:25

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		9.9	2.2	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Carbazole	ND		1.5	0.57	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Chrysene	0.46		0.45	0.044	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Dibenzofuran	0.60	J	1.5	0.39	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Diethyl phthalate	ND		2.1	0.93	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Di-n-octyl phthalate	ND		2.1	0.84	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Fluoranthene	0.91		0.45	0.13	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Fluorene	0.20	J	0.45	0.082	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Hexachlorobenzene	ND		0.45	0.085	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Hexachlorocyclopentadiene	ND		9.9	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Hexachloroethane	ND		1.5	0.27	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Indeno[1,2,3-cd]pyrene	ND		0.45	0.22	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Isophorone	ND		1.5	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Naphthalene	1.1		0.45	0.072	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Nitrobenzene	ND		3.0	0.39	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Pentachlorophenol	ND		4.5	1.7	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Phenanthrene	1.4		0.45	0.067	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Phenol	ND		1.5	0.24	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
Pyrene	0.85		0.45	0.064	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25
3 & 4 Methylphenol	ND		12	0.87	mg/Kg	✳	02/21/23 09:46	02/23/23 14:36	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	45	S1-	46 - 137	02/21/23 09:46	02/23/23 14:36	25
Phenol-d5 (Surr)	51		26 - 120	02/21/23 09:46	02/23/23 14:36	25
Nitrobenzene-d5 (Surr)	37		25 - 120	02/21/23 09:46	02/23/23 14:36	25
2-Fluorophenol (Surr)	36		20 - 120	02/21/23 09:46	02/23/23 14:36	25
2-Fluorobiphenyl (Surr)	40		34 - 120	02/21/23 09:46	02/23/23 14:36	25
2,4,6-Tribromophenol (Surr)	31		10 - 120	02/21/23 09:46	02/23/23 14:36	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:13	1
Barium	0.56	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:13	1
Cadmium	0.0011	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:13	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:13	1
Lead	0.010	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:13	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:13	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:13	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:26	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Date Collected: 02/18/23 14:25

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.7		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	16.3		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Date Collected: 02/18/23 14:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		13	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,1,2,2-Tetrachloroethane	ND		13	8.1	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		13	3.6	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,1,2-Trichloroethane	ND		13	3.1	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,1-Dichloroethane	ND		13	2.6	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,1-Dichloroethene	ND		13	4.4	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,2,4-Trichlorobenzene	ND		13	7.1	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,2-Dibromo-3-Chloropropane	ND		27	12	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Ethylene Dibromide	ND		13	4.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,2-Dichlorobenzene	ND		13	6.4	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,2-Dichloroethane	ND		13	2.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,2-Dichloropropane	ND		13	2.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,3-Dichlorobenzene	ND		13	2.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
1,4-Dichlorobenzene	ND		13	3.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
2-Butanone (MEK)	ND		54	8.4	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
2-Hexanone	ND		54	14	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
4-Methyl-2-pentanone (MIBK)	ND		54	13	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Acetone	ND		54	13	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Benzene	ND		13	2.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Dichlorobromomethane	ND		13	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Bromoform	ND		13	12	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Bromomethane	ND		13	8.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Carbon disulfide	ND		13	5.8	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Carbon tetrachloride	ND		13	5.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Chlorobenzene	ND		13	1.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Chloroethane	ND		13	8.1	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Chloroform	ND		13	2.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Chloromethane	ND		13	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
cis-1,2-Dichloroethene	ND		13	2.1	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
cis-1,3-Dichloropropene	ND		13	6.7	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Cyclohexane	ND		27	8.8	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Chlorodibromomethane	ND		13	6.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Dichlorodifluoromethane	ND		13	2.8	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Ethylbenzene	ND		13	2.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Isopropylbenzene	ND		13	2.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Methyl acetate	ND		67	9.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Methyl tert-butyl ether	ND		13	2.0	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Methylcyclohexane	ND		27	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Methylene Chloride	ND		27	21	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Styrene	ND		13	2.8	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Tetrachloroethene	ND		13	5.2	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Toluene	ND		13	13	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
trans-1,2-Dichloroethene	ND		13	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
trans-1,3-Dichloropropene	ND		13	5.6	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Trichloroethene	ND		13	7.7	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Trichlorofluoromethane	ND		13	7.4	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50
Vinyl chloride	4.0		0.27	0.13	mg/Kg	✱	02/21/23 13:30	02/24/23 06:08	1
Xylenes, Total	ND		27	4.9	mg/Kg	✱	02/21/23 13:30	02/24/23 15:42	50

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Date Collected: 02/18/23 14:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		56 - 125	02/21/23 13:30	02/24/23 06:08	1
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/24/23 15:42	50
Dibromofluoromethane (Surr)	88		41 - 138	02/21/23 13:30	02/24/23 06:08	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/24/23 15:42	50
4-Bromofluorobenzene (Surr)	98		41 - 143	02/21/23 13:30	02/24/23 06:08	1
4-Bromofluorobenzene (Surr)	69		41 - 143	02/21/23 13:30	02/24/23 15:42	50
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	02/21/23 13:30	02/24/23 06:08	1
1,2-Dichloroethane-d4 (Surr)	79		58 - 125	02/21/23 13:30	02/24/23 15:42	50

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,4-Dinitrophenol	ND		9.9	4.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2-Methylnaphthalene	2.0		0.45	0.059	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2-Methylphenol	ND		6.0	0.93	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4,6-Dinitro-2-methylphenol	ND		9.9	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4-Chloro-3-methylphenol	ND		4.5	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4-Chloroaniline	ND		4.5	0.90	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
4-Nitrophenol	ND		9.9	2.8	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Acenaphthene	0.16	J	0.45	0.086	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Acenaphthylene	ND		0.45	0.12	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Acetophenone	ND		3.0	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Anthracene	0.18	J	0.45	0.072	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Benzo[a]anthracene	0.46		0.45	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Benzo[a]pyrene	0.31	J	0.45	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Benzo[b]fluoranthene	0.50		0.45	0.19	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Benzo[g,h,i]perylene	0.23	J	0.45	0.21	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Benzo[k]fluoranthene	ND		0.45	0.21	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/21/23 09:46	02/23/23 15:00	25

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Date Collected: 02/18/23 14:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		9.9	2.2	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Carbazole	ND		1.5	0.57	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Chrysene	0.62		0.45	0.045	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Dibenzofuran	0.63	J	1.5	0.39	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Diethyl phthalate	ND		2.1	0.93	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Di-n-octyl phthalate	ND		2.1	0.84	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Fluoranthene	0.86		0.45	0.13	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Fluorene	0.17	J	0.45	0.082	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Hexachlorobenzene	ND		0.45	0.085	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Hexachlorocyclopentadiene	ND		9.9	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Hexachloroethane	ND		1.5	0.27	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Indeno[1,2,3-cd]pyrene	ND		0.45	0.22	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Isophorone	ND		1.5	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Naphthalene	1.3		0.45	0.072	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Nitrobenzene	ND		3.0	0.39	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Pentachlorophenol	ND		4.5	1.7	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Phenanthrene	1.4		0.45	0.067	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Phenol	ND		1.5	0.24	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
Pyrene	0.91		0.45	0.064	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25
3 & 4 Methylphenol	ND		12	0.87	mg/Kg	✳	02/21/23 09:46	02/23/23 15:00	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	64		46 - 137	02/21/23 09:46	02/23/23 15:00	25
Phenol-d5 (Surr)	56		26 - 120	02/21/23 09:46	02/23/23 15:00	25
Nitrobenzene-d5 (Surr)	46		25 - 120	02/21/23 09:46	02/23/23 15:00	25
2-Fluorophenol (Surr)	50		20 - 120	02/21/23 09:46	02/23/23 15:00	25
2-Fluorobiphenyl (Surr)	56		34 - 120	02/21/23 09:46	02/23/23 15:00	25
2,4,6-Tribromophenol (Surr)	46		10 - 120	02/21/23 09:46	02/23/23 15:00	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0048	J	0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:18	1
Barium	0.59	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:18	1
Cadmium	0.0012	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:18	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:18	1
Lead	0.0092	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:18	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:18	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:18	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:28	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Date Collected: 02/18/23 14:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.3		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	17.7		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Date Collected: 02/18/23 14:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 73.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		35	11	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,1,2,2-Tetrachloroethane	ND		35	21	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		35	9.4	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,1,2-Trichloroethane	ND		35	8.0	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,1-Dichloroethane	ND		35	6.8	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,1-Dichloroethene	ND		35	12	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,2,4-Trichlorobenzene	ND		35	19	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,2-Dibromo-3-Chloropropane	ND		70	31	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Ethylene Dibromide	ND		35	11	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,2-Dichlorobenzene	ND		35	17	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,2-Dichloroethane	ND		35	6.6	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,2-Dichloropropane	ND		35	5.2	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,3-Dichlorobenzene	ND		35	6.5	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
1,4-Dichlorobenzene	ND		35	7.8	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
2-Butanone (MEK)	ND		140	22	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
2-Hexanone	ND		140	37	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
4-Methyl-2-pentanone (MIBK)	ND		140	34	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Acetone	ND		140	34	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Benzene	ND		35	5.9	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Dichlorobromomethane	ND		35	8.6	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Bromoform	ND		35	32	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Bromomethane	ND		35	23	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Carbon disulfide	ND		35	15	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Carbon tetrachloride	ND		35	14	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Chlorobenzene	ND		35	4.9	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Chloroethane	ND		35	21	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Chloroform	ND		35	7.6	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Chloromethane	ND		35	9.3	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
cis-1,2-Dichloroethene	ND		35	5.6	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
cis-1,3-Dichloropropene	ND		35	17	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Cyclohexane	ND		70	23	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Chlorodibromomethane	ND		35	16	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Dichlorodifluoromethane	ND		35	7.5	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Ethylbenzene	ND		35	6.6	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Isopropylbenzene	ND		35	5.4	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Methyl acetate	ND		180	24	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Methyl tert-butyl ether	ND		35	5.2	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Methylcyclohexane	ND		70	9.3	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Methylene Chloride	ND		70	54	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Styrene	ND		35	7.3	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Tetrachloroethene	ND		35	14	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Toluene	ND		35	34	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
trans-1,2-Dichloroethene	ND		35	8.7	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
trans-1,3-Dichloropropene	ND		35	15	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Trichloroethene	ND		35	20	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Trichlorofluoromethane	ND		35	19	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100
Vinyl chloride	4.0		0.35	0.17	mg/Kg	✱	02/21/23 13:30	02/24/23 06:32	1
Xylenes, Total	ND		70	13	mg/Kg	✱	02/21/23 13:30	02/23/23 15:32	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Date Collected: 02/18/23 14:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 73.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125	02/21/23 13:30	02/23/23 15:32	100
Toluene-d8 (Surr)	101		56 - 125	02/21/23 13:30	02/24/23 06:32	1
Dibromofluoromethane (Surr)	78		41 - 138	02/21/23 13:30	02/23/23 15:32	100
Dibromofluoromethane (Surr)	86		41 - 138	02/21/23 13:30	02/24/23 06:32	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/21/23 13:30	02/23/23 15:32	100
4-Bromofluorobenzene (Surr)	95		41 - 143	02/21/23 13:30	02/24/23 06:32	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/23/23 15:32	100
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	02/21/23 13:30	02/24/23 06:32	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.7	0.58	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
bis (2-chloroisopropyl) ether	ND		3.4	0.34	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,4,5-Trichlorophenol	ND		5.1	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,4,6-Trichlorophenol	ND		5.1	2.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,4-Dichlorophenol	ND		5.1	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,4-Dimethylphenol	ND		5.1	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,4-Dinitrophenol	ND		11	4.9	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,4-Dinitrotoluene	ND		6.8	2.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2,6-Dinitrotoluene	ND		6.8	1.9	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2-Chloronaphthalene	ND		1.7	0.48	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2-Chlorophenol	ND		1.7	0.34	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2-Methylnaphthalene	2.0		0.51	0.067	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2-Methylphenol	ND		6.8	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2-Nitroaniline	ND		6.8	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
2-Nitrophenol	ND		1.7	0.44	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
3,3'-Dichlorobenzidine	ND		3.4	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
3-Nitroaniline	ND		6.8	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4,6-Dinitro-2-methylphenol	ND		11	2.7	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4-Bromophenyl phenyl ether	ND		1.7	0.48	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4-Chloro-3-methylphenol	ND		5.1	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4-Chloroaniline	ND		5.1	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4-Chlorophenyl phenyl ether	ND		1.7	0.48	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4-Nitroaniline	ND		6.8	2.0	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
4-Nitrophenol	ND		11	3.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Acenaphthene	0.58		0.51	0.098	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Acenaphthylene	ND		0.51	0.14	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Acetophenone	ND		3.4	0.38	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Anthracene	0.75		0.51	0.082	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Atrazine	ND		6.8	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Benzaldehyde	ND		3.4	0.79	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Benzo[a]anthracene	0.82		0.51	0.12	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Benzo[a]pyrene	0.34 J		0.51	0.32	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Benzo[b]fluoranthene	0.61		0.51	0.22	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Benzo[g,h,i]perylene	ND		0.51	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Benzo[k]fluoranthene	0.24 J		0.51	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Bis(2-chloroethoxy)methane	ND		3.4	0.41	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Bis(2-chloroethyl)ether	ND		3.4	0.41	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Bis(2-ethylhexyl) phthalate	ND		2.4	1.7	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25
Butyl benzyl phthalate	ND		2.4	0.75	mg/Kg	☼	02/21/23 09:46	02/23/23 15:23	25

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Date Collected: 02/18/23 14:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 73.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		11	2.6	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Carbazole	ND		1.7	0.65	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Chrysene	1.0		0.51	0.051	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Dibenz(a,h)anthracene	ND		0.51	0.24	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Dibenzofuran	0.96	J	1.7	0.44	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Diethyl phthalate	ND		2.4	1.1	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Dimethyl phthalate	ND		2.4	0.48	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Di-n-butyl phthalate	ND		2.4	1.7	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Di-n-octyl phthalate	ND		2.4	0.96	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Fluoranthene	2.5		0.51	0.15	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Fluorene	0.89		0.51	0.094	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Hexachlorobenzene	ND		0.51	0.097	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Hexachlorobutadiene	ND		1.7	0.41	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Hexachlorocyclopentadiene	ND		11	2.1	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Hexachloroethane	ND		1.7	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Indeno[1,2,3-cd]pyrene	ND		0.51	0.25	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Isophorone	ND		1.7	0.41	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
N-Nitrosodi-n-propylamine	ND		1.7	0.38	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
N-Nitrosodiphenylamine	ND		1.7	0.41	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Naphthalene	1.2		0.51	0.082	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Nitrobenzene	ND		3.4	0.44	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Pentachlorophenol	ND		5.1	2.0	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Phenanthrene	4.4		0.51	0.076	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Phenol	ND		1.7	0.27	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
Pyrene	2.3		0.51	0.073	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25
3 & 4 Methylphenol	ND		14	0.99	mg/Kg	✳	02/21/23 09:46	02/23/23 15:23	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	52		46 - 137	02/21/23 09:46	02/23/23 15:23	25
Phenol-d5 (Surr)	51		26 - 120	02/21/23 09:46	02/23/23 15:23	25
Nitrobenzene-d5 (Surr)	39		25 - 120	02/21/23 09:46	02/23/23 15:23	25
2-Fluorophenol (Surr)	42		20 - 120	02/21/23 09:46	02/23/23 15:23	25
2-Fluorobiphenyl (Surr)	46		34 - 120	02/21/23 09:46	02/23/23 15:23	25
2,4,6-Tribromophenol (Surr)	37		10 - 120	02/21/23 09:46	02/23/23 15:23	25

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:22	1
Barium	0.66	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:22	1
Cadmium	0.00063	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:22	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:22	1
Lead	0.0099	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:22	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:22	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:22	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:30	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Date Collected: 02/18/23 14:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 73.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	73.7		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	26.3		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Date Collected: 02/18/23 14:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		21	6.5	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,1,2,2-Tetrachloroethane	ND		21	12	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		21	5.6	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,1,2-Trichloroethane	ND		21	4.7	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,1-Dichloroethane	ND		21	4.0	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,1-Dichloroethene	ND		21	6.8	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,2,4-Trichlorobenzene	ND		21	11	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,2-Dibromo-3-Chloropropane	ND		42	18	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Ethylene Dibromide	ND		21	6.6	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,2-Dichlorobenzene	ND		21	10	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,2-Dichloroethane	ND		21	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,2-Dichloropropane	ND		21	3.1	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,3-Dichlorobenzene	ND		21	3.8	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
1,4-Dichlorobenzene	ND		21	4.6	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
2-Butanone (MEK)	ND		83	13	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
2-Hexanone	ND		83	22	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
4-Methyl-2-pentanone (MIBK)	ND		83	20	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Acetone	ND		83	20	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Benzene	ND		21	3.5	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Dichlorobromomethane	ND		21	5.1	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Bromoform	ND		21	19	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Bromomethane	ND		21	14	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Carbon disulfide	ND		21	9.0	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Carbon tetrachloride	ND		21	8.5	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Chlorobenzene	ND		21	2.9	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Chloroethane	ND		21	12	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Chloroform	ND		21	4.5	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Chloromethane	ND		21	5.5	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
cis-1,2-Dichloroethene	ND		21	3.3	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
cis-1,3-Dichloropropene	ND		21	10	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Cyclohexane	ND		42	14	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Chlorodibromomethane	ND		21	9.7	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Dichlorodifluoromethane	ND		21	4.4	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Ethylbenzene	ND		21	3.9	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Isopropylbenzene	ND		21	3.2	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Methyl acetate	ND		100	14	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Methyl tert-butyl ether	ND		21	3.1	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Methylcyclohexane	ND		42	5.5	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Methylene Chloride	ND		42	32	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Styrene	ND		21	4.3	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Tetrachloroethene	ND		21	8.1	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Toluene	ND		21	20	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
trans-1,2-Dichloroethene	ND		21	5.2	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
trans-1,3-Dichloropropene	ND		21	8.7	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Trichloroethene	ND		21	12	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Trichlorofluoromethane	ND		21	11	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667
Vinyl chloride	7.8		0.31	0.15	mg/Kg	✱	02/21/23 13:30	02/24/23 06:57	1
Xylenes, Total	ND		42	7.6	mg/Kg	✱	02/21/23 13:30	02/24/23 16:03	66.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Date Collected: 02/18/23 14:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		56 - 125	02/21/23 13:30	02/24/23 06:57	1
Toluene-d8 (Surr)	77		56 - 125	02/21/23 13:30	02/24/23 16:03	66.667
Dibromofluoromethane (Surr)	86		41 - 138	02/21/23 13:30	02/24/23 06:57	1
Dibromofluoromethane (Surr)	78		41 - 138	02/21/23 13:30	02/24/23 16:03	66.667
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/24/23 06:57	1
4-Bromofluorobenzene (Surr)	69		41 - 143	02/21/23 13:30	02/24/23 16:03	66.667
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	02/21/23 13:30	02/24/23 06:57	1
1,2-Dichloroethane-d4 (Surr)	74		58 - 125	02/21/23 13:30	02/24/23 16:03	66.667

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.3	0.44	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
bis (2-chloroisopropyl) ether	ND		2.6	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,4,5-Trichlorophenol	ND		3.8	1.8	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,4,6-Trichlorophenol	ND		3.8	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,4-Dichlorophenol	ND		3.8	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,4-Dimethylphenol	ND		3.8	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,4-Dinitrophenol	ND		8.5	3.6	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,4-Dinitrotoluene	ND		5.1	1.6	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2,6-Dinitrotoluene	ND		5.1	1.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2-Chloronaphthalene	ND		1.3	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2-Chlorophenol	ND		1.3	0.26	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2-Methylnaphthalene	0.94		0.38	0.050	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2-Methylphenol	ND		5.1	0.80	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2-Nitroaniline	ND		5.1	1.0	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
2-Nitrophenol	ND		1.3	0.33	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
3,3'-Dichlorobenzidine	ND		2.6	1.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
3-Nitroaniline	ND		5.1	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4,6-Dinitro-2-methylphenol	ND		8.5	2.1	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4-Bromophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4-Chloro-3-methylphenol	ND		3.8	1.2	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4-Chloroaniline	ND		3.8	0.77	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4-Chlorophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4-Nitroaniline	ND		5.1	1.5	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
4-Nitrophenol	ND		8.5	2.4	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Acenaphthene	0.091	J	0.38	0.073	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Acenaphthylene	ND		0.38	0.10	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Acetophenone	ND		2.6	0.28	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Anthracene	0.12	J	0.38	0.062	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Atrazine	ND		5.1	0.92	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Benzaldehyde	ND		2.6	0.59	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Benzo[a]anthracene	0.23	J	0.38	0.087	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Benzo[a]pyrene	ND		0.38	0.24	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Benzo[b]fluoranthene	0.23	J	0.38	0.17	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Benzo[g,h,i]perylene	ND		0.38	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Benzo[k]fluoranthene	ND		0.38	0.18	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Bis(2-chloroethoxy)methane	ND		2.6	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Bis(2-chloroethyl)ether	ND		2.6	0.31	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20
Butyl benzyl phthalate	ND		1.8	0.56	mg/Kg	☼	02/21/23 09:46	02/23/23 15:46	20

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Date Collected: 02/18/23 14:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.5	1.9	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Carbazole	ND		1.3	0.49	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Chrysene	0.26	J	0.38	0.038	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Dibenz(a,h)anthracene	ND		0.38	0.18	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Dibenzofuran	0.37	J	1.3	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Diethyl phthalate	ND		1.8	0.80	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Dimethyl phthalate	ND		1.8	0.36	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Di-n-octyl phthalate	ND		1.8	0.72	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Fluoranthene	0.47		0.38	0.11	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Fluorene	0.13	J	0.38	0.070	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Hexachlorobenzene	ND		0.38	0.073	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Hexachlorobutadiene	ND		1.3	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Hexachlorocyclopentadiene	ND		8.5	1.6	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Hexachloroethane	ND		1.3	0.23	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Indeno[1,2,3-cd]pyrene	ND		0.38	0.19	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Isophorone	ND		1.3	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
N-Nitrosodiphenylamine	ND		1.3	0.31	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Naphthalene	0.55		0.38	0.062	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Nitrobenzene	ND		2.6	0.33	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Pentachlorophenol	ND		3.8	1.5	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Phenanthrene	0.94		0.38	0.057	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Phenol	ND		1.3	0.21	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
Pyrene	0.47		0.38	0.055	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20
3 & 4 Methylphenol	ND		10	0.74	mg/Kg	✳	02/21/23 09:46	02/23/23 15:46	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	63		46 - 137	02/21/23 09:46	02/23/23 15:46	20
Phenol-d5 (Surr)	55		26 - 120	02/21/23 09:46	02/23/23 15:46	20
Nitrobenzene-d5 (Surr)	41		25 - 120	02/21/23 09:46	02/23/23 15:46	20
2-Fluorophenol (Surr)	47		20 - 120	02/21/23 09:46	02/23/23 15:46	20
2-Fluorobiphenyl (Surr)	50		34 - 120	02/21/23 09:46	02/23/23 15:46	20
2,4,6-Tribromophenol (Surr)	40		10 - 120	02/21/23 09:46	02/23/23 15:46	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0044	J	0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 11:35	1
Barium	0.55	B	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 11:35	1
Cadmium	0.0011	J B	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 11:35	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 11:35	1
Lead	0.0096	J	0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 11:35	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 11:35	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 11:35	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 11:32	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Date Collected: 02/18/23 14:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.8		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	21.2		0.1	0.1	%			02/19/23 15:02	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B6-B10)

Lab Sample ID: 240-180647-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/20/23 21:03	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/20/23 21:03	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/20/23 21:03	1
Benzene	ND		0.025	0.00042	mg/L			02/20/23 21:03	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/20/23 21:03	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/20/23 21:03	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/20/23 21:03	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/20/23 21:03	1
Vinyl chloride	0.44		0.025	0.00045	mg/L			02/20/23 21:03	1
Chloroform	ND		0.025	0.00047	mg/L			02/20/23 21:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		80 - 120		02/20/23 21:03	1
Dibromofluoromethane (Surr)	102		71 - 121		02/20/23 21:03	1
4-Bromofluorobenzene (Surr)	109		80 - 120		02/20/23 21:03	1
1,2-Dichloroethane-d4 (Surr)	93		76 - 120		02/20/23 21:03	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/21/23 08:07	02/23/23 15:28	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/21/23 08:07	02/23/23 15:28	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/21/23 08:07	02/23/23 15:28	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/21/23 08:07	02/23/23 15:28	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/21/23 08:07	02/23/23 15:28	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/21/23 08:07	02/23/23 15:28	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/21/23 08:07	02/23/23 15:28	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/21/23 08:07	02/23/23 15:28	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/21/23 08:07	02/23/23 15:28	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/21/23 08:07	02/23/23 15:28	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/21/23 08:07	02/23/23 15:28	1
Pyridine	ND		0.0040	0.00036	mg/L		02/21/23 08:07	02/23/23 15:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	117		46 - 137	02/21/23 08:07	02/23/23 15:28	1
Phenol-d5 (Surr)	64		26 - 120	02/21/23 08:07	02/23/23 15:28	1
Nitrobenzene-d5 (Surr)	72		24 - 120	02/21/23 08:07	02/23/23 15:28	1
2-Fluorophenol (Surr)	71		19 - 120	02/21/23 08:07	02/23/23 15:28	1
2-Fluorobiphenyl (Surr)	96		33 - 120	02/21/23 08:07	02/23/23 15:28	1
2,4,6-Tribromophenol (Surr)	107		10 - 120	02/21/23 08:07	02/23/23 15:28	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/21/23 08:09	02/22/23 12:20	1
Endrin	ND		0.00050	0.0000065	mg/L		02/21/23 08:09	02/22/23 12:20	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/21/23 08:09	02/22/23 12:20	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/21/23 08:09	02/22/23 12:20	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/21/23 08:09	02/22/23 12:20	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/21/23 08:09	02/22/23 12:20	1
Toxaphene	ND		0.020	0.000058	mg/L		02/21/23 08:09	02/22/23 12:20	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B6-B10)

Lab Sample ID: 240-180647-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	83		10 - 145	02/21/23 08:09	02/22/23 12:20	1
DCB Decachlorobiphenyl	85		10 - 145	02/21/23 08:09	02/22/23 12:20	1
Tetrachloro-m-xylene	53		10 - 123	02/21/23 08:09	02/22/23 12:20	1
Tetrachloro-m-xylene	55		10 - 123	02/21/23 08:09	02/22/23 12:20	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 11:01	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 11:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	62		26 - 136	02/21/23 20:16	02/22/23 11:01	1
2,4-Dichlorophenylacetic acid (Surr)	62		26 - 136	02/21/23 20:16	02/22/23 11:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	74.8		0.1	0.1	%			02/19/23 15:02	1
Percent Moisture (EPA Moisture)	25.2		0.1	0.1	%			02/19/23 15:02	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B6-B10)

Lab Sample ID: 240-180647-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 74.8

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		70	35	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1221	ND		70	42	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1232	ND		70	29	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1242	ND		70	27	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1248	ND		70	24	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1254	ND		70	29	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1260	ND		70	29	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1262	ND		70	31	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Aroclor-1268	ND		70	22	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1
Polychlorinated biphenyls, Total	ND		70	42	ug/Kg	✳	02/20/23 08:20	02/21/23 02:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	65		10 - 149	02/20/23 08:20	02/21/23 02:20	1
DCB Decachlorobiphenyl	56		10 - 174	02/20/23 08:20	02/21/23 02:20	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.76	0.25	ng/g	✳	02/21/23 12:53	02/21/23 18:07	1
Perfluorooctanesulfonic acid	ND		0.76	0.25	ng/g	✳	02/21/23 12:53	02/21/23 18:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	69		26 - 159	02/21/23 12:53	02/21/23 18:07	1
13C8 PFOS	74		41 - 154	02/21/23 12:53	02/21/23 18:07	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180647-1	WC-WS1-B1 (5-6)	77	79	70	83
240-180647-1	WC-WS1-B1 (5-6)	96	110	97	118
240-180647-2	WC-WS1-B2 (3-4)	103	89	97	95
240-180647-2	WC-WS1-B2 (3-4)	77	81	70	78
240-180647-3	WC-WS1-B3 (3-4)	77	78	68	79
240-180647-3	WC-WS1-B3 (3-4)	102	97	99	100
240-180647-4	WC-WS1-B4 (4-5)	76	81	69	82
240-180647-4	WC-WS1-B4 (4-5)	103	89	99	92
240-180647-5	WC-WS1-B5 (2-3)	79	80	72	82
240-180647-5	WC-WS1-B5 (2-3)	100	85	97	90
240-180647-7	WC-WS1-B6 (4-5)	83	84	75	88
240-180647-7	WC-WS1-B6 (4-5)	101	88	96	90
240-180647-8	WC-WS1-B7 (5-6)	79	77	70	80
240-180647-8	WC-WS1-B7 (5-6)	101	90	98	94
240-180647-8 MS	WC-WS1-B7 (5-6)	102	92	99	97
240-180647-8 MSD	WC-WS1-B7 (5-6)	102	91	97	94
240-180647-9	WC-WS1-B8 (4-5)	101	88	98	92
240-180647-9	WC-WS1-B8 (4-5)	77	79	69	79
240-180647-10	WC-WS1-B9 (5-6)	78	78	70	78
240-180647-10	WC-WS1-B9 (5-6)	101	86	95	90
240-180647-11	WC-WS1-B10 (3-4)	102	86	97	90
240-180647-11	WC-WS1-B10 (3-4)	77	78	69	74
240-180647-11 MS	WC-WS1-B10 (3-4)	102	87	96	90
240-180647-11 MS	WC-WS1-B10 (3-4)	79	82	74	76
240-180647-11 MSD	WC-WS1-B10 (3-4)	101	89	97	92
240-180647-11 MSD	WC-WS1-B10 (3-4)	79	82	76	74
LCS 240-562918/2-A	Lab Control Sample	81	80	75	75
LCS 240-562918/2-A	Lab Control Sample	101	88	96	98
LCS 240-562918/2-A	Lab Control Sample	102	86	97	94
MB 240-562918/1-A	Method Blank	85	79	75	78
MB 240-562918/1-A	Method Blank	99	86	97	97
MB 240-562918/1-A	Method Blank	102	87	94	95

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-562664/20	Lab Control Sample	96	107	111	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine
 DCA = 1,2-Dichloroethane-d4 (Surr)

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-180647-6	WC-WS1-COMP (B1-B5)	98	102	113	96
240-180647-12	WC-WS1-COMP (B6-B10)	96	102	109	93
LB 240-562615/1-A MB	Method Blank	95	105	108	102

Surrogate Legend

TOL = Toluene-d8 (Surr)
 DBFM = Dibromofluoromethane (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180647-1 - RA	WC-WS1-B1 (5-6)	71	77	55	62	63	0 S1-
240-180647-1	WC-WS1-B1 (5-6)	66	66	42	53	58	47
240-180647-2 - RA	WC-WS1-B2 (3-4)	0 S1-	53	0 S1-	0 S1-	52	0 S1-
240-180647-2	WC-WS1-B2 (3-4)	55	48	38	45	44	31
240-180647-3	WC-WS1-B3 (3-4)	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180647-4	WC-WS1-B4 (4-5)	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180647-5	WC-WS1-B5 (2-3)	50	49	36	35	45	30
240-180647-7	WC-WS1-B6 (4-5)	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180647-8	WC-WS1-B7 (5-6)	45 S1-	51	37	36	40	31
240-180647-9	WC-WS1-B8 (4-5)	64	56	46	50	56	46
240-180647-10	WC-WS1-B9 (5-6)	52	51	39	42	46	37
240-180647-11	WC-WS1-B10 (3-4)	63	55	41	47	50	40
LCS 240-562873/2-A	Lab Control Sample	107	90	85	81	92	85
LCS 240-562873/3-A	Lab Control Sample	111	81	69	67	79	51
LCS 240-562873/4-A	Lab Control Sample	111	82	69	71	79	60
MB 240-562873/1-A	Method Blank	118	93	82	75	91	53

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-562821/10-A	Lab Control Sample	105	60	67	67	91	99
MB 240-562821/9-A	Method Blank	119	59	74	71	97	97

Surrogate Legend

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180647-6	WC-WS1-COMP (B1-B5)	114	62	73	70	97	108
240-180647-12	WC-WS1-COMP (B6-B10)	117	64	72	71	96	107

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-562822/7-A	Lab Control Sample	90	90	71	69
MB 240-562822/6-A	Method Blank	92	92	69	67

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-180647-6	WC-WS1-COMP (B1-B5)	83	83	54	53
240-180647-12	WC-WS1-COMP (B6-B10)	85	83	55	53

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (10-149)	DCBP2 (10-174)
240-180647-6	WC-WS1-COMP (B1-B5)	61	54
240-180647-12	WC-WS1-COMP (B6-B10)	65	56
LCS 240-562650/2-A	Lab Control Sample	94	123

Eurofins Canton

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (10-149)	DCBP2 (10-174)
MB 240-562650/1-A	Method Blank	53	93

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)	DCPAA2 (26-136)
LCS 410-346721/6-A	Lab Control Sample	68	68
MB 410-346721/1-A	Method Blank	60	63
MB 410-346721/2-A	Method Blank	55	57
MB 410-346721/3-A	Method Blank	57	57
MB 410-346721/4-A	Method Blank	57	59
MB 410-346721/5-A	Method Blank	58	58

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)	DCPAA2 (26-136)
240-180647-6	WC-WS1-COMP (B1-B5)	70	71
240-180647-12	WC-WS1-COMP (B6-B10)	62	62

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: LCS 240-562664/20
Matrix: Solid
Analysis Batch: 562664

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	0.916		mg/L		92	74 - 127
1,2-Dichloroethane	1.00	0.867		mg/L		87	72 - 120
2-Butanone (MEK)	2.00	1.68		mg/L		84	68 - 130
Benzene	1.00	0.924		mg/L		92	80 - 121
Carbon tetrachloride	1.00	0.883		mg/L		88	69 - 120
Chlorobenzene	1.00	0.872		mg/L		87	80 - 120
Chloroform	1.00	0.967		mg/L		97	75 - 120
Tetrachloroethene	1.00	0.849		mg/L		85	74 - 120
Trichloroethene	1.00	0.860		mg/L		86	75 - 120
Vinyl chloride	1.00	1.06		mg/L		106	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	107		71 - 121
4-Bromofluorobenzene (Surr)	111		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		76 - 120

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Acetone	ND		1.0	0.24	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Benzene	ND		0.25	0.042	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Bromoform	ND		0.25	0.23	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/21/23 13:30	02/23/23 08:45	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.25	0.054	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Styrene	ND		0.25	0.052	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Toluene	ND		0.25	0.24	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 08:45	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/21/23 13:30	02/23/23 08:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	85		56 - 125	02/21/23 13:30	02/23/23 08:45	1
Dibromofluoromethane (Surr)	79		41 - 138	02/21/23 13:30	02/23/23 08:45	1
4-Bromofluorobenzene (Surr)	75		41 - 143	02/21/23 13:30	02/23/23 08:45	1
1,2-Dichloroethane-d4 (Surr)	78		58 - 125	02/21/23 13:30	02/23/23 08:45	1

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563234

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 22:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		56 - 125	02/21/23 13:30	02/23/23 22:51	1
Dibromofluoromethane (Surr)	86		41 - 138	02/21/23 13:30	02/23/23 22:51	1
4-Bromofluorobenzene (Surr)	97		41 - 143	02/21/23 13:30	02/23/23 22:51	1
1,2-Dichloroethane-d4 (Surr)	97		58 - 125	02/21/23 13:30	02/23/23 22:51	1

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/24/23 12:57	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	102		56 - 125	02/21/23 13:30	02/24/23 12:57	1
Dibromofluoromethane (Surr)	87		41 - 138	02/21/23 13:30	02/24/23 12:57	1
4-Bromofluorobenzene (Surr)	94		41 - 143	02/21/23 13:30	02/24/23 12:57	1
1,2-Dichloroethane-d4 (Surr)	95		58 - 125	02/21/23 13:30	02/24/23 12:57	1

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	1.25	1.14		mg/Kg		91	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.23		mg/Kg		98	64 - 148
1,1,2-Trichloroethane	1.25	1.18		mg/Kg		94	79 - 120
1,1-Dichloroethane	1.25	1.10		mg/Kg		88	74 - 121
1,1-Dichloroethene	1.25	1.09		mg/Kg		87	68 - 141
1,2,4-Trichlorobenzene	1.25	1.12		mg/Kg		90	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.803		mg/Kg		64	52 - 133
Ethylene Dibromide	1.25	1.18		mg/Kg		94	80 - 121
1,2-Dichlorobenzene	1.25	1.13		mg/Kg		90	73 - 120
1,2-Dichloroethane	1.25	1.13		mg/Kg		91	71 - 123
1,2-Dichloropropane	1.25	1.12		mg/Kg		89	76 - 126
1,3-Dichlorobenzene	1.25	1.11		mg/Kg		89	73 - 120
1,4-Dichlorobenzene	1.25	1.10		mg/Kg		88	74 - 120
2-Butanone (MEK)	2.50	2.84		mg/Kg		114	63 - 142
2-Hexanone	2.50	2.34		mg/Kg		93	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.37		mg/Kg		95	62 - 142
Acetone	2.50	2.84		mg/Kg		114	58 - 160
Benzene	1.25	1.16		mg/Kg		93	76 - 121
Dichlorobromomethane	1.25	1.12		mg/Kg		90	71 - 138
Bromoform	1.25	1.02		mg/Kg		82	57 - 140
Bromomethane	1.25	0.639		mg/Kg		51	10 - 171
Carbon disulfide	1.25	0.964		mg/Kg		77	43 - 152
Carbon tetrachloride	1.25	1.14		mg/Kg		91	64 - 144
Chlorobenzene	1.25	1.10		mg/Kg		88	80 - 120
Chloroethane	1.25	0.926		mg/Kg		74	11 - 164
Chloroform	1.25	1.17		mg/Kg		93	78 - 120
Chloromethane	1.25	0.832		mg/Kg		67	41 - 142
cis-1,2-Dichloroethene	1.25	1.12		mg/Kg		90	78 - 124
cis-1,3-Dichloropropene	1.25	1.05		mg/Kg		84	70 - 133
Cyclohexane	1.25	1.13		mg/Kg		90	65 - 137
Chlorodibromomethane	1.25	1.04		mg/Kg		83	68 - 131
Dichlorodifluoromethane	1.25	0.847		mg/Kg		68	21 - 150
Ethylbenzene	1.25	1.16		mg/Kg		93	80 - 120
Isopropylbenzene	1.25	1.20		mg/Kg		96	80 - 130
Methyl acetate	2.50	2.34		mg/Kg		94	60 - 133
Methyl tert-butyl ether	1.25	1.16		mg/Kg		92	70 - 130
Methylcyclohexane	1.25	1.15		mg/Kg		92	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563103

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	1.25	0.921		mg/Kg		74	71 - 124
Styrene	1.25	1.22		mg/Kg		98	75 - 140
Tetrachloroethene	1.25	1.13		mg/Kg		90	76 - 127
Toluene	1.25	1.13		mg/Kg		91	80 - 120
trans-1,2-Dichloroethene	1.25	1.15		mg/Kg		92	76 - 130
trans-1,3-Dichloropropene	1.25	0.983		mg/Kg		79	61 - 121
Trichloroethene	1.25	1.17		mg/Kg		94	74 - 130
Trichlorofluoromethane	1.25	0.979		mg/Kg		78	50 - 154
Vinyl chloride	1.25	0.976		mg/Kg		78	49 - 146
Xylenes, Total	2.50	2.39		mg/Kg		96	80 - 122
m-Xylene & p-Xylene	1.25	1.18		mg/Kg		94	80 - 122
o-Xylene	1.25	1.21		mg/Kg		97	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	81		56 - 125
Dibromofluoromethane (Surr)	80		41 - 138
4-Bromofluorobenzene (Surr)	75		41 - 143
1,2-Dichloroethane-d4 (Surr)	75		58 - 125

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563234

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.00	1.34		mg/Kg		134	49 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	101		56 - 125
Dibromofluoromethane (Surr)	88		41 - 138
4-Bromofluorobenzene (Surr)	96		41 - 143
1,2-Dichloroethane-d4 (Surr)	98		58 - 125

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	1.00	1.06		mg/Kg		106	49 - 146

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	102		56 - 125
Dibromofluoromethane (Surr)	86		41 - 138
4-Bromofluorobenzene (Surr)	97		41 - 143
1,2-Dichloroethane-d4 (Surr)	94		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180647-8 MS

Matrix: Solid

Analysis Batch: 563317

Client Sample ID: WC-WS1-B7 (5-6)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Vinyl chloride	17		2.75	20.1	4	mg/Kg	☼	107		32 - 163
	MS MS									
Surrogate	%Recovery	Qualifier	Limits							
Toluene-d8 (Surr)	102		56 - 125							
Dibromofluoromethane (Surr)	92		41 - 138							
4-Bromofluorobenzene (Surr)	99		41 - 143							
1,2-Dichloroethane-d4 (Surr)	97		58 - 125							

Lab Sample ID: 240-180647-8 MSD

Matrix: Solid

Analysis Batch: 563317

Client Sample ID: WC-WS1-B7 (5-6)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Vinyl chloride	17		2.75	20.0	4	mg/Kg	☼	101		32 - 163	1	38
	MSD MSD											
Surrogate	%Recovery	Qualifier	Limits									
Toluene-d8 (Surr)	102		56 - 125									
Dibromofluoromethane (Surr)	91		41 - 138									
4-Bromofluorobenzene (Surr)	97		41 - 143									
1,2-Dichloroethane-d4 (Surr)	94		58 - 125									

Lab Sample ID: 240-180647-11 MS

Matrix: Solid

Analysis Batch: 563234

Client Sample ID: WC-WS1-B10 (3-4)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Vinyl chloride	7.8		1.25	8.74	4	mg/Kg	☼	75		32 - 163
	MS MS									
Surrogate	%Recovery	Qualifier	Limits							
Toluene-d8 (Surr)	102		56 - 125							
Dibromofluoromethane (Surr)	87		41 - 138							
4-Bromofluorobenzene (Surr)	96		41 - 143							
1,2-Dichloroethane-d4 (Surr)	90		58 - 125							

Lab Sample ID: 240-180647-11 MS

Matrix: Solid

Analysis Batch: 563303

Client Sample ID: WC-WS1-B10 (3-4)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,1,1-Trichloroethane	ND		104	85.5		mg/Kg	☼	82		46 - 144
1,1,2,2-Tetrachloroethane	ND		104	83.6		mg/Kg	☼	80		26 - 159
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		104	84.8		mg/Kg	☼	82		35 - 164
1,1,2-Trichloroethane	ND		104	89.6		mg/Kg	☼	86		26 - 149
1,1-Dichloroethane	ND		104	79.2		mg/Kg	☼	76		46 - 135
1,1-Dichloroethene	ND		104	83.2		mg/Kg	☼	80		44 - 160
1,2,4-Trichlorobenzene	ND		104	74.8		mg/Kg	☼	72		10 - 120
1,2-Dibromo-3-Chloropropane	ND		104	66.6		mg/Kg	☼	64		12 - 144

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180647-11 MS

Matrix: Solid

Analysis Batch: 563303

Client Sample ID: WC-WS1-B10 (3-4)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Ethylene Dibromide	ND		104	91.7		mg/Kg	☼	88	31 - 142
1,2-Dichlorobenzene	ND		104	81.2		mg/Kg	☼	78	10 - 126
1,2-Dichloroethane	ND		104	87.0		mg/Kg	☼	84	40 - 132
1,2-Dichloropropane	ND		104	81.6		mg/Kg	☼	78	45 - 133
1,3-Dichlorobenzene	ND		104	78.0		mg/Kg	☼	75	10 - 131
1,4-Dichlorobenzene	ND		104	78.1		mg/Kg	☼	75	10 - 129
2-Butanone (MEK)	ND		208	196		mg/Kg	☼	94	30 - 157
2-Hexanone	ND		208	170		mg/Kg	☼	82	20 - 166
4-Methyl-2-pentanone (MIBK)	ND		208	171		mg/Kg	☼	82	31 - 159
Acetone	ND		208	222		mg/Kg	☼	107	35 - 167
Benzene	ND		104	88.0		mg/Kg	☼	85	39 - 134
Dichlorobromomethane	ND		104	84.5		mg/Kg	☼	81	32 - 146
Bromoform	ND		104	77.5		mg/Kg	☼	75	12 - 144
Bromomethane	ND		104	79.9		mg/Kg	☼	77	10 - 161
Carbon disulfide	ND		104	68.9		mg/Kg	☼	66	24 - 153
Carbon tetrachloride	ND		104	84.8		mg/Kg	☼	82	37 - 145
Chlorobenzene	ND		104	83.6		mg/Kg	☼	80	18 - 134
Chloroethane	ND		104	67.8		mg/Kg	☼	65	14 - 159
Chloroform	ND		104	89.1		mg/Kg	☼	86	43 - 134
Chloromethane	ND		104	59.1		mg/Kg	☼	57	32 - 151
cis-1,2-Dichloroethene	ND		104	89.0		mg/Kg	☼	86	48 - 132
cis-1,3-Dichloropropene	ND		104	76.7		mg/Kg	☼	74	23 - 139
Cyclohexane	ND		104	75.1		mg/Kg	☼	72	31 - 147
Chlorodibromomethane	ND		104	83.3		mg/Kg	☼	80	25 - 143
Dichlorodifluoromethane	ND		104	61.6		mg/Kg	☼	59	16 - 157
Ethylbenzene	ND		104	82.2		mg/Kg	☼	79	17 - 137
Isopropylbenzene	ND		104	84.2		mg/Kg	☼	81	10 - 146
Methyl acetate	ND		208	185		mg/Kg	☼	89	13 - 164
Methyl tert-butyl ether	ND		104	88.7		mg/Kg	☼	85	55 - 134
Methylcyclohexane	ND		104	80.8		mg/Kg	☼	78	20 - 153
Methylene Chloride	ND		104	75.6		mg/Kg	☼	73	38 - 145
Styrene	ND		104	90.7		mg/Kg	☼	87	10 - 149
Tetrachloroethene	ND		104	83.1		mg/Kg	☼	80	19 - 147
Toluene	ND		104	82.4		mg/Kg	☼	79	30 - 137
trans-1,2-Dichloroethene	ND		104	85.1		mg/Kg	☼	82	41 - 145
trans-1,3-Dichloropropene	ND		104	70.2		mg/Kg	☼	68	19 - 130
Trichloroethene	ND		104	87.8		mg/Kg	☼	84	21 - 158
Trichlorofluoromethane	ND		104	71.2		mg/Kg	☼	68	36 - 161
Xylenes, Total	ND		208	173		mg/Kg	☼	83	17 - 138
m-Xylene & p-Xylene	ND		104	83.0		mg/Kg	☼	80	10 - 141
o-Xylene	ND		104	89.6		mg/Kg	☼	86	18 - 139
	MS MS								
Surrogate	%Recovery	Qualifier		Limits					
<i>Toluene-d8 (Surr)</i>	79			56 - 125					
<i>Dibromofluoromethane (Surr)</i>	82			41 - 138					
<i>4-Bromofluorobenzene (Surr)</i>	74			41 - 143					
<i>1,2-Dichloroethane-d4 (Surr)</i>	76			58 - 125					

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180647-11 MSD

Matrix: Solid

Analysis Batch: 563234

Client Sample ID: WC-WS1-B10 (3-4)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Vinyl chloride	7.8		1.25	8.46	4	mg/Kg	☼	52	32 - 163	3	38
	<i>MSD</i>	<i>MSD</i>									
Surrogate	%Recovery	Qualifier	Limits								
Toluene-d8 (Surr)	101		56 - 125								
Dibromofluoromethane (Surr)	89		41 - 138								
4-Bromofluorobenzene (Surr)	97		41 - 143								
1,2-Dichloroethane-d4 (Surr)	92		58 - 125								

Lab Sample ID: 240-180647-11 MSD

Matrix: Solid

Analysis Batch: 563303

Client Sample ID: WC-WS1-B10 (3-4)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1,1-Trichloroethane	ND		104	92.3		mg/Kg	☼	89	46 - 144	8	37
1,1,2,2-Tetrachloroethane	ND		104	91.1		mg/Kg	☼	88	26 - 159	9	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		104	95.6		mg/Kg	☼	92	35 - 164	12	37
1,1,2-Trichloroethane	ND		104	96.9		mg/Kg	☼	93	26 - 149	8	40
1,1-Dichloroethane	ND		104	86.0		mg/Kg	☼	83	46 - 135	8	36
1,1-Dichloroethene	ND		104	88.6		mg/Kg	☼	85	44 - 160	6	37
1,2,4-Trichlorobenzene	ND		104	81.4		mg/Kg	☼	78	10 - 120	9	40
1,2-Dibromo-3-Chloropropane	ND		104	63.4		mg/Kg	☼	61	12 - 144	5	40
Ethylene Dibromide	ND		104	95.1		mg/Kg	☼	91	31 - 142	4	40
1,2-Dichlorobenzene	ND		104	88.8		mg/Kg	☼	85	10 - 126	9	40
1,2-Dichloroethane	ND		104	88.6		mg/Kg	☼	85	40 - 132	2	35
1,2-Dichloropropane	ND		104	85.9		mg/Kg	☼	83	45 - 133	5	37
1,3-Dichlorobenzene	ND		104	86.8		mg/Kg	☼	84	10 - 131	11	40
1,4-Dichlorobenzene	ND		104	85.6		mg/Kg	☼	82	10 - 129	9	40
2-Butanone (MEK)	ND		208	203		mg/Kg	☼	98	30 - 157	4	40
2-Hexanone	ND		208	179		mg/Kg	☼	86	20 - 166	5	40
4-Methyl-2-pentanone (MIBK)	ND		208	178		mg/Kg	☼	85	31 - 159	4	40
Acetone	ND		208	217		mg/Kg	☼	105	35 - 167	2	40
Benzene	ND		104	92.6		mg/Kg	☼	89	39 - 134	5	40
Dichlorobromomethane	ND		104	90.6		mg/Kg	☼	87	32 - 146	7	39
Bromoform	ND		104	82.9		mg/Kg	☼	80	12 - 144	7	40
Bromomethane	ND		104	89.0		mg/Kg	☼	86	10 - 161	11	40
Carbon disulfide	ND		104	77.2		mg/Kg	☼	74	24 - 153	11	40
Carbon tetrachloride	ND		104	94.5		mg/Kg	☼	91	37 - 145	11	38
Chlorobenzene	ND		104	88.7		mg/Kg	☼	85	18 - 134	6	40
Chloroethane	ND		104	78.8		mg/Kg	☼	76	14 - 159	15	40
Chloroform	ND		104	95.3		mg/Kg	☼	92	43 - 134	7	36
Chloromethane	ND		104	67.2		mg/Kg	☼	65	32 - 151	13	38
cis-1,2-Dichloroethene	ND		104	95.3		mg/Kg	☼	92	48 - 132	7	37
cis-1,3-Dichloropropene	ND		104	81.4		mg/Kg	☼	78	23 - 139	6	39
Cyclohexane	ND		104	83.8		mg/Kg	☼	81	31 - 147	11	39
Chlorodibromomethane	ND		104	84.1		mg/Kg	☼	81	25 - 143	1	40
Dichlorodifluoromethane	ND		104	71.6		mg/Kg	☼	69	16 - 157	15	40
Ethylbenzene	ND		104	89.0		mg/Kg	☼	86	17 - 137	8	40

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180647-11 MSD

Matrix: Solid

Analysis Batch: 563303

Client Sample ID: WC-WS1-B10 (3-4)

Prep Type: Total/NA

Prep Batch: 562918

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Isopropylbenzene	ND		104	92.4		mg/Kg	☼	89	10 - 146	9	40
Methyl acetate	ND		208	190		mg/Kg	☼	91	13 - 164	3	40
Methyl tert-butyl ether	ND		104	91.6		mg/Kg	☼	88	55 - 134	3	37
Methylcyclohexane	ND		104	88.7		mg/Kg	☼	85	20 - 153	9	40
Methylene Chloride	ND		104	77.9		mg/Kg	☼	75	38 - 145	3	40
Styrene	ND		104	98.0		mg/Kg	☼	94	10 - 149	8	40
Tetrachloroethene	ND		104	91.7		mg/Kg	☼	88	19 - 147	10	40
Toluene	ND		104	89.6		mg/Kg	☼	86	30 - 137	8	40
trans-1,2-Dichloroethene	ND		104	90.8		mg/Kg	☼	87	41 - 145	7	37
trans-1,3-Dichloropropene	ND		104	76.7		mg/Kg	☼	74	19 - 130	9	40
Trichloroethene	ND		104	92.7		mg/Kg	☼	89	21 - 158	5	40
Trichlorofluoromethane	ND		104	87.5		mg/Kg	☼	84	36 - 161	21	40
Xylenes, Total	ND		208	188		mg/Kg	☼	91	17 - 138	9	40
m-Xylene & p-Xylene	ND		104	90.0		mg/Kg	☼	87	10 - 141	8	40
o-Xylene	ND		104	98.4		mg/Kg	☼	95	18 - 139	9	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	79		56 - 125
Dibromofluoromethane (Surr)	82		41 - 138
4-Bromofluorobenzene (Surr)	76		41 - 143
1,2-Dichloroethane-d4 (Surr)	74		58 - 125

Lab Sample ID: LB 240-562615/1-A MB

Matrix: Solid

Analysis Batch: 562664

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/20/23 18:22	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/20/23 18:22	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/20/23 18:22	1
Benzene	ND		0.025	0.00042	mg/L			02/20/23 18:22	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/20/23 18:22	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/20/23 18:22	1
Chloroform	ND		0.025	0.00047	mg/L			02/20/23 18:22	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/20/23 18:22	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/20/23 18:22	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/20/23 18:22	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	95		80 - 120		02/20/23 18:22	1
Dibromofluoromethane (Surr)	105		71 - 121		02/20/23 18:22	1
4-Bromofluorobenzene (Surr)	108		80 - 120		02/20/23 18:22	1
1,2-Dichloroethane-d4 (Surr)	102		76 - 120		02/20/23 18:22	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-562821/9-A
Matrix: Solid
Analysis Batch: 563180

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562821

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/21/23 08:07	02/23/23 13:52	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/21/23 08:07	02/23/23 13:52	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/21/23 08:07	02/23/23 13:52	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/21/23 08:07	02/23/23 13:52	1
Pyridine	ND		0.0040	0.00036	mg/L		02/21/23 08:07	02/23/23 13:52	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/21/23 08:07	02/23/23 13:52	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/21/23 08:07	02/23/23 13:52	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/21/23 08:07	02/23/23 13:52	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/21/23 08:07	02/23/23 13:52	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/21/23 08:07	02/23/23 13:52	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/21/23 08:07	02/23/23 13:52	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/21/23 08:07	02/23/23 13:52	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	119		46 - 137	02/21/23 08:07	02/23/23 13:52	1
Phenol-d5 (Surr)	59		26 - 120	02/21/23 08:07	02/23/23 13:52	1
Nitrobenzene-d5 (Surr)	74		24 - 120	02/21/23 08:07	02/23/23 13:52	1
2-Fluorophenol (Surr)	71		19 - 120	02/21/23 08:07	02/23/23 13:52	1
2-Fluorobiphenyl (Surr)	97		33 - 120	02/21/23 08:07	02/23/23 13:52	1
2,4,6-Tribromophenol (Surr)	97		10 - 120	02/21/23 08:07	02/23/23 13:52	1

Lab Sample ID: LCS 240-562821/10-A
Matrix: Solid
Analysis Batch: 563180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562821

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
1,4-Dichlorobenzene	0.0800	0.0539		mg/L		67	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0746		mg/L		93	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0726		mg/L		91	51 - 120
2,4-Dinitrotoluene	0.0800	0.0658		mg/L		82	58 - 125
Pyridine	0.160	0.0504		mg/L		31	10 - 120
2-Methylphenol	0.0800	0.0613		mg/L		77	45 - 120
Hexachlorobenzene	0.0800	0.0638		mg/L		80	55 - 120
Hexachlorobutadiene	0.0800	0.0582		mg/L		73	41 - 120
Hexachloroethane	0.0800	0.0498		mg/L		62	39 - 120
Nitrobenzene	0.0800	0.0490		mg/L		61	47 - 120
Pentachlorophenol	0.160	0.108		mg/L		68	19 - 132
3 & 4 Methylphenol	0.0800	0.0533		mg/L		67	40 - 120

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	105		46 - 137
Phenol-d5 (Surr)	60		26 - 120
Nitrobenzene-d5 (Surr)	67		24 - 120
2-Fluorophenol (Surr)	67		19 - 120
2-Fluorobiphenyl (Surr)	91		33 - 120
2,4,6-Tribromophenol (Surr)	99		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562873/1-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562873

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Atrazine	ND		0.20	0.036	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Carbazole	ND		0.050	0.019	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/21/23 09:46	02/23/23 09:46	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-562873/1-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Isophorone	ND		0.050	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Phenol	ND		0.050	0.0080	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/21/23 09:46	02/23/23 09:46	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/21/23 09:46	02/23/23 09:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		46 - 137	02/21/23 09:46	02/23/23 09:46	1
Phenol-d5 (Surr)	93		26 - 120	02/21/23 09:46	02/23/23 09:46	1
Nitrobenzene-d5 (Surr)	82		25 - 120	02/21/23 09:46	02/23/23 09:46	1
2-Fluorophenol (Surr)	75		20 - 120	02/21/23 09:46	02/23/23 09:46	1
2-Fluorobiphenyl (Surr)	91		34 - 120	02/21/23 09:46	02/23/23 09:46	1
2,4,6-Tribromophenol (Surr)	53		10 - 120	02/21/23 09:46	02/23/23 09:46	1

Lab Sample ID: LCS 240-562873/2-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.602		mg/Kg		90	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.558		mg/Kg		84	38 - 120
2,4,5-Trichlorophenol	0.667	0.585		mg/Kg		88	50 - 120
2,4,6-Trichlorophenol	0.667	0.627		mg/Kg		94	50 - 120
2,4-Dichlorophenol	0.667	0.593		mg/Kg		89	50 - 120
2,4-Dimethylphenol	0.667	0.527		mg/Kg		79	24 - 120
2,4-Dinitrophenol	1.33	1.24		mg/Kg		93	19 - 132
2,4-Dinitrotoluene	0.667	0.671		mg/Kg		101	64 - 120
2,6-Dinitrotoluene	0.667	0.640		mg/Kg		96	62 - 120
2-Chloronaphthalene	0.667	0.602		mg/Kg		90	51 - 120
2-Chlorophenol	0.667	0.536		mg/Kg		80	47 - 120
2-Methylnaphthalene	0.667	0.532		mg/Kg		80	38 - 120
2-Methylphenol	0.667	0.530		mg/Kg		79	45 - 120
2-Nitroaniline	0.667	0.627		mg/Kg		94	57 - 120
2-Nitrophenol	0.667	0.551		mg/Kg		83	51 - 120
3,3'-Dichlorobenzidine	1.33	1.20		mg/Kg		90	27 - 199
3-Nitroaniline	0.667	0.487		mg/Kg		73	41 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562873/2-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,6-Dinitro-2-methylphenol	1.33	1.25		mg/Kg		94	46 - 126
4-Bromophenyl phenyl ether	0.667	0.579		mg/Kg		87	65 - 120
4-Chloro-3-methylphenol	0.667	0.588		mg/Kg		88	51 - 120
4-Chloroaniline	0.667	0.365		mg/Kg		55	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.540		mg/Kg		81	59 - 120
4-Nitroaniline	0.667	0.601		mg/Kg		90	48 - 128
4-Nitrophenol	1.33	1.33		mg/Kg		99	43 - 120
Acenaphthene	0.667	0.561		mg/Kg		84	52 - 120
Acenaphthylene	0.667	0.575		mg/Kg		86	52 - 120
Acetophenone	0.667	0.550		mg/Kg		82	47 - 120
Anthracene	0.667	0.589		mg/Kg		88	64 - 120
Atrazine	1.33	1.34		mg/Kg		100	71 - 125
Benzaldehyde	1.33	1.13		mg/Kg		85	42 - 120
Benzo[a]anthracene	0.667	0.674		mg/Kg		101	70 - 120
Benzo[a]pyrene	0.667	0.596		mg/Kg		89	63 - 125
Benzo[b]fluoranthene	0.667	0.631		mg/Kg		95	64 - 121
Benzo[g,h,i]perylene	0.667	0.652		mg/Kg		98	62 - 120
Benzo[k]fluoranthene	0.667	0.618		mg/Kg		93	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.556		mg/Kg		83	50 - 120
Bis(2-chloroethyl)ether	0.667	0.494		mg/Kg		74	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.736		mg/Kg		110	63 - 133
Butyl benzyl phthalate	0.667	0.711		mg/Kg		107	66 - 127
Caprolactam	1.33	1.29		mg/Kg		97	67 - 120
Carbazole	0.667	0.595		mg/Kg		89	61 - 129
Chrysene	0.667	0.655		mg/Kg		98	67 - 120
Dibenz(a,h)anthracene	0.667	0.652		mg/Kg		98	62 - 120
Dibenzofuran	0.667	0.559		mg/Kg		84	55 - 120
Diethyl phthalate	0.667	0.631		mg/Kg		95	61 - 120
Dimethyl phthalate	0.667	0.619		mg/Kg		93	64 - 120
Di-n-butyl phthalate	0.667	0.616		mg/Kg		92	70 - 129
Di-n-octyl phthalate	0.667	0.677		mg/Kg		102	64 - 129
Fluoranthene	0.667	0.600		mg/Kg		90	71 - 124
Fluorene	0.667	0.548		mg/Kg		82	58 - 120
Hexachlorobenzene	0.667	0.557		mg/Kg		83	59 - 120
Hexachlorobutadiene	0.667	0.510		mg/Kg		77	45 - 120
Hexachlorocyclopentadiene	0.667	0.417		mg/Kg		63	10 - 120
Hexachloroethane	0.667	0.496		mg/Kg		74	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.663		mg/Kg		99	65 - 122
Isophorone	0.667	0.584		mg/Kg		88	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.578		mg/Kg		87	48 - 120
N-Nitrosodiphenylamine	0.667	0.574		mg/Kg		86	64 - 120
Naphthalene	0.667	0.511		mg/Kg		77	34 - 120
Nitrobenzene	0.667	0.562		mg/Kg		84	48 - 120
Pentachlorophenol	1.33	0.837		mg/Kg		63	10 - 120
Phenanthrene	0.667	0.583		mg/Kg		87	60 - 120
Phenol	0.667	0.557		mg/Kg		84	48 - 120
Pyrene	0.667	0.687		mg/Kg		103	67 - 120
3 & 4 Methylphenol	0.667	0.572		mg/Kg		86	49 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-562873/2-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	107		46 - 137
Phenol-d5 (Surr)	90		26 - 120
Nitrobenzene-d5 (Surr)	85		25 - 120
2-Fluorophenol (Surr)	81		20 - 120
2-Fluorobiphenyl (Surr)	92		34 - 120
2,4,6-Tribromophenol (Surr)	85		10 - 120

Lab Sample ID: LCS 240-562873/3-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	111		46 - 137
Phenol-d5 (Surr)	81		26 - 120
Nitrobenzene-d5 (Surr)	69		25 - 120
2-Fluorophenol (Surr)	67		20 - 120
2-Fluorobiphenyl (Surr)	79		34 - 120
2,4,6-Tribromophenol (Surr)	51		10 - 120

Lab Sample ID: LCS 240-562873/4-A
Matrix: Solid
Analysis Batch: 563114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562873

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	111		46 - 137
Phenol-d5 (Surr)	82		26 - 120
Nitrobenzene-d5 (Surr)	69		25 - 120
2-Fluorophenol (Surr)	71		20 - 120
2-Fluorobiphenyl (Surr)	79		34 - 120
2,4,6-Tribromophenol (Surr)	60		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-562822/6-A
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562822

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/21/23 08:09	02/22/23 11:07	1
Endrin	ND		0.00050	0.0000065	mg/L		02/21/23 08:09	02/22/23 11:07	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/21/23 08:09	02/22/23 11:07	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/21/23 08:09	02/22/23 11:07	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/21/23 08:09	02/22/23 11:07	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/21/23 08:09	02/22/23 11:07	1
Toxaphene	ND		0.020	0.000058	mg/L		02/21/23 08:09	02/22/23 11:07	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	92		10 - 145	02/21/23 08:09	02/22/23 11:07	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 240-562822/6-A
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562822

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	92		10 - 145	02/21/23 08:09	02/22/23 11:07	1
Tetrachloro-m-xylene	67		10 - 123	02/21/23 08:09	02/22/23 11:07	1
Tetrachloro-m-xylene	69		10 - 123	02/21/23 08:09	02/22/23 11:07	1

Lab Sample ID: LCS 240-562822/7-A
Matrix: Solid
Analysis Batch: 563004

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562822

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Endrin	0.00100	0.000999		mg/L		100	36 - 120
Heptachlor	0.00100	0.000957		mg/L		96	29 - 120
Heptachlor epoxide	0.00100	0.000999		mg/L		100	36 - 120
gamma-BHC (Lindane)	0.00100	0.000920		mg/L		92	23 - 120
Methoxychlor	0.00100	0.00110		mg/L		110	23 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	90		10 - 145
DCB Decachlorobiphenyl	90		10 - 145
Tetrachloro-m-xylene	69		10 - 123
Tetrachloro-m-xylene	71		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-562650/1-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562650

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1221	ND		50	30	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1232	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1242	ND		50	19	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1248	ND		50	17	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1254	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1260	ND		50	21	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1262	ND		50	22	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Aroclor-1268	ND		50	16	ug/Kg		02/20/23 08:20	02/20/23 19:48	1
Polychlorinated biphenyls, Total	ND		50	30	ug/Kg		02/20/23 08:20	02/20/23 19:48	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	53		10 - 149	02/20/23 08:20	02/20/23 19:48	1
DCB Decachlorobiphenyl	93		10 - 174	02/20/23 08:20	02/20/23 19:48	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-562650/2-A
Matrix: Solid
Analysis Batch: 562759

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	780		ug/Kg		78	28 - 140
Aroclor-1260	1000	955		ug/Kg		96	39 - 153

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	94		10 - 149
DCB Decachlorobiphenyl	123		10 - 174

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-346721/1-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 04:58	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 04:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136	02/21/23 20:16	02/22/23 04:58	1
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	02/21/23 20:16	02/22/23 04:58	1

Lab Sample ID: MB 410-346721/2-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 05:26	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 05:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	55		26 - 136	02/21/23 20:16	02/22/23 05:26	1
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136	02/21/23 20:16	02/22/23 05:26	1

Lab Sample ID: MB 410-346721/3-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 05:54	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 05:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136	02/21/23 20:16	02/22/23 05:54	1
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136	02/21/23 20:16	02/22/23 05:54	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: MB 410-346721/4-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 06:22	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 06:22	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136				02/21/23 20:16	02/22/23 06:22	1
2,4-Dichlorophenylacetic acid (Surr)	59		26 - 136				02/21/23 20:16	02/22/23 06:22	1

Lab Sample ID: MB 410-346721/5-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/21/23 20:16	02/22/23 06:49	1
2,4-D	ND		0.050	0.016	mg/L		02/21/23 20:16	02/22/23 06:49	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
2,4-Dichlorophenylacetic acid (Surr)	58		26 - 136				02/21/23 20:16	02/22/23 06:49	1
2,4-Dichlorophenylacetic acid (Surr)	58		26 - 136				02/21/23 20:16	02/22/23 06:49	1

Lab Sample ID: LCS 410-346721/6-A
Matrix: Solid
Analysis Batch: 346737

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346721

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
								Silvex (2,4,5-TP)
2,4-D	0.0502	0.0389	J	mg/L		78	42 - 147	
Surrogate	LCS	LCS	Limits			D	%Rec	%Rec Limits
	%Recovery	Qualifier						
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136					
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136					

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-346502/1-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 346502

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		02/21/23 12:53	02/21/23 16:49	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		02/21/23 12:53	02/21/23 16:49	1
Isotope Dilution	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
13C8 PFOA	74		26 - 159				02/21/23 12:53	02/21/23 16:49	1
13C8 PFOS	89		41 - 154				02/21/23 12:53	02/21/23 16:49	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-346502/2-B
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 346502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
							Lower	Upper
Perfluorooctanoic acid	25.0	20.9		ng/g		84	59	131
Perfluorooctanesulfonic acid	23.1	20.9		ng/g		90	61	126

Isotope Dilution	%Recovery	LCS Qualifier	Limits
13C8 PFOA	85		26 - 159
13C8 PFOS	91		41 - 154

Lab Sample ID: 240-180647-12 MS
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: WC-WS1-COMP (B6-B10)
Prep Type: Total/NA
Prep Batch: 346502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
									Lower	Upper
Perfluorooctanoic acid	ND		33.1	29.9		ng/g	☼	90	59	131
Perfluorooctanesulfonic acid	ND		30.6	28.3		ng/g	☼	92	61	126

Isotope Dilution	%Recovery	MS Qualifier	Limits
13C8 PFOA	74		26 - 159
13C8 PFOS	86		41 - 154

Lab Sample ID: 240-180647-12 MSD
Matrix: Solid
Analysis Batch: 346558

Client Sample ID: WC-WS1-COMP (B6-B10)
Prep Type: Total/NA
Prep Batch: 346502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
									Lower	Upper	RPD	Limit
Perfluorooctanoic acid	ND		33.1	30.7		ng/g	☼	93	59	131	2	30
Perfluorooctanesulfonic acid	ND		30.6	28.6		ng/g	☼	93	61	126	1	30

Isotope Dilution	%Recovery	MSD Qualifier	Limits
13C8 PFOA	57		26 - 159
13C8 PFOS	66		41 - 154

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-562706/2-A
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562706

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 08:57	1
Barium	ND		0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 08:57	1
Cadmium	0.000220	J	0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 08:57	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 08:57	1
Lead	ND		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 08:57	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 08:57	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 08:57	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 240-562706/3-A
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562706

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	1.99		mg/L		99	50 - 150
Barium	2.00	1.87		mg/L		93	50 - 150
Cadmium	1.00	0.976		mg/L		98	50 - 150
Chromium	1.00	0.958		mg/L		96	50 - 150
Lead	1.00	0.916		mg/L		92	50 - 150
Selenium	2.00	2.00		mg/L		100	50 - 150
Silver	0.100	0.102		mg/L		102	50 - 150

Lab Sample ID: LB 240-562607/1-B
Matrix: Solid
Analysis Batch: 562870

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562706

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/20/23 14:00	02/21/23 08:52	1
Barium	0.00326	J	0.50	0.0013	mg/L		02/20/23 14:00	02/21/23 08:52	1
Cadmium	ND		0.050	0.00020	mg/L		02/20/23 14:00	02/21/23 08:52	1
Chromium	ND		0.050	0.0040	mg/L		02/20/23 14:00	02/21/23 08:52	1
Lead	ND		0.050	0.0028	mg/L		02/20/23 14:00	02/21/23 08:52	1
Selenium	ND		0.050	0.0060	mg/L		02/20/23 14:00	02/21/23 08:52	1
Silver	ND		0.050	0.00062	mg/L		02/20/23 14:00	02/21/23 08:52	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-562707/2-A
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562707

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:35	1

Lab Sample ID: LCS 240-562707/3-A
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562707

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00481		mg/L		96	80 - 120

Lab Sample ID: LB 240-562607/1-C
Matrix: Solid
Analysis Batch: 562913

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 562707

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/20/23 14:00	02/21/23 10:33	1

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-180647-7 DU
 Matrix: Solid
 Analysis Batch: 562608

Client Sample ID: WC-WS1-B6 (4-5)
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	75.8		70.5		%		7	20
Percent Moisture	24.2		29.5		%		20	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

GC/MS VOA

Composite Batch: 562584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	Composite	
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	Composite	

Leach Batch: 562615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	1311	562584
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	1311	562584
LB 240-562615/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 562664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	8260D	562615
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	8260D	562615
LB 240-562615/1-A MB	Method Blank	TCLP	Solid	8260D	562615
LCS 240-562664/20	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 562918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	Total/NA	Solid	5035	
240-180647-2	WC-WS1-B2 (3-4)	Total/NA	Solid	5035	
240-180647-3	WC-WS1-B3 (3-4)	Total/NA	Solid	5035	
240-180647-4	WC-WS1-B4 (4-5)	Total/NA	Solid	5035	
240-180647-5	WC-WS1-B5 (2-3)	Total/NA	Solid	5035	
240-180647-7	WC-WS1-B6 (4-5)	Total/NA	Solid	5035	
240-180647-8	WC-WS1-B7 (5-6)	Total/NA	Solid	5035	
240-180647-9	WC-WS1-B8 (4-5)	Total/NA	Solid	5035	
240-180647-10	WC-WS1-B9 (5-6)	Total/NA	Solid	5035	
240-180647-11	WC-WS1-B10 (3-4)	Total/NA	Solid	5035	
MB 240-562918/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-180647-8 MS	WC-WS1-B7 (5-6)	Total/NA	Solid	5035	
240-180647-8 MSD	WC-WS1-B7 (5-6)	Total/NA	Solid	5035	
240-180647-11 MS	WC-WS1-B10 (3-4)	Total/NA	Solid	5035	
240-180647-11 MSD	WC-WS1-B10 (3-4)	Total/NA	Solid	5035	

Analysis Batch: 563103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	Total/NA	Solid	8260D	562918
240-180647-3	WC-WS1-B3 (3-4)	Total/NA	Solid	8260D	562918
240-180647-4	WC-WS1-B4 (4-5)	Total/NA	Solid	8260D	562918
240-180647-5	WC-WS1-B5 (2-3)	Total/NA	Solid	8260D	562918
240-180647-7	WC-WS1-B6 (4-5)	Total/NA	Solid	8260D	562918
240-180647-8	WC-WS1-B7 (5-6)	Total/NA	Solid	8260D	562918
240-180647-10	WC-WS1-B9 (5-6)	Total/NA	Solid	8260D	562918
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918

Analysis Batch: 563234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	Total/NA	Solid	8260D	562918
240-180647-2	WC-WS1-B2 (3-4)	Total/NA	Solid	8260D	562918

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

GC/MS VOA (Continued)

Analysis Batch: 563234 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-3	WC-WS1-B3 (3-4)	Total/NA	Solid	8260D	562918
240-180647-4	WC-WS1-B4 (4-5)	Total/NA	Solid	8260D	562918
240-180647-5	WC-WS1-B5 (2-3)	Total/NA	Solid	8260D	562918
240-180647-7	WC-WS1-B6 (4-5)	Total/NA	Solid	8260D	562918
240-180647-9	WC-WS1-B8 (4-5)	Total/NA	Solid	8260D	562918
240-180647-10	WC-WS1-B9 (5-6)	Total/NA	Solid	8260D	562918
240-180647-11	WC-WS1-B10 (3-4)	Total/NA	Solid	8260D	562918
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918
240-180647-11 MS	WC-WS1-B10 (3-4)	Total/NA	Solid	8260D	562918
240-180647-11 MSD	WC-WS1-B10 (3-4)	Total/NA	Solid	8260D	562918

Analysis Batch: 563303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-2	WC-WS1-B2 (3-4)	Total/NA	Solid	8260D	562918
240-180647-9	WC-WS1-B8 (4-5)	Total/NA	Solid	8260D	562918
240-180647-11	WC-WS1-B10 (3-4)	Total/NA	Solid	8260D	562918
240-180647-11 MS	WC-WS1-B10 (3-4)	Total/NA	Solid	8260D	562918
240-180647-11 MSD	WC-WS1-B10 (3-4)	Total/NA	Solid	8260D	562918

Analysis Batch: 563317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-8	WC-WS1-B7 (5-6)	Total/NA	Solid	8260D	562918
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918
240-180647-8 MS	WC-WS1-B7 (5-6)	Total/NA	Solid	8260D	562918
240-180647-8 MSD	WC-WS1-B7 (5-6)	Total/NA	Solid	8260D	562918

GC/MS Semi VOA

Composite Batch: 562584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	Composite	
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	Composite	

Leach Batch: 562606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	1311	562584
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	1311	562584

Prep Batch: 562821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	3510C	562606
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	3510C	562606
MB 240-562821/9-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-562821/10-A	Lab Control Sample	Total/NA	Solid	3510C	

Prep Batch: 562873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	Total/NA	Solid	3540C	
240-180647-1 - RA	WC-WS1-B1 (5-6)	Total/NA	Solid	3540C	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

GC/MS Semi VOA (Continued)

Prep Batch: 562873 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-2	WC-WS1-B2 (3-4)	Total/NA	Solid	3540C	
240-180647-2 - RA	WC-WS1-B2 (3-4)	Total/NA	Solid	3540C	
240-180647-3	WC-WS1-B3 (3-4)	Total/NA	Solid	3540C	
240-180647-4	WC-WS1-B4 (4-5)	Total/NA	Solid	3540C	
240-180647-5	WC-WS1-B5 (2-3)	Total/NA	Solid	3540C	
240-180647-7	WC-WS1-B6 (4-5)	Total/NA	Solid	3540C	
240-180647-8	WC-WS1-B7 (5-6)	Total/NA	Solid	3540C	
240-180647-9	WC-WS1-B8 (4-5)	Total/NA	Solid	3540C	
240-180647-10	WC-WS1-B9 (5-6)	Total/NA	Solid	3540C	
240-180647-11	WC-WS1-B10 (3-4)	Total/NA	Solid	3540C	
MB 240-562873/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-562873/2-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562873/3-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-562873/4-A	Lab Control Sample	Total/NA	Solid	3540C	

Analysis Batch: 563114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-562873/1-A	Method Blank	Total/NA	Solid	8270E	562873
LCS 240-562873/2-A	Lab Control Sample	Total/NA	Solid	8270E	562873
LCS 240-562873/3-A	Lab Control Sample	Total/NA	Solid	8270E	562873
LCS 240-562873/4-A	Lab Control Sample	Total/NA	Solid	8270E	562873

Analysis Batch: 563164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	Total/NA	Solid	8270E	562873
240-180647-1 - RA	WC-WS1-B1 (5-6)	Total/NA	Solid	8270E	562873
240-180647-2	WC-WS1-B2 (3-4)	Total/NA	Solid	8270E	562873
240-180647-2 - RA	WC-WS1-B2 (3-4)	Total/NA	Solid	8270E	562873
240-180647-3	WC-WS1-B3 (3-4)	Total/NA	Solid	8270E	562873
240-180647-4	WC-WS1-B4 (4-5)	Total/NA	Solid	8270E	562873
240-180647-5	WC-WS1-B5 (2-3)	Total/NA	Solid	8270E	562873
240-180647-7	WC-WS1-B6 (4-5)	Total/NA	Solid	8270E	562873
240-180647-8	WC-WS1-B7 (5-6)	Total/NA	Solid	8270E	562873
240-180647-9	WC-WS1-B8 (4-5)	Total/NA	Solid	8270E	562873
240-180647-10	WC-WS1-B9 (5-6)	Total/NA	Solid	8270E	562873
240-180647-11	WC-WS1-B10 (3-4)	Total/NA	Solid	8270E	562873

Analysis Batch: 563180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	8270E	562821
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	8270E	562821
MB 240-562821/9-A	Method Blank	Total/NA	Solid	8270E	562821
LCS 240-562821/10-A	Lab Control Sample	Total/NA	Solid	8270E	562821

GC Semi VOA

Leach Batch: 346499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	1311	
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	1311	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

GC Semi VOA

Prep Batch: 346721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	8151A	346499
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	8151A	346499
MB 410-346721/1-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/2-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/3-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/4-A	Method Blank	Total/NA	Solid	8151A	
MB 410-346721/5-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-346721/6-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 346737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	8151A	346721
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	8151A	346721
MB 410-346721/1-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/2-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/3-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/4-A	Method Blank	Total/NA	Solid	8151A	346721
MB 410-346721/5-A	Method Blank	Total/NA	Solid	8151A	346721
LCS 410-346721/6-A	Lab Control Sample	Total/NA	Solid	8151A	346721

Composite Batch: 562584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	Composite	
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	Composite	

Composite Batch: 562585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	Composite	
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	Composite	

Leach Batch: 562606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	1311	562584
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	1311	562584

Prep Batch: 562650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	3546	562585
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	3546	562585
MB 240-562650/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-562650/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 562759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	8082A	562650
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	8082A	562650
MB 240-562650/1-A	Method Blank	Total/NA	Solid	8082A	562650
LCS 240-562650/2-A	Lab Control Sample	Total/NA	Solid	8082A	562650

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

GC Semi VOA

Prep Batch: 562822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	3510C	562606
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	3510C	562606
MB 240-562822/6-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-562822/7-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 563004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	TCLP	Solid	8081B	562822
240-180647-12	WC-WS1-COMP (B6-B10)	TCLP	Solid	8081B	562822
MB 240-562822/6-A	Method Blank	Total/NA	Solid	8081B	562822
LCS 240-562822/7-A	Lab Control Sample	Total/NA	Solid	8081B	562822

LCMS

Prep Batch: 346502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	537 (mod)	
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	537 (mod)	
MB 410-346502/1-B	Method Blank	Total/NA	Solid	537 (mod)	
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	537 (mod)	
240-180647-12 MS	WC-WS1-COMP (B6-B10)	Total/NA	Solid	537 (mod)	
240-180647-12 MSD	WC-WS1-COMP (B6-B10)	Total/NA	Solid	537 (mod)	

Cleanup Batch: 346507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	Extract Aliquot	346502
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	Extract Aliquot	346502
MB 410-346502/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	346502
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	346502
240-180647-12 MS	WC-WS1-COMP (B6-B10)	Total/NA	Solid	Extract Aliquot	346502
240-180647-12 MSD	WC-WS1-COMP (B6-B10)	Total/NA	Solid	Extract Aliquot	346502

Analysis Batch: 346558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	537 IDA	346507
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	537 IDA	346507
MB 410-346502/1-B	Method Blank	Total/NA	Solid	537 IDA	346507
LCS 410-346502/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	346507
240-180647-12 MS	WC-WS1-COMP (B6-B10)	Total/NA	Solid	537 IDA	346507
240-180647-12 MSD	WC-WS1-COMP (B6-B10)	Total/NA	Solid	537 IDA	346507

Metals

Leach Batch: 562607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	TCLP	Solid	1311	
240-180647-2	WC-WS1-B2 (3-4)	TCLP	Solid	1311	
240-180647-3	WC-WS1-B3 (3-4)	TCLP	Solid	1311	
240-180647-4	WC-WS1-B4 (4-5)	TCLP	Solid	1311	
240-180647-5	WC-WS1-B5 (2-3)	TCLP	Solid	1311	
240-180647-7	WC-WS1-B6 (4-5)	TCLP	Solid	1311	
240-180647-8	WC-WS1-B7 (5-6)	TCLP	Solid	1311	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Metals (Continued)

Leach Batch: 562607 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-9	WC-WS1-B8 (4-5)	TCLP	Solid	1311	
240-180647-10	WC-WS1-B9 (5-6)	TCLP	Solid	1311	
240-180647-11	WC-WS1-B10 (3-4)	TCLP	Solid	1311	
LB 240-562607/1-B	Method Blank	TCLP	Solid	1311	
LB 240-562607/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 562706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	TCLP	Solid	3010A	562607
240-180647-2	WC-WS1-B2 (3-4)	TCLP	Solid	3010A	562607
240-180647-3	WC-WS1-B3 (3-4)	TCLP	Solid	3010A	562607
240-180647-4	WC-WS1-B4 (4-5)	TCLP	Solid	3010A	562607
240-180647-5	WC-WS1-B5 (2-3)	TCLP	Solid	3010A	562607
240-180647-7	WC-WS1-B6 (4-5)	TCLP	Solid	3010A	562607
240-180647-8	WC-WS1-B7 (5-6)	TCLP	Solid	3010A	562607
240-180647-9	WC-WS1-B8 (4-5)	TCLP	Solid	3010A	562607
240-180647-10	WC-WS1-B9 (5-6)	TCLP	Solid	3010A	562607
240-180647-11	WC-WS1-B10 (3-4)	TCLP	Solid	3010A	562607
LB 240-562607/1-B	Method Blank	TCLP	Solid	3010A	562607
MB 240-562706/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-562706/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 562707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	TCLP	Solid	7470A	562607
240-180647-2	WC-WS1-B2 (3-4)	TCLP	Solid	7470A	562607
240-180647-3	WC-WS1-B3 (3-4)	TCLP	Solid	7470A	562607
240-180647-4	WC-WS1-B4 (4-5)	TCLP	Solid	7470A	562607
240-180647-5	WC-WS1-B5 (2-3)	TCLP	Solid	7470A	562607
240-180647-7	WC-WS1-B6 (4-5)	TCLP	Solid	7470A	562607
240-180647-8	WC-WS1-B7 (5-6)	TCLP	Solid	7470A	562607
240-180647-9	WC-WS1-B8 (4-5)	TCLP	Solid	7470A	562607
240-180647-10	WC-WS1-B9 (5-6)	TCLP	Solid	7470A	562607
240-180647-11	WC-WS1-B10 (3-4)	TCLP	Solid	7470A	562607
LB 240-562607/1-C	Method Blank	TCLP	Solid	7470A	562607
MB 240-562707/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-562707/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 562870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	TCLP	Solid	6010D	562706
240-180647-2	WC-WS1-B2 (3-4)	TCLP	Solid	6010D	562706
240-180647-3	WC-WS1-B3 (3-4)	TCLP	Solid	6010D	562706
240-180647-4	WC-WS1-B4 (4-5)	TCLP	Solid	6010D	562706
240-180647-5	WC-WS1-B5 (2-3)	TCLP	Solid	6010D	562706
240-180647-7	WC-WS1-B6 (4-5)	TCLP	Solid	6010D	562706
240-180647-8	WC-WS1-B7 (5-6)	TCLP	Solid	6010D	562706
240-180647-9	WC-WS1-B8 (4-5)	TCLP	Solid	6010D	562706
240-180647-10	WC-WS1-B9 (5-6)	TCLP	Solid	6010D	562706
240-180647-11	WC-WS1-B10 (3-4)	TCLP	Solid	6010D	562706
LB 240-562607/1-B	Method Blank	TCLP	Solid	6010D	562706

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Metals (Continued)

Analysis Batch: 562870 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-562706/2-A	Method Blank	Total/NA	Solid	6010D	562706
LCS 240-562706/3-A	Lab Control Sample	Total/NA	Solid	6010D	562706

Analysis Batch: 562913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	TCLP	Solid	7470A	562707
240-180647-2	WC-WS1-B2 (3-4)	TCLP	Solid	7470A	562707
240-180647-3	WC-WS1-B3 (3-4)	TCLP	Solid	7470A	562707
240-180647-4	WC-WS1-B4 (4-5)	TCLP	Solid	7470A	562707
240-180647-5	WC-WS1-B5 (2-3)	TCLP	Solid	7470A	562707
240-180647-7	WC-WS1-B6 (4-5)	TCLP	Solid	7470A	562707
240-180647-8	WC-WS1-B7 (5-6)	TCLP	Solid	7470A	562707
240-180647-9	WC-WS1-B8 (4-5)	TCLP	Solid	7470A	562707
240-180647-10	WC-WS1-B9 (5-6)	TCLP	Solid	7470A	562707
240-180647-11	WC-WS1-B10 (3-4)	TCLP	Solid	7470A	562707
LB 240-562607/1-C	Method Blank	TCLP	Solid	7470A	562707
MB 240-562707/2-A	Method Blank	Total/NA	Solid	7470A	562707
LCS 240-562707/3-A	Lab Control Sample	Total/NA	Solid	7470A	562707

General Chemistry

Analysis Batch: 562608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-1	WC-WS1-B1 (5-6)	Total/NA	Solid	Moisture	
240-180647-2	WC-WS1-B2 (3-4)	Total/NA	Solid	Moisture	
240-180647-3	WC-WS1-B3 (3-4)	Total/NA	Solid	Moisture	
240-180647-4	WC-WS1-B4 (4-5)	Total/NA	Solid	Moisture	
240-180647-5	WC-WS1-B5 (2-3)	Total/NA	Solid	Moisture	
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	Moisture	
240-180647-7	WC-WS1-B6 (4-5)	Total/NA	Solid	Moisture	
240-180647-8	WC-WS1-B7 (5-6)	Total/NA	Solid	Moisture	
240-180647-9	WC-WS1-B8 (4-5)	Total/NA	Solid	Moisture	
240-180647-10	WC-WS1-B9 (5-6)	Total/NA	Solid	Moisture	
240-180647-11	WC-WS1-B10 (3-4)	Total/NA	Solid	Moisture	
240-180647-12	WC-WS1-COMP (B6-B10)	Total/NA	Solid	Moisture	
240-180647-7 DU	WC-WS1-B6 (4-5)	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B1 (5-6)

Date Collected: 02/18/23 13:15

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180647-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:46
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:09
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B1 (5-6)

Date Collected: 02/18/23 13:15

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180647-1

Matrix: Solid

Percent Solids: 78.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 03:18
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1000	563103	CS	EET CAN	02/23/23 12:41
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563164	MRU	EET CAN	02/23/23 12:16
Total/NA	Prep	3540C	RA		562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E	RA	100	563164	MRU	EET CAN	02/23/23 16:10

Client Sample ID: WC-WS1-B2 (3-4)

Date Collected: 02/18/23 13:35

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180647-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:51
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:11
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B2 (3-4)

Date Collected: 02/18/23 13:35

Date Received: 02/18/23 19:05

Lab Sample ID: 240-180647-2

Matrix: Solid

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 03:43
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		125	563303	CS	EET CAN	02/24/23 15:20
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563164	MRU	EET CAN	02/23/23 12:40

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B2 (3-4)

Lab Sample ID: 240-180647-2

Date Collected: 02/18/23 13:35

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3540C	RA		562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E	RA	100	563164	MRU	EET CAN	02/23/23 16:33

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Date Collected: 02/18/23 13:45

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 10:55
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:13
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B3 (3-4)

Lab Sample ID: 240-180647-3

Date Collected: 02/18/23 13:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 04:07
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1000	563103	CS	EET CAN	02/23/23 13:24
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		200	563164	MRU	EET CAN	02/23/23 13:03

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Date Collected: 02/18/23 14:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:00
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:15
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B4 (4-5)

Lab Sample ID: 240-180647-4

Date Collected: 02/18/23 14:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 72.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 04:31
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		100	563103	CS	EET CAN	02/23/23 13:46
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		100	563164	MRU	EET CAN	02/23/23 13:26

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Date Collected: 02/18/23 14:05

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:04
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:17
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B5 (2-3)

Lab Sample ID: 240-180647-5

Date Collected: 02/18/23 14:05

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 85.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 04:55
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		250	563103	CS	EET CAN	02/23/23 14:07
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		50	563164	MRU	EET CAN	02/23/23 13:50

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562615	DRJ	EET CAN	02/19/23 16:35 - 02/20/23 08:55 ¹
TCLP	Analysis	8260D		1	562664	HMB	EET CAN	02/20/23 20:40
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562821	SDE	EET CAN	02/21/23 08:07
TCLP	Analysis	8270E		4	563180	JMG	EET CAN	02/23/23 16:16

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562822	SDE	EET CAN	02/21/23 08:09
TCLP	Analysis	8081B		1	563004	BPM	EET CAN	02/22/23 12:08
TCLP	Leach	1311			346499	UNWS	ELLE	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	8151A			346721	UKL2	ELLE	02/21/23 20:16
TCLP	Analysis	8151A		1	346737	UAMZ	ELLE	02/22/23 10:33
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562585	DRJ	EET CAN	02/19/23 10:38
Total/NA	Prep	3546			562650	AJ	EET CAN	02/20/23 08:20
Total/NA	Analysis	8082A		1	562759	MBB	EET CAN	02/21/23 02:03
Total/NA	Prep	537 (mod)			346502	Q5YX	ELLE	02/21/23 12:53
Total/NA	Cleanup	Extract Aliquot			346507	Q5YX	ELLE	02/21/23 13:13
Total/NA	Analysis	537 IDA		1	346558	UUV6	ELLE	02/21/23 17:56

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Date Collected: 02/18/23 14:15

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:09
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:24
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B6 (4-5)

Lab Sample ID: 240-180647-7

Date Collected: 02/18/23 14:15

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 75.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 05:20
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		200	563103	CS	EET CAN	02/23/23 14:28
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		100	563164	MRU	EET CAN	02/23/23 14:13

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Date Collected: 02/18/23 14:25

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:13
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:26
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B7 (5-6)

Lab Sample ID: 240-180647-8

Date Collected: 02/18/23 14:25

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		2.5	563317	SAM	EET CAN	02/24/23 17:01
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1000	563103	CS	EET CAN	02/23/23 14:49
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		25	563164	MRU	EET CAN	02/23/23 14:36

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Date Collected: 02/18/23 14:30

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:18
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:28
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B8 (4-5)

Lab Sample ID: 240-180647-9

Date Collected: 02/18/23 14:30

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 06:08
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		50	563303	CS	EET CAN	02/24/23 15:42
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		25	563164	MRU	EET CAN	02/23/23 15:00

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Date Collected: 02/18/23 14:45

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:22
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:30
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B9 (5-6)

Lab Sample ID: 240-180647-10

Date Collected: 02/18/23 14:45

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 73.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 06:32
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		100	563103	CS	EET CAN	02/23/23 15:32
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		25	563164	MRU	EET CAN	02/23/23 15:23

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Date Collected: 02/18/23 14:55

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3010A			562706	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	6010D		1	562870	RKT	EET CAN	02/21/23 11:35
TCLP	Leach	1311			562607	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	7470A			562707	MRL	EET CAN	02/20/23 14:00
TCLP	Analysis	7470A		1	562913	MRL	EET CAN	02/21/23 11:32
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-B10 (3-4)

Lab Sample ID: 240-180647-11

Date Collected: 02/18/23 14:55

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563234	CS	EET CAN	02/24/23 06:57
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		66.667	563303	CS	EET CAN	02/24/23 16:03
Total/NA	Prep	3540C			562873	BMB	EET CAN	02/21/23 09:46
Total/NA	Analysis	8270E		20	563164	MRU	EET CAN	02/23/23 15:46

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Client Sample ID: WC-WS1-COMP (B6-B10)

Lab Sample ID: 240-180647-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562615	DRJ	EET CAN	02/19/23 16:35 - 02/20/23 08:55 ¹
TCLP	Analysis	8260D		1	562664	HMB	EET CAN	02/20/23 21:03
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562821	SDE	EET CAN	02/21/23 08:07
TCLP	Analysis	8270E		1	563180	JMG	EET CAN	02/23/23 15:28
TCLP	Composite	Composite			562584	DRJ	EET CAN	02/19/23 10:38
TCLP	Leach	1311			562606	DRJ	EET CAN	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	3510C			562822	SDE	EET CAN	02/21/23 08:09
TCLP	Analysis	8081B		1	563004	BPM	EET CAN	02/22/23 12:20
TCLP	Leach	1311			346499	UNWS	ELLE	02/19/23 15:50 - 02/20/23 08:50 ¹
TCLP	Prep	8151A			346721	UKL2	ELLE	02/21/23 20:16
TCLP	Analysis	8151A		1	346737	UAMZ	ELLE	02/22/23 11:01
Total/NA	Analysis	Moisture		1	562608	JMB	EET CAN	02/19/23 15:02

Client Sample ID: WC-WS1-COMP (B6-B10)

Lab Sample ID: 240-180647-12

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 74.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562585	DRJ	EET CAN	02/19/23 10:38
Total/NA	Prep	3546			562650	AJ	EET CAN	02/20/23 08:20
Total/NA	Analysis	8082A		1	562759	MBB	EET CAN	02/21/23 02:20
Total/NA	Prep	537 (mod)			346502	Q5YX	ELLE	02/21/23 12:53
Total/NA	Cleanup	Extract Aliquot			346507	Q5YX	ELLE	02/21/23 13:13
Total/NA	Analysis	537 IDA		1	346558	UUV6	ELLE	02/21/23 18:07

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23
Ohio VAP	State	CL0024	02-27-23
Oregon	NELAP	4062	02-27-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-23 *
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

645236



Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager:		Site Contact: <u>Michelle Chyn</u>		Date:	
Company Name:	Address:	City/State/Zip:	Phone:	Lab Contact: <u>Mike Delmonico</u>	Carrier:	COC No.:	of
Fax:	Analysis Turnaround Time			COCs			
Project Name: <u>Norfolk Southern</u>	<input type="checkbox"/> CALENDAR DAYS	<input type="checkbox"/> WORKING DAYS	TAT if different from Below	For Lab Use Only:			
Site: <u>East Palestine</u>	<input type="checkbox"/> 2 weeks	<input type="checkbox"/> 1 week	<u>2-3-4</u>	Walk-in Client:			
P O #	<input type="checkbox"/> 2 days	<input type="checkbox"/> 1 day		Lab Sampling:			

Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Total VOC	Total SVOC	TCMP Metals	PCAS / PFOA	TCMP VOC	TCMP SVOC	TCMP PCBs	TCMP Herb	TCMP Pubs	Sample Specific Notes:
WC WC-WS1-B1 (5-6)	2/18/23	1315	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B2 (3-4)	2/18/23	1335	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B3 (3-4)	2/18/23	1345	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B4 (4-5)	2/18/23	1400	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B5 (2-3)	2/18/23	1405	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-COMP (B1-B5)	2/18/23		LAB COMP	S	X	N											
WC-WS1-B6 (4-5)	2/18/23	1415	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B7 (5-6)	2/18/23	1425	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B8 (4-5)	2/18/23	1430	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B9 (5-6)	2/18/23	1445	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-B10 (3-4)	2/18/23	1455	G	S	7	N	X	X	X	X	X	X	X	X	X	X	
WC-WS1-COMP (B6-B10)	2/18/23		LAB COMP	S	7	N											



Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification: Are any samples from listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. U043 - Vinyl Chloride

Non-Hazardous Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 5 GRAB SAMPLES

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.:	Company:	Received by:	Date/Time:
Relinquished by:	Company:	Received by:	Date/Time:
Relinquished by:	Company:	Received in Laboratory by:	Date/Time:



Barberton Facility

Client Arcadis Site Name NS RR - ER Cooler unpacked by: [Signature]
Cooler Received on 2-18-23 Opened on 2-18-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # E-C Foam Box Client Cooler Box Other
Packing material used: Bubble Wrap Foam Plastic Bag None Other
COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 126 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other
Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES [] additional next page Samples processed by:

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 180647

Eurofins - Canton Sample Receipt Multiple Cooler Form													
Cooler Description (Circle)				IR Gun # (Circle)			Observed Temp °C	Corrected Temp °C	Coolant (Circle)				
<input checked="" type="checkbox"/> EC	<input type="checkbox"/> Client	<input type="checkbox"/> Box	<input type="checkbox"/> Other	<input checked="" type="checkbox"/> IR-13	<input type="checkbox"/> IR-16	<input type="checkbox"/> IR-17	4.8	4.6	<input checked="" type="checkbox"/> Wet Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Water	<input type="checkbox"/> None
<input checked="" type="checkbox"/> EC	<input type="checkbox"/> Client	<input type="checkbox"/> Box	<input type="checkbox"/> Other	<input checked="" type="checkbox"/> IR-13	<input type="checkbox"/> IR-16	<input type="checkbox"/> IR-17	3.8	3.6	<input checked="" type="checkbox"/> Wet Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Water	<input type="checkbox"/> None
<input type="checkbox"/> EC	<input type="checkbox"/> Client	<input type="checkbox"/> Box	<input type="checkbox"/> Other	<input type="checkbox"/> IR-13	<input type="checkbox"/> IR-16	<input type="checkbox"/> IR-17			<input type="checkbox"/> Wet Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Water	<input type="checkbox"/> None
<input type="checkbox"/> EC	<input type="checkbox"/> Client	<input type="checkbox"/> Box	<input type="checkbox"/> Other	<input type="checkbox"/> IR-13	<input type="checkbox"/> IR-16	<input type="checkbox"/> IR-17			<input type="checkbox"/> Wet Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Water	<input type="checkbox"/> None
<input type="checkbox"/> EC	<input type="checkbox"/> Client	<input type="checkbox"/> Box	<input type="checkbox"/> Other	<input type="checkbox"/> IR-13	<input type="checkbox"/> IR-16	<input type="checkbox"/> IR-17			<input type="checkbox"/> Wet Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Water	<input type="checkbox"/> None
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										<input type="checkbox"/>	See Temperature Excursion Form		

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:		Lab PM: DelMonico, Michael		Carrier Tracking No(s):		COC No: 240-164099.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: Michael.DelMonico@et.eurofinsus.com		State of Origin: Ohio		Page: Page 1 of 1			
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):				Job #: 240-180647-1			
Address: 2425 New Holland Pike,		Due Date Requested: 2/22/2023		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
City: Lancaster		TAT Requested (days):									
State, Zip: PA, 17601		PO #:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers			
Phone: 717-656-2300(Tel)		WO #:									
Email:		SSOW#:		PFC_IDA/Shake_SonicBath PFOA, PFOS		0151A/1311_T TCLP Analyte List		Other:			
Project Name: NS East Palestine		Project #: 24030745								Special Instructions/Note:	
Site:		SSOW#:									
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Preservation Code:	
WC-WS1-COMP (B1-B5) (240-180647-6)		2/18/23		Eastern		Solid		Solid		X X	
WC-WS1-COMP (B6-B10) (240-180647-12)		2/18/23		Eastern		Solid		Solid		X X	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
Unconfirmed			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2		
Empty Kit Relinquished by:			Special Instructions/QC Requirements:		
Date:			Method of Shipment:		
Relinquished by:		Date/Time:		Received by:	
<i>[Signature]</i>		2/20/23 1500		<i>[Signature]</i>	
Relinquished by:		Date/Time:		Received by:	
<i>[Signature]</i>				<i>[Signature]</i>	
Relinquished by:		Date/Time:		Received by:	
<i>[Signature]</i>		2/21/23		<i>[Signature]</i>	
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			Cooler Temperature(s) C and Other Remarks: 2.1		

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- 14
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- 16

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180647-1

Login Number: 180647

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/21/23 09:17 AM

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	C8PFOA	C8PFOS
		(26-159)	(41-154)
240-180647-6	WC-WS1-COMP (B1-B5)	65	83
240-180647-12	WC-WS1-COMP (B6-B10)	69	74
240-180647-12 MS	WC-WS1-COMP (B6-B10)	74	86
240-180647-12 MSD	WC-WS1-COMP (B6-B10)	57	66
LCS 410-346502/2-B	Lab Control Sample	85	91
MB 410-346502/1-B	Method Blank	74	89

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/10/2023 9:32:09 AM Revision 1

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180647-2

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396

Generated
3/10/2023 9:32:09 AM
Revision 1



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Job ID: 240-180647-2

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-180647-2**

Receipt

The samples were received on 2/18/2023 7:05 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.6°C and 4.6°C

Report revised on 3/10/2023 to report Total Dioxins calculations.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Method	Method Description	Protocol	Laboratory
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180647-6	WC-WS1-COMP (B1-B5)	Solid	02/18/23 00:00	02/18/23 19:05

1

2

3

4

5

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11

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Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-2

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	290		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	330		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	17		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	94		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	55		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	41		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	76		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	19		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	49		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	28		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	21		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	48		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	57		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	2.1		1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	20		1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
OCDD	1400		12	2.5	ng/Kg	1	✳	8290A	Total/NA
OCDF	650		12	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	340		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	590		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	630		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	550		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	220		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	540		6.2	2.5	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	97	I	1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	540		1.2	0.25	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	290		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,4,6,7,8-HpCDF	330		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,4,7,8-HxCDD	17		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,4,7,8-HxCDF	94		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,4,7,8,9-HpCDF	55		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,6,7,8-HxCDD	41		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,6,7,8-HxCDF	76		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,7,8-PeCDD	19		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,7,8-PeCDF	49		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,7,8,9-HxCDD	28		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
1,2,3,7,8,9-HxCDF	21		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
2,3,4,6,7,8-HxCDF	48		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
2,3,4,7,8-PeCDF	57		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
2,3,7,8-TCDD	2.1		1.2	0.25	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
2,3,7,8-TCDF	20		1.2	0.25	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
OCDD	1400		12	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
OCDF	650		12	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total HxCDD	340		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total HxCDF	590		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total HpCDD	630		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total HpCDF	550		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total PeCDD	220		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total PeCDF	540		6.2	2.5	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total TCDD	97	I	1.2	0.25	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1
Total TCDF	540		1.2	0.25	ng/Kg	✧	03/06/23 12:43	03/08/23 02:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	67		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-OCDD	68		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-2,3,7,8-TCDF	73		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-2,3,7,8-TCDD	69		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-2,3,4,7,8-PeCDF	71		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-2,3,4,6,7,8-HxCDF	74		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,7,8,9-HxCDF	73		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,7,8,9-HxCDD	76		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,7,8-PeCDF	69		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,7,8-PeCDD	65		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,6,7,8-HxCDF	74		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,6,7,8-HxCDD	74		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,4,7,8,9-HpCDF	72		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,4,7,8-HxCDF	74		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,4,7,8-HxCDD	73		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,4,6,7,8-HpCDF	73		40 - 135	03/06/23 12:43	03/08/23 02:50	1
13C-1,2,3,4,6,7,8-HpCDD	73		40 - 135	03/06/23 12:43	03/08/23 02:50	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-350542/1-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,6,7,8-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDD	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDF	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	89		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-OCDD	88		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDD	68		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,7,8-PeCDF	76		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,6,7,8-HxCDF	81		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDF	82		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDD	83		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDD	69		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDF	84		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDD	80		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8,9-HpCDF	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDF	85		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDD	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-350542/2-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3,4,6,7,8-HpCDD	100	93.6		ng/Kg		94	77 - 127
1,2,3,4,6,7,8-HpCDF	100	94.3		ng/Kg		94	77 - 127
1,2,3,4,7,8-HxCDD	100	98.7		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDF	100	97.8		ng/Kg		98	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.8		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	103		ng/Kg		103	76 - 127
1,2,3,6,7,8-HxCDF	100	97.3		ng/Kg		97	77 - 129
1,2,3,7,8-PeCDD	100	105		ng/Kg		105	77 - 127
1,2,3,7,8-PeCDF	100	101		ng/Kg		101	75 - 129
1,2,3,7,8,9-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,7,8,9-HxCDF	100	97.4		ng/Kg		97	76 - 126
2,3,4,6,7,8-HxCDF	100	94.2		ng/Kg		94	78 - 128
2,3,4,7,8-PeCDF	100	104		ng/Kg		104	75 - 131
2,3,7,8-TCDD	20.0	19.9		ng/Kg		99	68 - 142
2,3,7,8-TCDF	20.0	17.7		ng/Kg		88	70 - 133
OCDD	200	202		ng/Kg		101	77 - 125
OCDF	200	199		ng/Kg		99	75 - 128

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-OCDF	91		40 - 135
13C-OCDD	92		40 - 135
13C-2,3,7,8-TCDF	75		40 - 135
13C-2,3,7,8-TCDD	72		40 - 135
13C-2,3,4,7,8-PeCDF	77		40 - 135
13C-2,3,4,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDD	89		40 - 135
13C-1,2,3,7,8-PeCDF	76		40 - 135
13C-1,2,3,7,8-PeCDD	70		40 - 135
13C-1,2,3,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,6,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	92		40 - 135
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,4,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	91		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	90		40 - 135

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Specialty Organics

Prep Batch: 350542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-350542/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 350921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-350542/1-A	Method Blank	Total/NA	Solid	8290A	350542
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	8290A	350542

Analysis Batch: 351132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180647-6	WC-WS1-COMP (B1-B5)	Total/NA	Solid	8290A	350542

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Client Sample ID: WC-WS1-COMP (B1-B5)

Lab Sample ID: 240-180647-6

Date Collected: 02/18/23 00:00

Matrix: Solid

Date Received: 02/18/23 19:05

Percent Solids: 78.6

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	HRMS-Soxtherm			350542	RGA5	ELLE	03/06/23 12:43
Total/NA	Analysis	8290A		1	351132	DZ6A	ELLE	03/08/23 02:50

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180647-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	03-08-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	0001.01	11-30-24

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Chain of Custody Record

645236



Environment Testing
America

TAL-8210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager:		Site Contact:		Date:		COC No.:	
Company Name:		Tell/Email:		Lab Contact:		Carrier:		COCs	
Address:		Analysis Turnaround Time		For Lab Use Only:		Sampler:			
City/State/Zip:		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Walk-in Client:					
Phone:		TAT if different from Below		Lab Sampling:					
Fax:		2 weeks		Job / SDG No.:					
Project Name:		1 week							
Site:		2 days							
PO #		1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:		
WC-WS1-B1 (5-6)		2/18/23	1315	G	S	7	Total Vols		
WC-WS1-B2 (3-4)		2/18/23	1335	G	S	7	Total SVOC		
WC-WS1-B3 (3-4)		2/18/23	1345	G	S	7	TCMP Metals		
WC-WS1-B4 (4-5)		2/18/23	1400	G	S	7	TCMP PCBs		
WC-WS1-B5 (2-3)		2/18/23	1405	G	S	7	TCMP SVOC		
WC-WS1-COMP (B1-B5)		2/18/23		LAB COMP	S	X	TCMP PCBs		
WC-WS1-B6 (4-5)		2/18/23	1415	G	S	7	TCMP SVOC		
WC-WS1-B7 (5-6)		2/18/23	1425	G	S	7	TCMP PCBs		
WC-WS1-B8 (4-5)		2/18/23	1430	G	S	7	TCMP SVOC		
WC-WS1-B9 (5-6)		2/18/23	1445	G	S	7	TCMP PCBs		
WC-WS1-B10 (3-4)		2/18/23	1455	G	S	7	TCMP SVOC		
WC-WS1-COMP (B6-B10)		2/18/23		LAB COMP	S	7	TCMP PCBs		



Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification: Are any samples from listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. U043 -- Vinyl Chloride

Non-Hazardous Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:

LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 5 GRAB SAMPLES

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Cooler Temp. (°C): Obs'd: _____	Therm ID No.: _____
Relinquished by: _____	Received by: <i>[Signature]</i>	Company: <i>EATN</i>
Relinquished by: _____	Received by: _____	Company: _____
Relinquished by: _____	Received in Laboratory by: _____	Company: _____
Relinquished by: _____	Date/Time: _____	Date/Time: 2-18-23 1905
Relinquished by: _____	Date/Time: _____	Date/Time: _____
Relinquished by: _____	Date/Time: _____	Date/Time: _____



Barberton Facility

Client Arcadis Site Name NS RR - ER

Cooler unpacked by:

Cooler Received on 2-18-23 Opened on 2-18-23

me

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt See Multiple Cooler Form
 - IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 126
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
- 3. Shippers' packing slip attached to the cooler(s)? Yes No
- 4. Did custody papers accompany the sample(s)? Yes No
- 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- 7. Did all bottles arrive in good condition (Unbroken)? Yes No
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
- 10. Were correct bottle(s) used for the test(s) indicated? Yes No
- 11. Sufficient quantity received to perform indicated analyses? Yes No
- 12. Are these work share samples and all listed on the COC? Yes No
- If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
- 14. Were VOAs on the COC? Yes No NA
- 15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
- 17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
(EC) Client Box Other	(IR-13) IR-16 IR-17	4.8	4.6	(Wet Ice) Blue Ice Dry Ice Water None
(EC) Client Box Other	(IR-13) IR-16 IR-17	3.8	3.6	(Wet Ice) Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
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EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
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EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
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EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
<input type="checkbox"/> See Temperature Excursion Form				

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180647-2

Login Number: 180647

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/21/23 09:17 AM

Creator: McCaskey, Jonathan

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180647-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-180647-6	WC-WS1-COMP (B1-B5)	67	68	73	69	71	74	73	76
LCS 410-350542/2-A	Lab Control Sample	91	92	75	72	77	87	87	89
MB 410-350542/1-A	Method Blank	89	88	72	68	76	81	82	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-180647-6	WC-WS1-COMP (B1-B5)	69	65	74	74	72	74	73	73
LCS 410-350542/2-A	Lab Control Sample	76	70	87	84	92	83	84	91
MB 410-350542/1-A	Method Blank	72	69	84	80	86	79	78	85

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-180647-6	WC-WS1-COMP (B1-B5)	73
LCS 410-350542/2-A	Lab Control Sample	90
MB 410-350542/1-A	Method Blank	86

Surrogate Legend

OCDF = 13C-OCDF
 OCDD = 13C-OCDD
 TCDF = 13C-2,3,7,8-TCDF
 TCDD = 13C-2,3,7,8-TCDD
 PeCF = 13C-2,3,4,7,8-PeCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

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ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 2/28/2023 3:52:00 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180684-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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2/28/2023 3:52:00 PM

Authorized for release by
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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Glossary (Continued)

Abbreviation **These commonly used abbreviations may or may not be present in this report.**

QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Job ID: 240-180684-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180684-1

Comments

No additional comments.

Receipt

The samples were received on 2/20/2023 9:50 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 0.2° C, 0.5° C, 1.8° C, 2. C and 3.1° C.

GC/MS VOA

Method 5035: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-WS-NORTH-01 (4-5) (240-180684-1), WC-WS-NORTH-02 (6-7) (240-180684-2), WC-WS-NORTH-03 (7-8) (240-180684-3), WC-WS-NORTH-04 (4-5) (240-180684-4), WC-WS-NORTH-05 (5-6) (240-180684-5), WC-WS-NORTH-06 (5-6) (240-180684-7), WC-WS-NORTH-07 (3-4) (240-180684-8), WC-WS-NORTH-08 (3-4) (240-180684-9), WC-WS-NORTH-09 (3-4) (240-180684-10), WC-WS-NORTH-10 (2-3) (240-180684-11), WC-SB2650-N. DITCH (240-180684-12), WC-SB1692-N. DITCH (240-180684-14), WC-SB2598-N. DITCH (240-180684-15), WC-SB1852-N. DITCH (240-180684-16), WC-SB1865-N. DITCH (240-180684-17), WC-SB2621-N. DITCH (240-180684-19), WC-SB1634-N. DITCH (240-180684-20), WC-SB2624-N. DITCH (240-180684-21), WC-SB2474-N. DITCH (240-180684-22), WC-SB2405-N. DITCH (240-180684-23), WC-RT1538A-ST. SWEEPINGS (240-180684-25).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563220 was outside the method criteria for the following analyte: Carbon disulfide. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

Method 8260D: The MS/MSD for preparation batch 240-562918 and 240-562940 and analytical batch 240-563220 are not currently reported because they are in queue for analysis.

Method 8260D: The MS/MSD for preparation batch 240-562940 and analytical batch 240-563220 are not currently reported because they are in queue for analysis.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563220 was outside the method criteria for the following analyte: Carbon disulfide. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

Method 5035: The following sample(s) were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-SB1634-N. DITCH (240-180684-20).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563308 was outside the method criteria for the following analytes: Bromomethane, Carbon disulfide and Chloroethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The MS/MSD for preparation batch 240-562918, 240-562940 and 240-563078 and analytical batch 240-563308 not reported because it was analyzed in another batch.

Method 8260D: Internal standard (ISTD) response for the following sample was outside control limits: WC-SB1865-N. DITCH (240-180684-17). The sample was re-extracted and/or re-analyzed and ISTD response was outside control limits.

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Job ID: 240-180684-1 (Continued)

Laboratory: Eurofins Canton (Continued)

Method 8260D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-563434 and analytical batch 240-563458.

Method 8260D: Analytical batch QC for batch 563458 does not contain a method blank (MB). The method blank sample MB 240-563457/1-A was prepped on 2/26/2023 at 4:41pm, and was analyzed in place of an analytical batch method blank sample. Frozen prep batch QC is normally not applicable to this method, but since the method blank sample was prepped the same day as this analytical batch, it demonstrates cleanliness/compliance of the system.

Method 5035: Water preserved terracores have a 48 hour hold time from the time of sampling to the time of preservation. Samples WC-SB1865-N. DITCH (240-180684-17) and WC-SB1634-N. DITCH (240-180684-20) were received after normal business hours and the analyst that placed the aliquots in the freezer did not document the time. Samples were released to the laboratory on 2/21/2023 at 11:19 AM and 2/22/2023 at 11:38 AM. While we know the aliquots were frozen the night before, the release time is the only documented time available.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogate to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: WC-WS-NORTH-09 (3-4) (240-180684-10). These results have been reported and qualified.

Method 8270E: The following sample was diluted due to the nature of the sample matrix: WC-WS-NORTH-08 (3-4) (240-180684-9). Elevated reporting limits (RLs) are provided.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563266 recovered above the upper control limit for 2-Nitroaniline, 4-Nitrophenol, Bis(2-ethylhexyl) phthalate, Butyl benzyl phthalate, Caprolactam and Di-n-octyl phthalate. The samples associated with this CCV were either non-detect or recovered below the reporting limit for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-WS-NORTH-01 (4-5) (240-180684-1), WC-WS-NORTH-03 (7-8) (240-180684-3), WC-WS-NORTH-04 (4-5) (240-180684-4), WC-WS-NORTH-05 (5-6) (240-180684-5), WC-WS-NORTH-08 (3-4) (240-180684-9) and WC-WS-NORTH-09 (3-4) (240-180684-10).

Method 8270E: The following sample was diluted due to the nature of the sample matrix: WC-WS-NORTH-02 (6-7) (240-180684-2). Elevated reporting limits (RLs) are provided.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563427 recovered outside acceptance criteria, low biased, for bis (2-chloroisopropyl) ether, 4-Nitrophenol, Benzaldehyde and Bis(2-chloroethyl)ether. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples: WC-WS-NORTH-02 (6-7) (240-180684-2) were non-detect for the analytes, the data has been reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563427 recovered above the upper control limit for 2-Nitrophenol. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated sample is impacted: WC-WS-NORTH-02 (6-7) (240-180684-2).

Method 8270E: The following sample was diluted due to the nature of the sample matrix: WC-SB1634-N. DITCH (240-180684-2). Elevated reporting limits (RLs) are provided.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563684 recovered above the upper control limit for Atrazine. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: WC-WS-NORTH-06 (5-6) (240-180684-7), WC-WS-NORTH-07 (3-4) (240-180684-8) and WC-WS-NORTH-10 (2-3) (240-180684-11).

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Job ID: 240-180684-1 (Continued)

Laboratory: Eurofins Canton (Continued)

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563684 recovered outside acceptance criteria, low biased, for bis (2-chloroisopropyl) ether, 4-Nitrophenol, Benzaldehyde, Bis(2-chloroethyl)ether and N-Nitrosodi-n-propylamine. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples: WC-WS-NORTH-06 (5-6) (240-180684-7), WC-WS-NORTH-07 (3-4) (240-180684-8) and WC-WS-NORTH-10 (2-3) (240-180684-11) were non-detect for the analytes, the data has been reported.

Method 8270E: Samples WC-WS-NORTH-06 (5-6) (240-180684-7), WC-WS-NORTH-07 (3-4) (240-180684-8) and WC-WS-NORTH-10 (2-3) (240-180684-11) had elevated reporting limits due to extract viscosity. The samples were initially prep using 30 grams. The resulting extracts were too viscous to pipette. The samples were re-extracted using 5 grams. The extracts were fluid enough that a 4x dilution was able to be injected for analysis.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-WS-NORTH-COMP (1-5) (240-180684-6), WC-WS-NORTH-COMP (6-10) (240-180684-12), (LCS 240-562981/2-(MB 240-562981/1-A), (240-180684-A-6-D MS), (240-180684-A-6-E MSD), WC-COMP1-N. DITCH (240-180684-18), WC-COMP1-N. DITCH (240-180684-24), WC-RT1538A-ST. SWEEPINGS (240-180684-25), (LCS 240-563290/2-A) and (MB 240-563290/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 6010D: The following samples were diluted due to the nature of the sample matrix: WC-SB2650-N. DITCH (240-180684-13), WC-SB1865-N. DITCH (240-180684-17) and WC-SB2624-N. DITCH (240-180684-21). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

LCMS

Method 537: The sample injection standard peak areas in the following samples: WC-COMP1-N. DITCH (240-180684-18) and WC-COMP2-N. DITCH (240-180684-24) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
537 (mod)	EPA 537 Isotope Dilution	EPA	ELLE
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180684-1	WC-WS-NORTH-01 (4-5)	Solid	02/20/23 10:20	02/20/23 21:50
240-180684-2	WC-WS-NORTH-02 (6-7)	Solid	02/20/23 10:35	02/20/23 21:50
240-180684-3	WC-WS-NORTH-03 (7-8)	Solid	02/20/23 10:50	02/20/23 21:50
240-180684-4	WC-WS-NORTH-04 (4-5)	Solid	02/20/23 11:00	02/20/23 21:50
240-180684-5	WC-WS-NORTH-05 (5-6)	Solid	02/20/23 11:05	02/20/23 21:50
240-180684-6	WC-WS-NORTH-COMP (1-5)	Solid	02/20/23 00:00	02/20/23 21:50
240-180684-7	WC-WS-NORTH-06 (5-6)	Solid	02/20/23 11:20	02/20/23 21:50
240-180684-8	WC-WS-NORTH-07 (3-4)	Solid	02/20/23 11:46	02/20/23 21:50
240-180684-9	WC-WS-NORTH-08 (3-4)	Solid	02/20/23 11:55	02/20/23 21:50
240-180684-10	WC-WS-NORTH-09 (3-4)	Solid	02/20/23 12:05	02/20/23 21:50
240-180684-11	WC-WS-NORTH-10 (2-3)	Solid	02/20/23 12:20	02/20/23 21:50
240-180684-12	WC-WS-NORTH-COMP (6-10)	Solid	02/20/23 00:00	02/20/23 21:50
240-180684-13	WC-SB2650-N. DITCH	Solid	02/20/23 17:40	02/20/23 21:50
240-180684-14	WC-SB1692-N. DITCH	Solid	02/20/23 17:55	02/20/23 21:50
240-180684-15	WC-SB2598-N. DITCH	Solid	02/20/23 18:10	02/20/23 21:50
240-180684-16	WC-SB1852-N. DITCH	Solid	02/20/23 18:20	02/20/23 21:50
240-180684-17	WC-SB1865-N. DITCH	Solid	02/21/23 13:15	02/20/23 21:50
240-180684-18	WC-COMP1-N. DITCH	Solid	02/21/23 00:00	02/20/23 21:50
240-180684-19	WC-SB2621-N. DITCH	Solid	02/21/23 13:35	02/20/23 21:50
240-180684-20	WC-SB1634-N. DITCH	Solid	02/21/23 13:50	02/20/23 21:50
240-180684-21	WC-SB2624-N. DITCH	Solid	02/21/23 14:10	02/20/23 21:50
240-180684-22	WC-SB2474-N. DITCH	Solid	02/21/23 14:20	02/20/23 21:50
240-180684-23	WC-SB2405-N. DITCH	Solid	02/21/23 14:30	02/20/23 21:50
240-180684-24	WC-COMP2-N. DITCH	Solid	02/21/23 00:00	02/20/23 21:50
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Solid	02/21/23 14:45	02/20/23 21:50

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	0.092	J	0.25	0.048	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.38	J	1.0	0.25	mg/Kg	1	✳	8260D	Total/NA
Benzene	3.4		0.25	0.043	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.25	J	1.3	0.17	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.35	J	0.51	0.067	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	9.2		1.3	0.62	mg/Kg	5	✳	8260D	Total/NA
Xylenes, Total	0.12	J	0.51	0.092	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.48		0.18	0.024	mg/Kg	10	✳	8270E	Total/NA
Anthracene	0.059	J	0.18	0.029	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.21		0.18	0.042	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	0.13	J	0.18	0.11	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.22		0.18	0.080	mg/Kg	10	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.087	J	0.18	0.085	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.21		0.18	0.018	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.23		0.18	0.054	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.059	J	0.18	0.034	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.50		0.18	0.029	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.36		0.18	0.027	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.33		0.18	0.026	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.3	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0030	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.015	J	0.050	0.0028	mg/L	1		6010D	TCLP
Mercury	0.00084	J	0.0020	0.00013	mg/L	1		7470A	TCLP

Client Sample ID: WC-WS-NORTH-02 (6-7)

Lab Sample ID: 240-180684-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.70	J	1.2	0.29	mg/Kg	1	✳	8260D	Total/NA
Benzene	1.8		0.30	0.050	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.29	J	1.5	0.20	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.12	J	0.59	0.078	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	1.7		0.30	0.15	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.089	J	0.13	0.045	mg/Kg	2	✳	8270E	Total/NA
2-Methylnaphthalene	0.45		0.039	0.0052	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.082		0.039	0.0075	mg/Kg	2	✳	8270E	Total/NA
Acenaphthylene	0.053		0.039	0.011	mg/Kg	2	✳	8270E	Total/NA
Acetophenone	0.13	J	0.26	0.029	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.16		0.039	0.0063	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.39		0.039	0.0090	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.33		0.039	0.025	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.49		0.039	0.017	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.23		0.039	0.019	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.13		0.039	0.018	mg/Kg	2	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.17	J	0.18	0.13	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.68		0.039	0.0039	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.072		0.039	0.018	mg/Kg	2	✳	8270E	Total/NA
Dibenzofuran	0.11	J	0.13	0.034	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	0.74		0.039	0.012	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.22		0.039	0.0072	mg/Kg	2	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.18		0.039	0.019	mg/Kg	2	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-02 (6-7) (Continued)

Lab Sample ID: 240-180684-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.44		0.039	0.0063	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	0.92		0.039	0.0059	mg/Kg	2	✳	8270E	Total/NA
Pyrene	0.66		0.039	0.0056	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.0084	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.55	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0044	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-03 (7-8)

Lab Sample ID: 240-180684-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.60	J	1.0	0.25	mg/Kg	1	✳	8260D	Total/NA
Benzene	2.2		0.26	0.044	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.19	J	0.52	0.069	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	1.4		0.26	0.13	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.18	J	0.52	0.095	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.14		0.060	0.020	mg/Kg	1	✳	8270E	Total/NA
2-Methylnaphthalene	0.76		0.018	0.0024	mg/Kg	1	✳	8270E	Total/NA
Acenaphthene	0.055		0.018	0.0034	mg/Kg	1	✳	8270E	Total/NA
Acenaphthylene	0.055		0.018	0.0048	mg/Kg	1	✳	8270E	Total/NA
Acetophenone	0.17		0.12	0.013	mg/Kg	1	✳	8270E	Total/NA
Anthracene	0.099		0.018	0.0029	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]anthracene	0.26		0.018	0.0041	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]pyrene	0.22		0.018	0.011	mg/Kg	1	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.36		0.018	0.0078	mg/Kg	1	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.14		0.018	0.0085	mg/Kg	1	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.11		0.018	0.0083	mg/Kg	1	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.073	J	0.084	0.061	mg/Kg	1	✳	8270E	Total/NA
Carbazole	0.036	J	0.060	0.023	mg/Kg	1	✳	8270E	Total/NA
Chrysene	0.44		0.018	0.0018	mg/Kg	1	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.049		0.018	0.0083	mg/Kg	1	✳	8270E	Total/NA
Dibenzofuran	0.20		0.060	0.016	mg/Kg	1	✳	8270E	Total/NA
Di-n-butyl phthalate	0.084		0.084	0.061	mg/Kg	1	✳	8270E	Total/NA
Fluoranthene	0.36		0.018	0.0054	mg/Kg	1	✳	8270E	Total/NA
Fluorene	0.087		0.018	0.0033	mg/Kg	1	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.11		0.018	0.0088	mg/Kg	1	✳	8270E	Total/NA
Naphthalene	0.63		0.018	0.0029	mg/Kg	1	✳	8270E	Total/NA
Phenanthrene	0.65		0.018	0.0027	mg/Kg	1	✳	8270E	Total/NA
Pyrene	0.39		0.018	0.0026	mg/Kg	1	✳	8270E	Total/NA
Arsenic	0.0073	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.88	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0022	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0098	J	0.050	0.0028	mg/L	1		6010D	TCLP
Mercury	0.0017	J	0.0020	0.00013	mg/L	1		7470A	TCLP

Client Sample ID: WC-WS-NORTH-04 (4-5)

Lab Sample ID: 240-180684-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.38	J	0.69	0.17	mg/Kg	1	✳	8260D	Total/NA
Benzene	2.7		0.17	0.029	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.12	J	0.86	0.12	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.088	J	0.34	0.045	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-04 (4-5) (Continued)

Lab Sample ID: 240-180684-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	2.4		0.17	0.084	mg/Kg	1	☒	8260D	Total/NA
Xylenes, Total	0.11	J	0.34	0.062	mg/Kg	1	☒	8260D	Total/NA
1,1'-Biphenyl	0.083	J	0.20	0.069	mg/Kg	4	☒	8270E	Total/NA
2-Methylnaphthalene	0.32		0.060	0.0079	mg/Kg	4	☒	8270E	Total/NA
Acenaphthene	0.046	J	0.060	0.012	mg/Kg	4	☒	8270E	Total/NA
Acenaphthylene	0.039	J	0.060	0.016	mg/Kg	4	☒	8270E	Total/NA
Anthracene	0.071		0.060	0.0097	mg/Kg	4	☒	8270E	Total/NA
Benzo[a]anthracene	0.22		0.060	0.014	mg/Kg	4	☒	8270E	Total/NA
Benzo[a]pyrene	0.18		0.060	0.038	mg/Kg	4	☒	8270E	Total/NA
Benzo[b]fluoranthene	0.32		0.060	0.026	mg/Kg	4	☒	8270E	Total/NA
Benzo[g,h,i]perylene	0.12		0.060	0.029	mg/Kg	4	☒	8270E	Total/NA
Benzo[k]fluoranthene	0.094		0.060	0.028	mg/Kg	4	☒	8270E	Total/NA
Chrysene	0.29		0.060	0.0060	mg/Kg	4	☒	8270E	Total/NA
Dibenzofuran	0.11	J	0.20	0.052	mg/Kg	4	☒	8270E	Total/NA
Fluoranthene	0.36		0.060	0.018	mg/Kg	4	☒	8270E	Total/NA
Fluorene	0.073		0.060	0.011	mg/Kg	4	☒	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.094		0.060	0.030	mg/Kg	4	☒	8270E	Total/NA
Naphthalene	0.37		0.060	0.0097	mg/Kg	4	☒	8270E	Total/NA
Phenanthrene	0.45		0.060	0.0090	mg/Kg	4	☒	8270E	Total/NA
Pyrene	0.42		0.060	0.0086	mg/Kg	4	☒	8270E	Total/NA
Arsenic	0.0074	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.0	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0027	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0070	J	0.050	0.0028	mg/L	1		6010D	TCLP
Selenium	0.0065	J	0.050	0.0060	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-05 (5-6)

Lab Sample ID: 240-180684-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	55		14	2.4	mg/Kg	40	☒	8260D	Total/NA
Vinyl chloride	85		14	6.9	mg/Kg	40	☒	8260D	Total/NA
2-Methylnaphthalene	0.46		0.41	0.054	mg/Kg	20	☒	8270E	Total/NA
Anthracene	0.12	J	0.41	0.066	mg/Kg	20	☒	8270E	Total/NA
Benzo[a]anthracene	0.30	J	0.41	0.093	mg/Kg	20	☒	8270E	Total/NA
Benzo[b]fluoranthene	0.39	J	0.41	0.18	mg/Kg	20	☒	8270E	Total/NA
Chrysene	0.45		0.41	0.041	mg/Kg	20	☒	8270E	Total/NA
Fluoranthene	0.40	J	0.41	0.12	mg/Kg	20	☒	8270E	Total/NA
Fluorene	0.12	J	0.41	0.075	mg/Kg	20	☒	8270E	Total/NA
Naphthalene	0.63		0.41	0.066	mg/Kg	20	☒	8270E	Total/NA
Phenanthrene	0.50		0.41	0.061	mg/Kg	20	☒	8270E	Total/NA
Pyrene	0.65		0.41	0.059	mg/Kg	20	☒	8270E	Total/NA
Arsenic	0.0047	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.69	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0033	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.013	J	0.050	0.0028	mg/L	1		6010D	TCLP
Selenium	0.0066	J	0.050	0.0060	mg/L	1		6010D	TCLP
Silver	0.00074	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.078		0.025	0.00042	mg/L	1		8260D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (1-5) (Continued)

Lab Sample ID: 240-180684-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.11		0.025	0.00045	mg/L	1		8260D	TCLP
Perfluorooctanesulfonic acid	0.71	J	0.73	0.24	ng/g	1	⊛	537 IDA	Total/NA

Client Sample ID: WC-WS-NORTH-06 (5-6)

Lab Sample ID: 240-180684-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.78	J	1.3	0.32	mg/Kg	1	⊛	8260D	Total/NA
Benzene	2.1		0.33	0.056	mg/Kg	1	⊛	8260D	Total/NA
Chloromethane	0.11	J	0.33	0.087	mg/Kg	1	⊛	8260D	Total/NA
Isopropylbenzene	0.061	J	0.33	0.050	mg/Kg	1	⊛	8260D	Total/NA
Methylcyclohexane	0.20	J	0.66	0.087	mg/Kg	1	⊛	8260D	Total/NA
Vinyl chloride	5.6		0.33	0.16	mg/Kg	1	⊛	8260D	Total/NA
Acetophenone	1.8	J	3.0	0.33	mg/Kg	4	⊛	8270E	Total/NA
Naphthalene	0.33	J	0.45	0.072	mg/Kg	4	⊛	8270E	Total/NA
Phenanthrene	0.13	J	0.45	0.067	mg/Kg	4	⊛	8270E	Total/NA
Arsenic	0.0075	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.29	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Selenium	0.0075	J	0.050	0.0060	mg/L	1		6010D	TCLP
Silver	0.00063	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.2	J	1.4	0.33	mg/Kg	1	⊛	8260D	Total/NA
Benzene	12		0.34	0.058	mg/Kg	1	⊛	8260D	Total/NA
Chloromethane	0.23	J	0.34	0.090	mg/Kg	1	⊛	8260D	Total/NA
Ethylbenzene	0.073	J	0.34	0.064	mg/Kg	1	⊛	8260D	Total/NA
Methyl acetate	0.53	J	1.7	0.23	mg/Kg	1	⊛	8260D	Total/NA
Toluene	0.46		0.34	0.33	mg/Kg	1	⊛	8260D	Total/NA
Vinyl chloride	10		0.34	0.17	mg/Kg	1	⊛	8260D	Total/NA
2-Methylnaphthalene	0.45		0.45	0.059	mg/Kg	4	⊛	8270E	Total/NA
Acetophenone	2.0	J	3.0	0.33	mg/Kg	4	⊛	8270E	Total/NA
Chrysene	0.11	J	0.45	0.045	mg/Kg	4	⊛	8270E	Total/NA
Fluorene	0.14	J	0.45	0.082	mg/Kg	4	⊛	8270E	Total/NA
Naphthalene	1.1		0.45	0.072	mg/Kg	4	⊛	8270E	Total/NA
Phenanthrene	0.28	J	0.45	0.067	mg/Kg	4	⊛	8270E	Total/NA
Phenol	1.9		1.5	0.24	mg/Kg	4	⊛	8270E	Total/NA
Arsenic	0.0071	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.52	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0039	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.024	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	19		0.62	0.10	mg/Kg	1.6666	⊛	8260D	Total/NA
Chloromethane	0.12	J	0.37	0.098	mg/Kg	1	⊛	8260D	Total/NA
Ethylbenzene	0.18	J	0.37	0.070	mg/Kg	1	⊛	8260D	Total/NA
Isopropylbenzene	0.061	J	0.37	0.056	mg/Kg	1	⊛	8260D	Total/NA
Methyl acetate	0.42	J	1.9	0.25	mg/Kg	1	⊛	8260D	Total/NA
Methylcyclohexane	0.24	J	0.74	0.098	mg/Kg	1	⊛	8260D	Total/NA
Toluene	0.88		0.37	0.36	mg/Kg	1	⊛	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-08 (3-4) (Continued)

Lab Sample ID: 240-180684-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.44		0.37	0.18	mg/Kg	1	☒	8260D	Total/NA
Xylenes, Total	0.45	J	0.74	0.14	mg/Kg	1	☒	8260D	Total/NA
1,1'-Biphenyl	0.24	J	0.27	0.091	mg/Kg	4	☒	8270E	Total/NA
2-Methylnaphthalene	0.97		0.081	0.011	mg/Kg	4	☒	8270E	Total/NA
Acenaphthene	0.090		0.081	0.015	mg/Kg	4	☒	8270E	Total/NA
Acenaphthylene	0.036	J	0.081	0.022	mg/Kg	4	☒	8270E	Total/NA
Acetophenone	0.93		0.54	0.059	mg/Kg	4	☒	8270E	Total/NA
Anthracene	0.082		0.081	0.013	mg/Kg	4	☒	8270E	Total/NA
Benzo[a]anthracene	0.19		0.081	0.018	mg/Kg	4	☒	8270E	Total/NA
Benzo[a]pyrene	0.18		0.081	0.050	mg/Kg	4	☒	8270E	Total/NA
Benzo[b]fluoranthene	0.21		0.081	0.035	mg/Kg	4	☒	8270E	Total/NA
Benzo[g,h,i]perylene	0.081		0.081	0.038	mg/Kg	4	☒	8270E	Total/NA
Benzo[k]fluoranthene	0.062	J	0.081	0.037	mg/Kg	4	☒	8270E	Total/NA
Chrysene	0.32		0.081	0.0080	mg/Kg	4	☒	8270E	Total/NA
Dibenzofuran	0.16	J	0.27	0.070	mg/Kg	4	☒	8270E	Total/NA
Fluoranthene	0.21		0.081	0.024	mg/Kg	4	☒	8270E	Total/NA
Fluorene	0.25		0.081	0.015	mg/Kg	4	☒	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.050	J	0.081	0.040	mg/Kg	4	☒	8270E	Total/NA
Naphthalene	1.5		0.081	0.013	mg/Kg	4	☒	8270E	Total/NA
Phenanthrene	0.68		0.081	0.012	mg/Kg	4	☒	8270E	Total/NA
Phenol	0.14	J	0.27	0.043	mg/Kg	4	☒	8270E	Total/NA
Pyrene	0.26		0.081	0.012	mg/Kg	4	☒	8270E	Total/NA
Arsenic	0.0099	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	2.7	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0033	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.011	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00088	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-09 (3-4)

Lab Sample ID: 240-180684-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	1.0		0.29	0.055	mg/Kg	1	☒	8260D	Total/NA
Acetone	1.0	J	1.2	0.28	mg/Kg	1	☒	8260D	Total/NA
Benzene	11		0.29	0.049	mg/Kg	1	☒	8260D	Total/NA
Chlorobenzene	0.089	J	0.29	0.041	mg/Kg	1	☒	8260D	Total/NA
Chloromethane	0.29		0.29	0.077	mg/Kg	1	☒	8260D	Total/NA
Ethylbenzene	0.24	J	0.29	0.055	mg/Kg	1	☒	8260D	Total/NA
Methyl acetate	0.33	J	1.5	0.20	mg/Kg	1	☒	8260D	Total/NA
Toluene	1.5		0.29	0.28	mg/Kg	1	☒	8260D	Total/NA
Vinyl chloride	0.18	J	0.29	0.14	mg/Kg	1	☒	8260D	Total/NA
Xylenes, Total	0.41	J	0.58	0.11	mg/Kg	1	☒	8260D	Total/NA
1,1'-Biphenyl	0.18		0.062	0.021	mg/Kg	1	☒	8270E	Total/NA
2-Methylnaphthalene	0.52		0.019	0.0024	mg/Kg	1	☒	8270E	Total/NA
Acenaphthene	0.068		0.019	0.0036	mg/Kg	1	☒	8270E	Total/NA
Acenaphthylene	0.022		0.019	0.0050	mg/Kg	1	☒	8270E	Total/NA
Acetophenone	0.69		0.12	0.014	mg/Kg	1	☒	8270E	Total/NA
Anthracene	0.065		0.019	0.0030	mg/Kg	1	☒	8270E	Total/NA
Benzo[a]anthracene	0.10		0.019	0.0042	mg/Kg	1	☒	8270E	Total/NA
Benzo[a]pyrene	0.055		0.019	0.012	mg/Kg	1	☒	8270E	Total/NA
Benzo[b]fluoranthene	0.11		0.019	0.0081	mg/Kg	1	☒	8270E	Total/NA
Benzo[k]fluoranthene	0.027		0.019	0.0086	mg/Kg	1	☒	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-09 (3-4) (Continued)

Lab Sample ID: 240-180684-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chrysene	0.16		0.019	0.0019	mg/Kg	1	✳	8270E	Total/NA
Dibenzofuran	0.059	J	0.062	0.016	mg/Kg	1	✳	8270E	Total/NA
Fluoranthene	0.13		0.019	0.0055	mg/Kg	1	✳	8270E	Total/NA
Fluorene	0.23		0.019	0.0034	mg/Kg	1	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.015	J	0.019	0.0091	mg/Kg	1	✳	8270E	Total/NA
Naphthalene	1.1		0.019	0.0030	mg/Kg	1	✳	8270E	Total/NA
Phenanthrene	0.42		0.019	0.0028	mg/Kg	1	✳	8270E	Total/NA
Phenol	0.057	J	0.062	0.0099	mg/Kg	1	✳	8270E	Total/NA
Pyrene	0.14		0.019	0.0027	mg/Kg	1	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	2.6	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0017	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0094	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0011	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-10 (2-3)

Lab Sample ID: 240-180684-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.42	J	1.3	0.31	mg/Kg	1	✳	8260D	Total/NA
Benzene	53		3.2	0.54	mg/Kg	10	✳	8260D	Total/NA
Chlorobenzene	0.096	J	0.32	0.045	mg/Kg	1	✳	8260D	Total/NA
Chloromethane	0.38		0.32	0.084	mg/Kg	1	✳	8260D	Total/NA
Ethylbenzene	0.32		0.32	0.060	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.056	J	0.32	0.049	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.49	J	1.6	0.21	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.096	J	0.64	0.084	mg/Kg	1	✳	8260D	Total/NA
Toluene	2.0		0.32	0.31	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.47	J	0.64	0.12	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.61		0.46	0.060	mg/Kg	4	✳	8270E	Total/NA
Acetophenone	1.8	J	3.1	0.34	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.22	J	0.46	0.046	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.16	J	0.46	0.14	mg/Kg	4	✳	8270E	Total/NA
Fluorene	0.24	J	0.46	0.084	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	1.6		0.46	0.074	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	0.49		0.46	0.068	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.16	J	0.46	0.066	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.014	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	2.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00093	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0077	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Lab Sample ID: 240-180684-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.35		0.025	0.00042	mg/L	1		8260D	TCLP
Vinyl chloride	0.087		0.025	0.00045	mg/L	1		8260D	TCLP
Perfluorooctanesulfonic acid	0.25	J	0.70	0.23	ng/g	1	✳	537 IDA	Total/NA

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.66	J	1.8	0.44	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2650-N. DITCH (Continued)

Lab Sample ID: 240-180684-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.31	J	0.90	0.12	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.2	F1 F2	0.45	0.059	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.44	J	0.45	0.073	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	1.8		0.45	0.10	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	1.4		0.45	0.28	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	2.2	F1	0.45	0.20	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.61		0.45	0.21	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.83		0.45	0.21	mg/Kg	20	✳	8270E	Total/NA
Chrysene	2.4	F1	0.45	0.045	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.53	J F1	1.5	0.39	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	4.4		0.45	0.13	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.12	J	0.45	0.083	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.55		0.45	0.22	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	0.75	F1 F2	0.45	0.073	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	3.4	F1	0.45	0.067	mg/Kg	20	✳	8270E	Total/NA
Pyrene	4.1		0.45	0.065	mg/Kg	20	✳	8270E	Total/NA
Barium	0.62	J B	2.5	0.0066	mg/L	5		6010D	TCLP
Cadmium	0.0047	J	0.25	0.0010	mg/L	5		6010D	TCLP

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.58	J	2.0	0.50	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.38	J	2.5	0.34	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.25	J	1.0	0.13	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.24	J	1.0	0.19	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	5.3		0.48	0.062	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.18	J	0.48	0.091	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.30	J	0.48	0.077	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	1.7		0.48	0.11	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	1.6		0.48	0.30	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	2.8		0.48	0.21	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.59		0.48	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.86		0.48	0.22	mg/Kg	20	✳	8270E	Total/NA
Chrysene	2.0		0.48	0.047	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.5	J	1.6	0.41	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	2.8		0.48	0.14	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.17	J	0.48	0.087	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.53		0.48	0.23	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	3.5		0.48	0.077	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	2.9		0.48	0.071	mg/Kg	20	✳	8270E	Total/NA
Pyrene	2.7		0.48	0.068	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.011	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.51	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0040	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0058	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.033	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0014	J	0.050	0.00062	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2598-N. DITCH

Lab Sample ID: 240-180684-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.71	J	1.9	0.48	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.45	J	0.97	0.13	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.24	J	0.97	0.18	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.72		0.38	0.13	mg/Kg	5	✳	8270E	Total/NA
2-Methylnaphthalene	6.2		0.12	0.015	mg/Kg	5	✳	8270E	Total/NA
Acenaphthene	0.32		0.12	0.022	mg/Kg	5	✳	8270E	Total/NA
Acenaphthylene	0.17		0.12	0.031	mg/Kg	5	✳	8270E	Total/NA
Anthracene	0.41		0.12	0.018	mg/Kg	5	✳	8270E	Total/NA
Benzaldehyde	0.21	J	0.77	0.18	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]anthracene	1.8		0.12	0.026	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]pyrene	1.9		0.12	0.072	mg/Kg	5	✳	8270E	Total/NA
Benzo[b]fluoranthene	2.9		0.12	0.050	mg/Kg	5	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.46		0.12	0.055	mg/Kg	5	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.2		0.12	0.053	mg/Kg	5	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	3.1		0.54	0.39	mg/Kg	5	✳	8270E	Total/NA
Carbazole	0.45		0.38	0.15	mg/Kg	5	✳	8270E	Total/NA
Chrysene	2.2		0.12	0.011	mg/Kg	5	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.12		0.12	0.053	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	2.4		0.38	0.10	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	3.3		0.12	0.034	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.31		0.12	0.021	mg/Kg	5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.38		0.12	0.056	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	4.1		0.12	0.018	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	5.6		0.12	0.017	mg/Kg	5	✳	8270E	Total/NA
Pyrene	3.1		0.12	0.016	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.015	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.37	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0032	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.24		0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB1852-N. DITCH

Lab Sample ID: 240-180684-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.74	J	1.8	0.43	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.20	J	0.89	0.12	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.23	J	0.44	0.22	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	3.8		0.42	0.055	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.48		0.42	0.081	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.38	J	0.42	0.11	mg/Kg	20	✳	8270E	Total/NA
Anthracene	1.3		0.42	0.068	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	3.3		0.42	0.096	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	2.8		0.42	0.26	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	4.2		0.42	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.85		0.42	0.20	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.6		0.42	0.20	mg/Kg	20	✳	8270E	Total/NA
Carbazole	0.76	J	1.4	0.54	mg/Kg	20	✳	8270E	Total/NA
Chrysene	3.9		0.42	0.042	mg/Kg	20	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.26	J	0.42	0.20	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.7		1.4	0.37	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	7.7		0.42	0.13	mg/Kg	20	✳	8270E	Total/NA
Fluorene	1.0		0.42	0.077	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1852-N. DITCH (Continued)

Lab Sample ID: 240-180684-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	0.87		0.42	0.21	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	2.5		0.42	0.068	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	9.8		0.42	0.063	mg/Kg	20	✳	8270E	Total/NA
Pyrene	7.1		0.42	0.060	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0068	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.70	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0037	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0051	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.025	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0013	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	58	J	170	41	mg/Kg	66.6666	✳	8260D	Total/NA
Vinyl chloride	0.063		0.0091	0.0032	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	2.0		0.53	0.070	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.27	J	0.53	0.10	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.19	J	0.53	0.14	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.64		0.53	0.086	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	2.1		0.53	0.12	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	2.2		0.53	0.33	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	3.7		0.53	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.54		0.53	0.25	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.1		0.53	0.25	mg/Kg	20	✳	8270E	Total/NA
Chrysene	2.7		0.53	0.053	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.85	J	1.8	0.46	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	4.5		0.53	0.16	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.37	J	0.53	0.097	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.62		0.53	0.26	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.5		0.53	0.086	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	4.0		0.53	0.079	mg/Kg	20	✳	8270E	Total/NA
Pyrene	4.0		0.53	0.076	mg/Kg	20	✳	8270E	Total/NA
Barium	0.45	J B	1.0	0.0027	mg/L	2		6010D	TCLP
Cadmium	0.0064	J	0.10	0.00041	mg/L	2		6010D	TCLP
Lead	0.041	J	0.10	0.0055	mg/L	2		6010D	TCLP
Silver	0.0014	J	0.10	0.0012	mg/L	2		6010D	TCLP

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-180684-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	0.87	J	0.92	0.31	ng/g	1	✳	537 IDA	Total/NA
Perfluorooctanesulfonic acid - RA	1.0		0.92	0.31	ng/g	1	✳	537 IDA	Total/NA

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.4	J	3.2	0.79	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	1.3	J	4.0	0.54	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	3.2		0.81	0.40	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	5.9		0.80	0.10	mg/Kg	25	✳	8270E	Total/NA
Acenaphthene	0.89		0.80	0.15	mg/Kg	25	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2621-N. DITCH (Continued)

Lab Sample ID: 240-180684-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	0.65	J	0.80	0.21	mg/Kg	25	✳	8270E	Total/NA
Anthracene	0.95		0.80	0.13	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]anthracene	3.2		0.80	0.18	mg/Kg	25	✳	8270E	Total/NA
Benzo[a]pyrene	3.1		0.80	0.50	mg/Kg	25	✳	8270E	Total/NA
Benzo[b]fluoranthene	4.2		0.80	0.35	mg/Kg	25	✳	8270E	Total/NA
Benzo[g,h,i]perylene	1.6		0.80	0.38	mg/Kg	25	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.7		0.80	0.37	mg/Kg	25	✳	8270E	Total/NA
Chrysene	3.8		0.80	0.079	mg/Kg	25	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.40	J	0.80	0.37	mg/Kg	25	✳	8270E	Total/NA
Dibenzofuran	2.5	J	2.7	0.69	mg/Kg	25	✳	8270E	Total/NA
Fluoranthene	7.6		0.80	0.24	mg/Kg	25	✳	8270E	Total/NA
Fluorene	1.1		0.80	0.15	mg/Kg	25	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.4		0.80	0.39	mg/Kg	25	✳	8270E	Total/NA
Naphthalene	4.8		0.80	0.13	mg/Kg	25	✳	8270E	Total/NA
Phenanthrene	9.0		0.80	0.12	mg/Kg	25	✳	8270E	Total/NA
Pyrene	7.7		0.80	0.11	mg/Kg	25	✳	8270E	Total/NA
Barium	0.44	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.016	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0054	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.12		0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.6	J	3.8	0.92	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.14		0.010	0.0037	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	2.5		0.73	0.096	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.47	J	0.73	0.14	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.30	J	0.73	0.20	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.68	J	0.73	0.12	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	4.7		0.73	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	4.8		0.73	0.46	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	6.9		0.73	0.32	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	1.8		0.73	0.35	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	2.7		0.73	0.34	mg/Kg	20	✳	8270E	Total/NA
Chrysene	4.6		0.73	0.073	mg/Kg	20	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.45	J	0.73	0.34	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	1.0	J	2.4	0.63	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	7.5		0.73	0.22	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.50	J	0.73	0.13	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.8		0.73	0.36	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	1.9		0.73	0.12	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	3.6		0.73	0.11	mg/Kg	20	✳	8270E	Total/NA
Pyrene	7.3		0.73	0.10	mg/Kg	20	✳	8270E	Total/NA
Barium	0.28	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0032	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.012	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.93	J	2.2	0.53	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2624-N. DITCH (Continued)

Lab Sample ID: 240-180684-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.19	J	1.1	0.14	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	1.6		1.3	0.16	mg/Kg	50	☼	8270E	Total/NA
Benzo[a]anthracene	0.90	J	1.3	0.28	mg/Kg	50	☼	8270E	Total/NA
Benzo[b]fluoranthene	1.4		1.3	0.54	mg/Kg	50	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.76	J	1.3	0.59	mg/Kg	50	☼	8270E	Total/NA
Chrysene	0.97	J	1.3	0.12	mg/Kg	50	☼	8270E	Total/NA
Fluoranthene	1.5		1.3	0.37	mg/Kg	50	☼	8270E	Total/NA
Naphthalene	1.1	J	1.3	0.20	mg/Kg	50	☼	8270E	Total/NA
Phenanthrene	1.2	J	1.3	0.19	mg/Kg	50	☼	8270E	Total/NA
Pyrene	1.4		1.3	0.18	mg/Kg	50	☼	8270E	Total/NA
Arsenic	0.010	J	0.10	0.0081	mg/L	2		6010D	TCLP
Barium	0.49	J B	1.0	0.0027	mg/L	2		6010D	TCLP
Cadmium	0.0081	J	0.10	0.00041	mg/L	2		6010D	TCLP
Lead	0.22		0.10	0.0055	mg/L	2		6010D	TCLP
Silver	0.0016	J	0.10	0.0012	mg/L	2		6010D	TCLP

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.53	J	1.1	0.27	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.21		0.12	0.016	mg/Kg	6.667	☼	8270E	Total/NA
Acenaphthene	0.11	J	0.12	0.023	mg/Kg	6.667	☼	8270E	Total/NA
Anthracene	0.25		0.12	0.019	mg/Kg	6.667	☼	8270E	Total/NA
Benzo[a]anthracene	0.78		0.12	0.027	mg/Kg	6.667	☼	8270E	Total/NA
Benzo[a]pyrene	0.64		0.12	0.075	mg/Kg	6.667	☼	8270E	Total/NA
Benzo[b]fluoranthene	1.0		0.12	0.052	mg/Kg	6.667	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.16		0.12	0.057	mg/Kg	6.667	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.44		0.12	0.056	mg/Kg	6.667	☼	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.63		0.56	0.41	mg/Kg	6.667	☼	8270E	Total/NA
Carbazole	0.21	J	0.40	0.15	mg/Kg	6.667	☼	8270E	Total/NA
Chrysene	0.89		0.12	0.012	mg/Kg	6.667	☼	8270E	Total/NA
Dibenzofuran	0.14	J	0.40	0.10	mg/Kg	6.667	☼	8270E	Total/NA
Fluoranthene	2.0		0.12	0.036	mg/Kg	6.667	☼	8270E	Total/NA
Fluorene	0.15		0.12	0.022	mg/Kg	6.667	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.17		0.12	0.059	mg/Kg	6.667	☼	8270E	Total/NA
Naphthalene	0.17		0.12	0.019	mg/Kg	6.667	☼	8270E	Total/NA
Phenanthrene	1.3		0.12	0.018	mg/Kg	6.667	☼	8270E	Total/NA
Pyrene	1.6		0.12	0.017	mg/Kg	6.667	☼	8270E	Total/NA
Barium	0.89	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0019	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0041	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0083	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2405-N. DITCH

Lab Sample ID: 240-180684-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.0	J	1.9	0.45	mg/Kg	1	☼	8260D	Total/NA
Methyl acetate	0.62	J	2.3	0.31	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.88		0.23	0.030	mg/Kg	10	☼	8270E	Total/NA
Acenaphthene	0.052	J	0.23	0.044	mg/Kg	10	☼	8270E	Total/NA
Acenaphthylene	0.065	J	0.23	0.061	mg/Kg	10	☼	8270E	Total/NA
Anthracene	0.15	J	0.23	0.037	mg/Kg	10	☼	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2405-N. DITCH (Continued)

Lab Sample ID: 240-180684-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.63		0.23	0.052	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	0.87		0.23	0.14	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.7		0.23	0.099	mg/Kg	10	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.33		0.23	0.11	mg/Kg	10	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.57		0.23	0.11	mg/Kg	10	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.86	J	1.1	0.78	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.84		0.23	0.023	mg/Kg	10	✳	8270E	Total/NA
Dibenzofuran	0.30	J	0.76	0.20	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	1.2		0.23	0.068	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.063	J	0.23	0.042	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.31		0.23	0.11	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.56		0.23	0.037	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.77		0.23	0.034	mg/Kg	10	✳	8270E	Total/NA
Pyrene	1.1		0.23	0.033	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.11		0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.35	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0022	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.035	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-COMP2-N. DITCH

Lab Sample ID: 240-180684-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid	0.78		0.76	0.25	ng/g	1	✳	537 IDA	Total/NA

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	2.6		1.0	0.24	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.091	J	0.25	0.042	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.27	J	1.2	0.17	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.11	J	0.50	0.066	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.29	J	0.32	0.041	mg/Kg	20	✳	8270E	Total/NA
Acenaphthene	0.32		0.32	0.061	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.84		0.32	0.051	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	4.7		0.32	0.072	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	4.8		0.32	0.20	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	8.5		0.32	0.14	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	2.0		0.32	0.15	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	3.0		0.32	0.15	mg/Kg	20	✳	8270E	Total/NA
Butyl benzyl phthalate	1.2	J	1.5	0.47	mg/Kg	20	✳	8270E	Total/NA
Carbazole	1.6		1.1	0.40	mg/Kg	20	✳	8270E	Total/NA
Chrysene	7.2		0.32	0.032	mg/Kg	20	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.59		0.32	0.15	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	15		0.32	0.094	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.41		0.32	0.058	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	2.0		0.32	0.16	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	0.23	J	0.32	0.051	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	6.9		0.32	0.047	mg/Kg	20	✳	8270E	Total/NA
Pyrene	12		0.32	0.045	mg/Kg	20	✳	8270E	Total/NA
Barium	0.48	J	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0017	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0080	J	0.050	0.0028	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-RT1538A-ST. SWEEPINGS (Continued)

Lab Sample ID: 240-180684-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Silver	0.00083	J	0.050	0.00062	mg/L	1		6010D	TCLP

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Date Collected: 02/20/23 10:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.25	0.079	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.068	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,1,2-Trichloroethane	ND		0.25	0.058	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,1-Dichloroethane	ND		0.25	0.049	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,1-Dichloroethene	ND		0.25	0.083	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,2-Dibromo-3-Chloropropane	ND		0.51	0.22	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Ethylene Dibromide	ND		0.25	0.080	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,2-Dichloroethane	0.092	J	0.25	0.048	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,2-Dichloropropane	ND		0.25	0.038	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,3-Dichlorobenzene	ND		0.25	0.047	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
1,4-Dichlorobenzene	ND		0.25	0.056	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
2-Hexanone	ND		1.0	0.27	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Acetone	0.38	J	1.0	0.25	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Benzene	3.4		0.25	0.043	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Dichlorobromomethane	ND		0.25	0.062	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Bromoform	ND		0.25	0.23	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Bromomethane	ND		0.25	0.17	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Carbon disulfide	ND		0.25	0.11	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Chlorobenzene	ND		0.25	0.035	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Chloroethane	ND		0.25	0.15	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Chloroform	ND		0.25	0.055	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Chloromethane	ND		0.25	0.067	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
cis-1,2-Dichloroethene	ND		0.25	0.041	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
cis-1,3-Dichloropropene	ND		0.25	0.13	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Cyclohexane	ND		0.51	0.17	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Dichlorodifluoromethane	ND		0.25	0.054	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Ethylbenzene	ND		0.25	0.048	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Isopropylbenzene	ND		0.25	0.039	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Methyl acetate	0.25	J	1.3	0.17	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Methyl tert-butyl ether	ND		0.25	0.038	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Methylcyclohexane	0.35	J	0.51	0.067	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Methylene Chloride	ND		0.51	0.39	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Styrene	ND		0.25	0.053	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Tetrachloroethene	ND		0.25	0.098	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Toluene	ND		0.25	0.24	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
trans-1,2-Dichloroethene	ND		0.25	0.063	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Trichloroethene	ND		0.25	0.14	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1
Vinyl chloride	9.2		1.3	0.62	mg/Kg	✳	02/21/23 13:30	02/24/23 14:32	5
Xylenes, Total	0.12	J	0.51	0.092	mg/Kg	✳	02/21/23 13:30	02/23/23 18:28	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Date Collected: 02/20/23 10:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/21/23 13:30	02/23/23 18:28	1
Toluene-d8 (Surr)	107		56 - 125	02/21/23 13:30	02/24/23 14:32	5
Dibromofluoromethane (Surr)	97		41 - 138	02/21/23 13:30	02/23/23 18:28	1
Dibromofluoromethane (Surr)	105		41 - 138	02/21/23 13:30	02/24/23 14:32	5
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 13:30	02/23/23 18:28	1
4-Bromofluorobenzene (Surr)	108		41 - 143	02/21/23 13:30	02/24/23 14:32	5
1,2-Dichloroethane-d4 (Surr)	108		58 - 125	02/21/23 13:30	02/23/23 18:28	1
1,2-Dichloroethane-d4 (Surr)	112		58 - 125	02/21/23 13:30	02/24/23 14:32	5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.61	0.21	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
bis (2-chloroisopropyl) ether	ND		1.2	0.12	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,4,5-Trichlorophenol	ND		1.8	0.84	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,4,6-Trichlorophenol	ND		1.8	0.78	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,4-Dichlorophenol	ND		1.8	0.54	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,4-Dimethylphenol	ND		1.8	0.49	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,4-Dinitrophenol	ND		4.0	1.7	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,4-Dinitrotoluene	ND		2.4	0.76	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2,6-Dinitrotoluene	ND		2.4	0.69	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2-Chloronaphthalene	ND		0.61	0.17	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2-Chlorophenol	ND		0.61	0.12	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2-Methylnaphthalene	0.48		0.18	0.024	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2-Methylphenol	ND		2.4	0.38	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2-Nitroaniline	ND		2.4	0.49	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
2-Nitrophenol	ND		0.61	0.16	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
3,3'-Dichlorobenzidine	ND		1.2	0.53	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
3-Nitroaniline	ND		2.4	0.60	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4,6-Dinitro-2-methylphenol	ND		4.0	0.98	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4-Bromophenyl phenyl ether	ND		0.61	0.17	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4-Chloro-3-methylphenol	ND		1.8	0.55	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4-Chloroaniline	ND		1.8	0.37	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4-Chlorophenyl phenyl ether	ND		0.61	0.17	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4-Nitroaniline	ND		2.4	0.73	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
4-Nitrophenol	ND		4.0	1.2	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Acenaphthene	ND		0.18	0.035	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Acenaphthylene	ND		0.18	0.049	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Acetophenone	ND		1.2	0.13	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Anthracene	0.059	J	0.18	0.029	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Atrazine	ND		2.4	0.44	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Benzaldehyde	ND		1.2	0.28	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Benzo[a]anthracene	0.21		0.18	0.042	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Benzo[a]pyrene	0.13	J	0.18	0.11	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Benzo[b]fluoranthene	0.22		0.18	0.080	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Benzo[g,h,i]perylene	ND		0.18	0.087	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Benzo[k]fluoranthene	0.087	J	0.18	0.085	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Bis(2-chloroethoxy)methane	ND		1.2	0.15	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Bis(2-chloroethyl)ether	ND		1.2	0.15	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Bis(2-ethylhexyl) phthalate	ND		0.86	0.62	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10
Butyl benzyl phthalate	ND		0.86	0.27	mg/Kg	☼	02/22/23 09:34	02/24/23 15:47	10

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Date Collected: 02/20/23 10:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		4.0	0.92	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Carbazole	ND		0.61	0.23	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Chrysene	0.21		0.18	0.018	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Dibenz(a,h)anthracene	ND		0.18	0.085	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Dibenzofuran	ND		0.61	0.16	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Diethyl phthalate	ND		0.86	0.38	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Dimethyl phthalate	ND		0.86	0.17	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Di-n-butyl phthalate	ND		0.86	0.62	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Di-n-octyl phthalate	ND		0.86	0.34	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Fluoranthene	0.23		0.18	0.054	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Fluorene	0.059	J	0.18	0.034	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Hexachlorobenzene	ND		0.18	0.035	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Hexachlorobutadiene	ND		0.61	0.15	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Hexachlorocyclopentadiene	ND		4.0	0.76	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Hexachloroethane	ND		0.61	0.11	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Indeno[1,2,3-cd]pyrene	ND		0.18	0.090	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Isophorone	ND		0.61	0.15	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
N-Nitrosodi-n-propylamine	ND		0.61	0.13	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
N-Nitrosodiphenylamine	ND		0.61	0.15	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Naphthalene	0.50		0.18	0.029	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Nitrobenzene	ND		1.2	0.16	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Pentachlorophenol	ND		1.8	0.71	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Phenanthrene	0.36		0.18	0.027	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Phenol	ND		0.61	0.098	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
Pyrene	0.33		0.18	0.026	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10
3 & 4 Methylphenol	ND		4.9	0.35	mg/Kg	✳	02/22/23 09:34	02/24/23 15:47	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	108		46 - 137	02/22/23 09:34	02/24/23 15:47	10
Phenol-d5 (Surr)	86		26 - 120	02/22/23 09:34	02/24/23 15:47	10
Nitrobenzene-d5 (Surr)	85		25 - 120	02/22/23 09:34	02/24/23 15:47	10
2-Fluorophenol (Surr)	79		20 - 120	02/22/23 09:34	02/24/23 15:47	10
2-Fluorobiphenyl (Surr)	85		34 - 120	02/22/23 09:34	02/24/23 15:47	10
2,4,6-Tribromophenol (Surr)	55		10 - 120	02/22/23 09:34	02/24/23 15:47	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:19	1
Barium	1.3	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:19	1
Cadmium	0.0030	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:19	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:19	1
Lead	0.015	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:19	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:19	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:19	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00084	J	0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:38	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Date Collected: 02/20/23 10:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.9		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	19.1		0.1	0.1	%			02/21/23 14:25	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-02 (6-7)

Lab Sample ID: 240-180684-2

Date Collected: 02/20/23 10:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 76.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.30	0.092	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,1,2,2-Tetrachloroethane	ND		0.30	0.18	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.30	0.079	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,1,2-Trichloroethane	ND		0.30	0.067	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,1-Dichloroethane	ND		0.30	0.057	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,1-Dichloroethene	ND		0.30	0.097	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,2,4-Trichlorobenzene	ND		0.30	0.16	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,2-Dibromo-3-Chloropropane	ND		0.59	0.26	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Ethylene Dibromide	ND		0.30	0.094	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,2-Dichlorobenzene	ND		0.30	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,2-Dichloroethane	ND		0.30	0.056	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,2-Dichloropropane	ND		0.30	0.044	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,3-Dichlorobenzene	ND		0.30	0.054	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
1,4-Dichlorobenzene	ND		0.30	0.065	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
2-Butanone (MEK)	ND		1.2	0.19	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
2-Hexanone	ND		1.2	0.31	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
4-Methyl-2-pentanone (MIBK)	ND		1.2	0.28	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Acetone	0.70	J	1.2	0.29	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Benzene	1.8		0.30	0.050	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Dichlorobromomethane	ND		0.30	0.072	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Bromoform	ND		0.30	0.27	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Bromomethane	ND		0.30	0.20	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Carbon disulfide	ND		0.30	0.13	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Carbon tetrachloride	ND		0.30	0.12	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Chlorobenzene	ND		0.30	0.041	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Chloroethane	ND		0.30	0.18	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Chloroform	ND		0.30	0.064	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Chloromethane	ND		0.30	0.078	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
cis-1,2-Dichloroethene	ND		0.30	0.047	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
cis-1,3-Dichloropropene	ND		0.30	0.15	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Cyclohexane	ND		0.59	0.19	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Chlorodibromomethane	ND		0.30	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Dichlorodifluoromethane	ND		0.30	0.063	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Ethylbenzene	ND		0.30	0.056	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Isopropylbenzene	ND		0.30	0.045	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Methyl acetate	0.29	J	1.5	0.20	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Methyl tert-butyl ether	ND		0.30	0.044	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Methylcyclohexane	0.12	J	0.59	0.078	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Methylene Chloride	ND		0.59	0.45	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Styrene	ND		0.30	0.062	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Tetrachloroethene	ND		0.30	0.11	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Toluene	ND		0.30	0.28	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
trans-1,2-Dichloroethene	ND		0.30	0.073	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
trans-1,3-Dichloropropene	ND		0.30	0.12	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Trichloroethene	ND		0.30	0.17	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Trichlorofluoromethane	ND		0.30	0.16	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Vinyl chloride	1.7		0.30	0.15	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1
Xylenes, Total	ND		0.59	0.11	mg/Kg	✱	02/21/23 19:38	02/23/23 19:43	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-02 (6-7)

Lab Sample ID: 240-180684-2

Date Collected: 02/20/23 10:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 76.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/23/23 19:43	1
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 19:38	02/23/23 19:43	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/21/23 19:38	02/23/23 19:43	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125	02/21/23 19:38	02/23/23 19:43	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.089	J	0.13	0.045	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
bis (2-chloroisopropyl) ether	ND		0.26	0.026	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,4,5-Trichlorophenol	ND		0.39	0.18	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,4,6-Trichlorophenol	ND		0.39	0.17	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,4-Dichlorophenol	ND		0.39	0.12	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,4-Dimethylphenol	ND		0.39	0.11	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,4-Dinitrophenol	ND		0.87	0.37	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,4-Dinitrotoluene	ND		0.53	0.16	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2,6-Dinitrotoluene	ND		0.53	0.15	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2-Chloronaphthalene	ND		0.13	0.037	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2-Chlorophenol	ND		0.13	0.026	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2-Methylnaphthalene	0.45		0.039	0.0052	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2-Methylphenol	ND		0.53	0.081	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2-Nitroaniline	ND		0.53	0.11	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
2-Nitrophenol	ND		0.13	0.034	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
3,3'-Dichlorobenzidine	ND		0.26	0.11	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
3-Nitroaniline	ND		0.53	0.13	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4,6-Dinitro-2-methylphenol	ND		0.87	0.21	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4-Bromophenyl phenyl ether	ND		0.13	0.037	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4-Chloro-3-methylphenol	ND		0.39	0.12	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4-Chloroaniline	ND		0.39	0.079	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4-Chlorophenyl phenyl ether	ND		0.13	0.037	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4-Nitroaniline	ND		0.53	0.16	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
4-Nitrophenol	ND		0.87	0.25	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Acenaphthene	0.082		0.039	0.0075	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Acenaphthylene	0.053		0.039	0.011	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Acetophenone	0.13	J	0.26	0.029	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Anthracene	0.16		0.039	0.0063	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Atrazine	ND		0.53	0.095	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Benzaldehyde	ND		0.26	0.060	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Benzo[a]anthracene	0.39		0.039	0.0090	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Benzo[a]pyrene	0.33		0.039	0.025	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Benzo[b]fluoranthene	0.49		0.039	0.017	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Benzo[g,h,i]perylene	0.23		0.039	0.019	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Benzo[k]fluoranthene	0.13		0.039	0.018	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Bis(2-chloroethoxy)methane	ND		0.26	0.032	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Bis(2-chloroethyl)ether	ND		0.26	0.032	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Bis(2-ethylhexyl) phthalate	0.17	J	0.18	0.13	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Butyl benzyl phthalate	ND		0.18	0.058	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Caprolactam	ND		0.87	0.20	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Carbazole	ND		0.13	0.050	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Chrysene	0.68		0.039	0.0039	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2
Dibenz(a,h)anthracene	0.072		0.039	0.018	mg/Kg	☆	02/22/23 09:34	02/25/23 16:59	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-02 (6-7)

Lab Sample ID: 240-180684-2

Date Collected: 02/20/23 10:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 76.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.11	J	0.13	0.034	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Diethyl phthalate	ND		0.18	0.081	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Dimethyl phthalate	ND		0.18	0.037	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Di-n-butyl phthalate	ND		0.18	0.13	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Di-n-octyl phthalate	ND		0.18	0.074	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Fluoranthene	0.74		0.039	0.012	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Fluorene	0.22		0.039	0.0072	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Hexachlorobenzene	ND		0.039	0.0075	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Hexachlorobutadiene	ND		0.13	0.032	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Hexachlorocyclopentadiene	ND		0.87	0.16	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Hexachloroethane	ND		0.13	0.024	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Indeno[1,2,3-cd]pyrene	0.18		0.039	0.019	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Isophorone	ND		0.13	0.032	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
N-Nitrosodi-n-propylamine	ND		0.13	0.029	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
N-Nitrosodiphenylamine	ND		0.13	0.032	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Naphthalene	0.44		0.039	0.0063	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Nitrobenzene	ND		0.26	0.034	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Pentachlorophenol	ND		0.39	0.15	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Phenanthrene	0.92		0.039	0.0059	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Phenol	ND		0.13	0.021	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
Pyrene	0.66		0.039	0.0056	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2
3 & 4 Methylphenol	ND		1.1	0.076	mg/Kg	✱	02/22/23 09:34	02/25/23 16:59	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	67		46 - 137	02/22/23 09:34	02/25/23 16:59	2
Phenol-d5 (Surr)	46		26 - 120	02/22/23 09:34	02/25/23 16:59	2
Nitrobenzene-d5 (Surr)	43		25 - 120	02/22/23 09:34	02/25/23 16:59	2
2-Fluorophenol (Surr)	45		20 - 120	02/22/23 09:34	02/25/23 16:59	2
2-Fluorobiphenyl (Surr)	58		34 - 120	02/22/23 09:34	02/25/23 16:59	2
2,4,6-Tribromophenol (Surr)	62		10 - 120	02/22/23 09:34	02/25/23 16:59	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0084	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:23	1
Barium	0.55	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:23	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:23	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:23	1
Lead	0.0044	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:23	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:23	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:23	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	76.7		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	23.3		0.1	0.1	%			02/21/23 14:25	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-03 (7-8)

Lab Sample ID: 240-180684-3

Date Collected: 02/20/23 10:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 83.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.26	0.081	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,1,2,2-Tetrachloroethane	ND		0.26	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.26	0.070	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,1,2-Trichloroethane	ND		0.26	0.060	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,1-Dichloroethane	ND		0.26	0.050	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,1-Dichloroethene	ND		0.26	0.086	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,2,4-Trichlorobenzene	ND		0.26	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,2-Dibromo-3-Chloropropane	ND		0.52	0.23	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Ethylene Dibromide	ND		0.26	0.082	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,2-Dichlorobenzene	ND		0.26	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,2-Dichloroethane	ND		0.26	0.049	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,2-Dichloropropane	ND		0.26	0.039	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,3-Dichlorobenzene	ND		0.26	0.048	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
1,4-Dichlorobenzene	ND		0.26	0.057	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
2-Hexanone	ND		1.0	0.27	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.25	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Acetone	0.60	J	1.0	0.25	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Benzene	2.2		0.26	0.044	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Dichlorobromomethane	ND		0.26	0.064	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Bromoform	ND		0.26	0.24	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Bromomethane	ND		0.26	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Carbon disulfide	ND		0.26	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Carbon tetrachloride	ND		0.26	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Chlorobenzene	ND		0.26	0.037	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Chloroethane	ND		0.26	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Chloroform	ND		0.26	0.056	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Chloromethane	ND		0.26	0.069	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
cis-1,2-Dichloroethene	ND		0.26	0.042	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
cis-1,3-Dichloropropene	ND		0.26	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Cyclohexane	ND		0.52	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Chlorodibromomethane	ND		0.26	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Dichlorodifluoromethane	ND		0.26	0.055	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Ethylbenzene	ND		0.26	0.049	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Isopropylbenzene	ND		0.26	0.040	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Methyl acetate	ND		1.3	0.18	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Methyl tert-butyl ether	ND		0.26	0.039	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Methylcyclohexane	0.19	J	0.52	0.069	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Methylene Chloride	ND		0.52	0.40	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Styrene	ND		0.26	0.054	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Tetrachloroethene	ND		0.26	0.10	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Toluene	ND		0.26	0.25	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
trans-1,2-Dichloroethene	ND		0.26	0.065	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
trans-1,3-Dichloropropene	ND		0.26	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Trichloroethene	ND		0.26	0.15	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Trichlorofluoromethane	ND		0.26	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Vinyl chloride	1.4		0.26	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1
Xylenes, Total	0.18	J	0.52	0.095	mg/Kg	✳	02/21/23 19:38	02/23/23 20:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-03 (7-8)

Lab Sample ID: 240-180684-3

Date Collected: 02/20/23 10:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 83.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		56 - 125	02/21/23 19:38	02/23/23 20:08	1
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 19:38	02/23/23 20:08	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/21/23 19:38	02/23/23 20:08	1
1,2-Dichloroethane-d4 (Surr)	104		58 - 125	02/21/23 19:38	02/23/23 20:08	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.14		0.060	0.020	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
bis (2-chloroisopropyl) ether	ND		0.12	0.012	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,4,5-Trichlorophenol	ND		0.18	0.083	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,4,6-Trichlorophenol	ND		0.18	0.077	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,4-Dichlorophenol	ND		0.18	0.053	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,4-Dimethylphenol	ND		0.18	0.048	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,4-Dinitrophenol	ND		0.40	0.17	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,4-Dinitrotoluene	ND		0.24	0.075	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2,6-Dinitrotoluene	ND		0.24	0.067	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2-Chloronaphthalene	ND		0.060	0.017	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2-Chlorophenol	ND		0.060	0.012	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2-Methylnaphthalene	0.76		0.018	0.0024	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2-Methylphenol	ND		0.24	0.037	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2-Nitroaniline	ND		0.24	0.048	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
2-Nitrophenol	ND		0.060	0.016	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
3,3'-Dichlorobenzidine	ND		0.12	0.052	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
3-Nitroaniline	ND		0.24	0.059	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4,6-Dinitro-2-methylphenol	ND		0.40	0.096	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4-Bromophenyl phenyl ether	ND		0.060	0.017	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4-Chloro-3-methylphenol	ND		0.18	0.054	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4-Chloroaniline	ND		0.18	0.036	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4-Chlorophenyl phenyl ether	ND		0.060	0.017	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4-Nitroaniline	ND		0.24	0.072	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
4-Nitrophenol	ND		0.40	0.11	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Acenaphthene	0.055		0.018	0.0034	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Acenaphthylene	0.055		0.018	0.0048	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Acetophenone	0.17		0.12	0.013	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Anthracene	0.099		0.018	0.0029	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Atrazine	ND		0.24	0.043	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Benzaldehyde	ND		0.12	0.028	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Benzo[a]anthracene	0.26		0.018	0.0041	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Benzo[a]pyrene	0.22		0.018	0.011	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Benzo[b]fluoranthene	0.36		0.018	0.0078	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Benzo[g,h,i]perylene	0.14		0.018	0.0085	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Benzo[k]fluoranthene	0.11		0.018	0.0083	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Bis(2-chloroethoxy)methane	ND		0.12	0.014	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Bis(2-chloroethyl)ether	ND		0.12	0.014	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Bis(2-ethylhexyl) phthalate	0.073 J		0.084	0.061	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Butyl benzyl phthalate	ND		0.084	0.026	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Caprolactam	ND		0.40	0.090	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Carbazole	0.036 J		0.060	0.023	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Chrysene	0.44		0.018	0.0018	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1
Dibenz(a,h)anthracene	0.049		0.018	0.0083	mg/Kg	☆	02/22/23 09:34	02/24/23 13:22	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-03 (7-8)

Lab Sample ID: 240-180684-3

Date Collected: 02/20/23 10:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 83.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.20		0.060	0.016	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Diethyl phthalate	ND		0.084	0.037	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Dimethyl phthalate	ND		0.084	0.017	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Di-n-butyl phthalate	0.084		0.084	0.061	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Di-n-octyl phthalate	ND		0.084	0.034	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Fluoranthene	0.36		0.018	0.0054	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Fluorene	0.087		0.018	0.0033	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Hexachlorobenzene	ND		0.018	0.0034	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Hexachlorobutadiene	ND		0.060	0.014	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Hexachlorocyclopentadiene	ND		0.40	0.075	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Hexachloroethane	ND		0.060	0.011	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Indeno[1,2,3-cd]pyrene	0.11		0.018	0.0088	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Isophorone	ND		0.060	0.014	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
N-Nitrosodi-n-propylamine	ND		0.060	0.013	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
N-Nitrosodiphenylamine	ND		0.060	0.014	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Naphthalene	0.63		0.018	0.0029	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Nitrobenzene	ND		0.12	0.016	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Pentachlorophenol	ND		0.18	0.070	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Phenanthrene	0.65		0.018	0.0027	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Phenol	ND		0.060	0.0096	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
Pyrene	0.39		0.018	0.0026	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1
3 & 4 Methylphenol	ND		0.48	0.035	mg/Kg	✱	02/22/23 09:34	02/24/23 13:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	64		46 - 137	02/22/23 09:34	02/24/23 13:22	1
Phenol-d5 (Surr)	58		26 - 120	02/22/23 09:34	02/24/23 13:22	1
Nitrobenzene-d5 (Surr)	57		25 - 120	02/22/23 09:34	02/24/23 13:22	1
2-Fluorophenol (Surr)	46		20 - 120	02/22/23 09:34	02/24/23 13:22	1
2-Fluorobiphenyl (Surr)	62		34 - 120	02/22/23 09:34	02/24/23 13:22	1
2,4,6-Tribromophenol (Surr)	45		10 - 120	02/22/23 09:34	02/24/23 13:22	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0073	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:27	1
Barium	0.88	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:27	1
Cadmium	0.0022	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:27	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:27	1
Lead	0.0098	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:27	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:27	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:27	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0017	J	0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.1		0.1	0.1	%			02/22/23 11:26	1
Percent Moisture (EPA Moisture)	16.9		0.1	0.1	%			02/22/23 11:26	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-04 (4-5)

Lab Sample ID: 240-180684-4

Date Collected: 02/20/23 11:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 98.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.17	0.054	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,1,2,2-Tetrachloroethane	ND		0.17	0.10	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.17	0.046	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,1,2-Trichloroethane	ND		0.17	0.039	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,1-Dichloroethane	ND		0.17	0.033	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,1-Dichloroethene	ND		0.17	0.056	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,2,4-Trichlorobenzene	ND		0.17	0.091	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,2-Dibromo-3-Chloropropane	ND		0.34	0.15	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Ethylene Dibromide	ND		0.17	0.054	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,2-Dichlorobenzene	ND		0.17	0.082	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,2-Dichloroethane	ND		0.17	0.032	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,2-Dichloropropane	ND		0.17	0.025	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,3-Dichlorobenzene	ND		0.17	0.032	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
1,4-Dichlorobenzene	ND		0.17	0.038	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
2-Butanone (MEK)	ND		0.69	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
2-Hexanone	ND		0.69	0.18	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
4-Methyl-2-pentanone (MIBK)	ND		0.69	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Acetone	0.38	J	0.69	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Benzene	2.7		0.17	0.029	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Dichlorobromomethane	ND		0.17	0.042	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Bromoform	ND		0.17	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Bromomethane	ND		0.17	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Carbon disulfide	ND		0.17	0.074	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Carbon tetrachloride	ND		0.17	0.070	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Chlorobenzene	ND		0.17	0.024	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Chloroethane	ND		0.17	0.10	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Chloroform	ND		0.17	0.037	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Chloromethane	ND		0.17	0.045	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
cis-1,2-Dichloroethene	ND		0.17	0.027	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
cis-1,3-Dichloropropene	ND		0.17	0.085	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Cyclohexane	ND		0.34	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Chlorodibromomethane	ND		0.17	0.080	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Dichlorodifluoromethane	ND		0.17	0.036	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Ethylbenzene	ND		0.17	0.032	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Isopropylbenzene	ND		0.17	0.026	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Methyl acetate	0.12	J	0.86	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Methyl tert-butyl ether	ND		0.17	0.025	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Methylcyclohexane	0.088	J	0.34	0.045	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Methylene Chloride	ND		0.34	0.26	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Styrene	ND		0.17	0.036	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Tetrachloroethene	ND		0.17	0.067	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Toluene	ND		0.17	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
trans-1,2-Dichloroethene	ND		0.17	0.043	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
trans-1,3-Dichloropropene	ND		0.17	0.072	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Trichloroethene	ND		0.17	0.098	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Trichlorofluoromethane	ND		0.17	0.094	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Vinyl chloride	2.4		0.17	0.084	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1
Xylenes, Total	0.11	J	0.34	0.062	mg/Kg	✳	02/21/23 19:38	02/23/23 20:34	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-04 (4-5)

Lab Sample ID: 240-180684-4

Date Collected: 02/20/23 11:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 98.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/23/23 20:34	1
Dibromofluoromethane (Surr)	94		41 - 138	02/21/23 19:38	02/23/23 20:34	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/23/23 20:34	1
1,2-Dichloroethane-d4 (Surr)	104		58 - 125	02/21/23 19:38	02/23/23 20:34	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.083	J	0.20	0.069	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
bis (2-chloroisopropyl) ether	ND		0.40	0.040	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,4,5-Trichlorophenol	ND		0.60	0.28	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,4,6-Trichlorophenol	ND		0.60	0.26	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,4-Dichlorophenol	ND		0.60	0.18	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,4-Dimethylphenol	ND		0.60	0.16	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,4-Dinitrophenol	ND		1.3	0.57	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,4-Dinitrotoluene	ND		0.81	0.25	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2,6-Dinitrotoluene	ND		0.81	0.23	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2-Chloronaphthalene	ND		0.20	0.056	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2-Chlorophenol	ND		0.20	0.040	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2-Methylnaphthalene	0.32		0.060	0.0079	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2-Methylphenol	ND		0.81	0.12	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2-Nitroaniline	ND		0.81	0.16	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
2-Nitrophenol	ND		0.20	0.052	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
3,3'-Dichlorobenzidine	ND		0.40	0.17	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
3-Nitroaniline	ND		0.81	0.20	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4,6-Dinitro-2-methylphenol	ND		1.3	0.32	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4-Bromophenyl phenyl ether	ND		0.20	0.056	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4-Chloro-3-methylphenol	ND		0.60	0.18	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4-Chloroaniline	ND		0.60	0.12	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4-Chlorophenyl phenyl ether	ND		0.20	0.056	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4-Nitroaniline	ND		0.81	0.24	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
4-Nitrophenol	ND		1.3	0.38	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Acenaphthene	0.046	J	0.060	0.012	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Acenaphthylene	0.039	J	0.060	0.016	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Acetophenone	ND		0.40	0.044	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Anthracene	0.071		0.060	0.0097	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Atrazine	ND		0.81	0.15	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Benzaldehyde	ND		0.40	0.093	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Benzo[a]anthracene	0.22		0.060	0.014	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Benzo[a]pyrene	0.18		0.060	0.038	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Benzo[b]fluoranthene	0.32		0.060	0.026	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Benzo[g,h,i]perylene	0.12		0.060	0.029	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Benzo[k]fluoranthene	0.094		0.060	0.028	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Bis(2-chloroethoxy)methane	ND		0.40	0.048	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Bis(2-chloroethyl)ether	ND		0.40	0.048	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Bis(2-ethylhexyl) phthalate	ND		0.28	0.21	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Butyl benzyl phthalate	ND		0.28	0.089	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Caprolactam	ND		1.3	0.30	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Carbazole	ND		0.20	0.077	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Chrysene	0.29		0.060	0.0060	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4
Dibenz(a,h)anthracene	ND		0.060	0.028	mg/Kg	☆	02/22/23 09:34	02/24/23 15:23	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-04 (4-5)

Lab Sample ID: 240-180684-4

Date Collected: 02/20/23 11:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 98.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.11	J	0.20	0.052	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Diethyl phthalate	ND		0.28	0.12	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Dimethyl phthalate	ND		0.28	0.056	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Di-n-butyl phthalate	ND		0.28	0.20	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Di-n-octyl phthalate	ND		0.28	0.11	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Fluoranthene	0.36		0.060	0.018	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Fluorene	0.073		0.060	0.011	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Hexachlorobenzene	ND		0.060	0.011	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Hexachlorobutadiene	ND		0.20	0.048	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Hexachlorocyclopentadiene	ND		1.3	0.25	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Hexachloroethane	ND		0.20	0.036	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Indeno[1,2,3-cd]pyrene	0.094		0.060	0.030	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Isophorone	ND		0.20	0.048	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
N-Nitrosodi-n-propylamine	ND		0.20	0.044	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
N-Nitrosodiphenylamine	ND		0.20	0.048	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Naphthalene	0.37		0.060	0.0097	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Nitrobenzene	ND		0.40	0.052	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Pentachlorophenol	ND		0.60	0.23	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Phenanthrene	0.45		0.060	0.0090	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Phenol	ND		0.20	0.032	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
Pyrene	0.42		0.060	0.0086	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4
3 & 4 Methylphenol	ND		1.6	0.12	mg/Kg	✳	02/22/23 09:34	02/24/23 15:23	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	71		46 - 137	02/22/23 09:34	02/24/23 15:23	4
Phenol-d5 (Surr)	60		26 - 120	02/22/23 09:34	02/24/23 15:23	4
Nitrobenzene-d5 (Surr)	63		25 - 120	02/22/23 09:34	02/24/23 15:23	4
2-Fluorophenol (Surr)	56		20 - 120	02/22/23 09:34	02/24/23 15:23	4
2-Fluorobiphenyl (Surr)	61		34 - 120	02/22/23 09:34	02/24/23 15:23	4
2,4,6-Tribromophenol (Surr)	44		10 - 120	02/22/23 09:34	02/24/23 15:23	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0074	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:32	1
Barium	1.0	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:32	1
Cadmium	0.0027	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:32	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:32	1
Lead	0.0070	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:32	1
Selenium	0.0065	J	0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:32	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:32	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	98.6		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	1.4		0.1	0.1	%			02/21/23 14:25	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-05 (5-6)

Lab Sample ID: 240-180684-5

Date Collected: 02/20/23 11:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 72.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		14	4.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,1,2,2-Tetrachloroethane	ND		14	8.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		14	3.8	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,1,2-Trichloroethane	ND		14	3.2	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,1-Dichloroethane	ND		14	2.7	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,1-Dichloroethene	ND		14	4.6	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,2,4-Trichlorobenzene	ND		14	7.5	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,2-Dibromo-3-Chloropropane	ND		28	12	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Ethylene Dibromide	ND		14	4.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,2-Dichlorobenzene	ND		14	6.7	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,2-Dichloroethane	ND		14	2.6	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,2-Dichloropropane	ND		14	2.1	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,3-Dichlorobenzene	ND		14	2.6	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
1,4-Dichlorobenzene	ND		14	3.1	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
2-Butanone (MEK)	ND		56	8.8	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
2-Hexanone	ND		56	15	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
4-Methyl-2-pentanone (MIBK)	ND		56	13	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Acetone	ND		56	14	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Benzene	55		14	2.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Dichlorobromomethane	ND		14	3.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Bromoform	ND		14	13	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Bromomethane	ND		14	9.3	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Carbon disulfide	ND		14	6.1	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Carbon tetrachloride	ND		14	5.7	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Chlorobenzene	ND		14	2.0	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Chloroethane	ND		14	8.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Chloroform	ND		14	3.0	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Chloromethane	ND		14	3.7	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
cis-1,2-Dichloroethene	ND		14	2.2	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
cis-1,3-Dichloropropene	ND		14	7.0	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Cyclohexane	ND		28	9.2	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Chlorodibromomethane	ND		14	6.6	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Dichlorodifluoromethane	ND		14	3.0	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Ethylbenzene	ND		14	2.6	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Isopropylbenzene	ND		14	2.1	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Methyl acetate	ND		70	9.4	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Methyl tert-butyl ether	ND		14	2.1	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Methylcyclohexane	ND		28	3.7	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Methylene Chloride	ND		28	22	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Styrene	ND		14	2.9	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Tetrachloroethene	ND		14	5.5	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Toluene	ND		14	13	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
trans-1,2-Dichloroethene	ND		14	3.5	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
trans-1,3-Dichloropropene	ND		14	5.9	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Trichloroethene	ND		14	8.0	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Trichlorofluoromethane	ND		14	7.7	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Vinyl chloride	85		14	6.9	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40
Xylenes, Total	ND		28	5.1	mg/Kg	✱	02/21/23 19:38	02/24/23 14:57	40

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-05 (5-6)

Lab Sample ID: 240-180684-5

Date Collected: 02/20/23 11:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 72.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/24/23 14:57	40
Dibromofluoromethane (Surr)	105		41 - 138	02/21/23 19:38	02/24/23 14:57	40
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/24/23 14:57	40
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/21/23 19:38	02/24/23 14:57	40

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.4	0.47	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
bis (2-chloroisopropyl) ether	ND		2.7	0.27	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,4,5-Trichlorophenol	ND		4.1	1.9	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,4,6-Trichlorophenol	ND		4.1	1.8	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,4-Dichlorophenol	ND		4.1	1.2	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,4-Dimethylphenol	ND		4.1	1.1	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,4-Dinitrophenol	ND		9.0	3.9	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,4-Dinitrotoluene	ND		5.5	1.7	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2,6-Dinitrotoluene	ND		5.5	1.5	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2-Chloronaphthalene	ND		1.4	0.38	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2-Chlorophenol	ND		1.4	0.27	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2-Methylnaphthalene	0.46		0.41	0.054	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2-Methylphenol	ND		5.5	0.85	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2-Nitroaniline	ND		5.5	1.1	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
2-Nitrophenol	ND		1.4	0.36	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
3,3'-Dichlorobenzidine	ND		2.7	1.2	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
3-Nitroaniline	ND		5.5	1.3	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4,6-Dinitro-2-methylphenol	ND		9.0	2.2	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4-Bromophenyl phenyl ether	ND		1.4	0.38	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4-Chloro-3-methylphenol	ND		4.1	1.2	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4-Chloroaniline	ND		4.1	0.82	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4-Chlorophenyl phenyl ether	ND		1.4	0.38	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4-Nitroaniline	ND		5.5	1.6	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
4-Nitrophenol	ND		9.0	2.6	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Acenaphthene	ND		0.41	0.078	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Acenaphthylene	ND		0.41	0.11	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Acetophenone	ND		2.7	0.30	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Anthracene	0.12	J	0.41	0.066	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Atrazine	ND		5.5	0.99	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Benzaldehyde	ND		2.7	0.63	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Benzo[a]anthracene	0.30	J	0.41	0.093	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Benzo[a]pyrene	ND		0.41	0.26	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Benzo[b]fluoranthene	0.39	J	0.41	0.18	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Benzo[g,h,i]perylene	ND		0.41	0.19	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Benzo[k]fluoranthene	ND		0.41	0.19	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Bis(2-chloroethoxy)methane	ND		2.7	0.33	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Bis(2-chloroethyl)ether	ND		2.7	0.33	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Bis(2-ethylhexyl) phthalate	ND		1.9	1.4	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Butyl benzyl phthalate	ND		1.9	0.60	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Caprolactam	ND		9.0	2.1	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Carbazole	ND		1.4	0.52	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Chrysene	0.45		0.41	0.041	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20
Dibenz(a,h)anthracene	ND		0.41	0.19	mg/Kg	☆	02/22/23 09:34	02/24/23 16:11	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-05 (5-6)

Lab Sample ID: 240-180684-5

Date Collected: 02/20/23 11:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 72.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.4	0.36	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Diethyl phthalate	ND		1.9	0.85	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Dimethyl phthalate	ND		1.9	0.38	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Di-n-butyl phthalate	ND		1.9	1.4	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Di-n-octyl phthalate	ND		1.9	0.77	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Fluoranthene	0.40	J	0.41	0.12	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Fluorene	0.12	J	0.41	0.075	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Hexachlorobenzene	ND		0.41	0.078	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Hexachlorobutadiene	ND		1.4	0.33	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Hexachlorocyclopentadiene	ND		9.0	1.7	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Hexachloroethane	ND		1.4	0.25	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Indeno[1,2,3-cd]pyrene	ND		0.41	0.20	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Isophorone	ND		1.4	0.33	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
N-Nitrosodi-n-propylamine	ND		1.4	0.30	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
N-Nitrosodiphenylamine	ND		1.4	0.33	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Naphthalene	0.63		0.41	0.066	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Nitrobenzene	ND		2.7	0.36	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Pentachlorophenol	ND		4.1	1.6	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Phenanthrene	0.50		0.41	0.061	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Phenol	ND		1.4	0.22	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
Pyrene	0.65		0.41	0.059	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20
3 & 4 Methylphenol	ND		11	0.79	mg/Kg	✳	02/22/23 09:34	02/24/23 16:11	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	55		46 - 137	02/22/23 09:34	02/24/23 16:11	20
Phenol-d5 (Surr)	48		26 - 120	02/22/23 09:34	02/24/23 16:11	20
Nitrobenzene-d5 (Surr)	48		25 - 120	02/22/23 09:34	02/24/23 16:11	20
2-Fluorophenol (Surr)	38		20 - 120	02/22/23 09:34	02/24/23 16:11	20
2-Fluorobiphenyl (Surr)	48		34 - 120	02/22/23 09:34	02/24/23 16:11	20
2,4,6-Tribromophenol (Surr)	27		10 - 120	02/22/23 09:34	02/24/23 16:11	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0047	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:36	1
Barium	0.69	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:36	1
Cadmium	0.0033	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:36	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:36	1
Lead	0.013	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:36	1
Selenium	0.0066	J	0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:36	1
Silver	0.00074	J	0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:36	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	72.6		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	27.4		0.1	0.1	%			02/21/23 14:25	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/23/23 17:23	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/23/23 17:23	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/23/23 17:23	1
Benzene	0.078		0.025	0.00042	mg/L			02/23/23 17:23	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/23/23 17:23	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/23/23 17:23	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/23/23 17:23	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/23/23 17:23	1
Vinyl chloride	0.11		0.025	0.00045	mg/L			02/23/23 17:23	1
Chloroform	ND		0.025	0.00047	mg/L			02/23/23 17:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120					02/23/23 17:23	1
Dibromofluoromethane (Surr)	95		71 - 121					02/23/23 17:23	1
4-Bromofluorobenzene (Surr)	112		80 - 120					02/23/23 17:23	1
1,2-Dichloroethane-d4 (Surr)	93		76 - 120					02/23/23 17:23	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/23/23 12:44	02/24/23 18:09	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/23/23 12:44	02/24/23 18:09	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/23/23 12:44	02/24/23 18:09	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/23/23 12:44	02/24/23 18:09	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/23/23 12:44	02/24/23 18:09	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/23/23 12:44	02/24/23 18:09	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/23/23 12:44	02/24/23 18:09	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/23/23 12:44	02/24/23 18:09	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/23/23 12:44	02/24/23 18:09	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/23/23 12:44	02/24/23 18:09	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/23/23 12:44	02/24/23 18:09	1
Pyridine	ND		0.0040	0.00036	mg/L		02/23/23 12:44	02/24/23 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	119		46 - 137				02/23/23 12:44	02/24/23 18:09	1
Phenol-d5 (Surr)	61		26 - 120				02/23/23 12:44	02/24/23 18:09	1
Nitrobenzene-d5 (Surr)	72		24 - 120				02/23/23 12:44	02/24/23 18:09	1
2-Fluorophenol (Surr)	70		19 - 120				02/23/23 12:44	02/24/23 18:09	1
2-Fluorobiphenyl (Surr)	99		33 - 120				02/23/23 12:44	02/24/23 18:09	1
2,4,6-Tribromophenol (Surr)	103		10 - 120				02/23/23 12:44	02/24/23 18:09	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/23/23 12:51	02/24/23 11:13	1
Endrin	ND		0.00050	0.0000065	mg/L		02/23/23 12:51	02/24/23 11:13	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/23/23 12:51	02/24/23 11:13	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/23/23 12:51	02/24/23 11:13	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/23/23 12:51	02/24/23 11:13	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/23/23 12:51	02/24/23 11:13	1
Toxaphene	ND		0.020	0.000058	mg/L		02/23/23 12:51	02/24/23 11:13	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	77		10 - 145	02/23/23 12:51	02/24/23 11:13	1
DCB Decachlorobiphenyl	80		10 - 145	02/23/23 12:51	02/24/23 11:13	1
Tetrachloro-m-xylene	61		10 - 123	02/23/23 12:51	02/24/23 11:13	1
Tetrachloro-m-xylene	67		10 - 123	02/23/23 12:51	02/24/23 11:13	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/24/23 19:47	02/27/23 05:47	1
2,4-D	ND		0.050	0.016	mg/L		02/24/23 19:47	02/27/23 05:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	70		26 - 136	02/24/23 19:47	02/27/23 05:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.2		0.1	0.1	%			02/21/23 11:57	1
Percent Moisture (EPA Moisture)	18.8		0.1	0.1	%			02/21/23 11:57	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 81.2

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		63	31	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1221	ND		63	38	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1232	ND		63	26	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1242	ND		63	24	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1248	ND		63	21	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1254	ND		63	26	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1260	ND		63	26	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1262	ND		63	28	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Aroclor-1268	ND		63	20	ug/Kg	✳	02/22/23 08:41	02/23/23 09:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	95		10 - 149				02/22/23 08:41	02/23/23 09:51	1
DCB Decachlorobiphenyl	95	p	10 - 174				02/22/23 08:41	02/23/23 09:51	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.73	0.24	ng/g	✳	02/24/23 17:55	02/27/23 12:01	1
Perfluorooctanesulfonic acid	0.71	J	0.73	0.24	ng/g	✳	02/24/23 17:55	02/27/23 12:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	78		26 - 159				02/24/23 17:55	02/27/23 12:01	1
13C8 PFOS	84		41 - 154				02/24/23 17:55	02/27/23 12:01	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-06 (5-6)

Lab Sample ID: 240-180684-7

Date Collected: 02/20/23 11:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.33	0.10	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,1,2,2-Tetrachloroethane	ND		0.33	0.20	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.33	0.089	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,1,2-Trichloroethane	ND		0.33	0.075	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,1-Dichloroethane	ND		0.33	0.064	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,1-Dichloroethene	ND		0.33	0.11	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,2,4-Trichlorobenzene	ND		0.33	0.18	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,2-Dibromo-3-Chloropropane	ND		0.66	0.29	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Ethylene Dibromide	ND		0.33	0.10	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,2-Dichlorobenzene	ND		0.33	0.16	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,2-Dichloroethane	ND		0.33	0.062	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,2-Dichloropropane	ND		0.33	0.049	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,3-Dichlorobenzene	ND		0.33	0.061	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
1,4-Dichlorobenzene	ND		0.33	0.073	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
2-Butanone (MEK)	ND		1.3	0.21	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
2-Hexanone	ND		1.3	0.35	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
4-Methyl-2-pentanone (MIBK)	ND		1.3	0.31	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Acetone	0.78	J	1.3	0.32	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Benzene	2.1		0.33	0.056	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Dichlorobromomethane	ND		0.33	0.081	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Bromoform	ND		0.33	0.30	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Bromomethane	ND		0.33	0.22	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Carbon disulfide	ND		0.33	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Carbon tetrachloride	ND		0.33	0.13	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Chlorobenzene	ND		0.33	0.046	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Chloroethane	ND		0.33	0.20	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Chloroform	ND		0.33	0.071	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Chloromethane	0.11	J	0.33	0.087	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
cis-1,2-Dichloroethene	ND		0.33	0.053	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
cis-1,3-Dichloropropene	ND		0.33	0.16	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Cyclohexane	ND		0.66	0.22	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Chlorodibromomethane	ND		0.33	0.15	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Dichlorodifluoromethane	ND		0.33	0.070	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Ethylbenzene	ND		0.33	0.062	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Isopropylbenzene	0.061	J	0.33	0.050	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Methyl acetate	ND		1.7	0.22	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Methyl tert-butyl ether	ND		0.33	0.049	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Methylcyclohexane	0.20	J	0.66	0.087	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Methylene Chloride	ND		0.66	0.51	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Styrene	ND		0.33	0.069	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Tetrachloroethene	ND		0.33	0.13	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Toluene	ND		0.33	0.32	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
trans-1,2-Dichloroethene	ND		0.33	0.082	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
trans-1,3-Dichloropropene	ND		0.33	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Trichloroethene	ND		0.33	0.19	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Trichlorofluoromethane	ND		0.33	0.18	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Vinyl chloride	5.6		0.33	0.16	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1
Xylenes, Total	ND		0.66	0.12	mg/Kg	✱	02/21/23 19:38	02/23/23 21:24	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-06 (5-6)

Lab Sample ID: 240-180684-7

Date Collected: 02/20/23 11:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/23/23 21:24	1
Dibromofluoromethane (Surr)	96		41 - 138	02/21/23 19:38	02/23/23 21:24	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 19:38	02/23/23 21:24	1
1,2-Dichloroethane-d4 (Surr)	109		58 - 125	02/21/23 19:38	02/23/23 21:24	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,4-Dinitrophenol	ND		9.8	4.2	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2-Methylnaphthalene	ND		0.45	0.058	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2-Methylphenol	ND		6.0	0.93	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4,6-Dinitro-2-methylphenol	ND		9.8	2.4	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4-Chloro-3-methylphenol	ND		4.5	1.3	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4-Chloroaniline	ND		4.5	0.90	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
4-Nitrophenol	ND		9.8	2.8	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Acenaphthene	ND		0.45	0.085	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Acenaphthylene	ND		0.45	0.12	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Acetophenone	1.8	J	3.0	0.33	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Anthracene	ND		0.45	0.072	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Atrazine	ND		6.0	1.1	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Benzaldehyde	ND		3.0	0.69	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Benzo[a]anthracene	ND		0.45	0.10	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Benzo[a]pyrene	ND		0.45	0.28	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Benzo[b]fluoranthene	ND		0.45	0.19	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Benzo[g,h,i]perylene	ND		0.45	0.21	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Benzo[k]fluoranthene	ND		0.45	0.21	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Caprolactam	ND		9.8	2.2	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Carbazole	ND		1.5	0.57	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Chrysene	ND		0.45	0.044	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	☆	02/25/23 15:12	02/28/23 13:08	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-06 (5-6)

Lab Sample ID: 240-180684-7

Date Collected: 02/20/23 11:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.5	0.39	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Diethyl phthalate	ND		2.1	0.93	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Di-n-octyl phthalate	ND		2.1	0.84	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Fluoranthene	ND		0.45	0.13	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Fluorene	ND		0.45	0.082	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Hexachlorobenzene	ND		0.45	0.085	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Hexachlorocyclopentadiene	ND		9.8	1.9	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Hexachloroethane	ND		1.5	0.27	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Indeno[1,2,3-cd]pyrene	ND		0.45	0.22	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Isophorone	ND		1.5	0.36	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Naphthalene	0.33	J	0.45	0.072	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Nitrobenzene	ND		3.0	0.39	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Pentachlorophenol	ND		4.5	1.7	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Phenanthrene	0.13	J	0.45	0.067	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Phenol	ND		1.5	0.24	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
Pyrene	ND		0.45	0.064	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4
3 & 4 Methylphenol	ND		12	0.87	mg/Kg	✱	02/25/23 15:12	02/28/23 13:08	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	21	S1-	46 - 137	02/25/23 15:12	02/28/23 13:08	4
Phenol-d5 (Surr)	17	S1-	26 - 120	02/25/23 15:12	02/28/23 13:08	4
Nitrobenzene-d5 (Surr)	17	S1-	25 - 120	02/25/23 15:12	02/28/23 13:08	4
2-Fluorophenol (Surr)	18	S1-	20 - 120	02/25/23 15:12	02/28/23 13:08	4
2-Fluorobiphenyl (Surr)	20	S1-	34 - 120	02/25/23 15:12	02/28/23 13:08	4
2,4,6-Tribromophenol (Surr)	30		10 - 120	02/25/23 15:12	02/28/23 13:08	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0075	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:49	1
Barium	0.29	J B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:49	1
Cadmium	ND		0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:49	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:49	1
Lead	ND		0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:49	1
Selenium	0.0075	J	0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:49	1
Silver	0.00063	J	0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:49	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.8		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	20.2		0.1	0.1	%			02/21/23 14:25	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Date Collected: 02/20/23 11:46

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.21	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.092	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,1-Dichloroethane	ND		0.34	0.066	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,2-Dibromo-3-Chloropropane	ND		0.69	0.30	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,2-Dichloropropane	ND		0.34	0.051	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
2-Butanone (MEK)	ND		1.4	0.22	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.33	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Acetone	1.2	J	1.4	0.33	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Benzene	12		0.34	0.058	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Bromoform	ND		0.34	0.31	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Bromomethane	ND		0.34	0.23	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Chloroethane	ND		0.34	0.21	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Chloroform	ND		0.34	0.074	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Chloromethane	0.23	J	0.34	0.090	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
cis-1,2-Dichloroethene	ND		0.34	0.055	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Cyclohexane	ND		0.69	0.22	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Dichlorodifluoromethane	ND		0.34	0.073	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Ethylbenzene	0.073	J	0.34	0.064	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Isopropylbenzene	ND		0.34	0.052	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Methyl acetate	0.53	J	1.7	0.23	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Methyl tert-butyl ether	ND		0.34	0.051	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Methylcyclohexane	ND		0.69	0.090	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Methylene Chloride	ND		0.69	0.52	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Styrene	ND		0.34	0.071	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Toluene	0.46		0.34	0.33	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
trans-1,2-Dichloroethene	ND		0.34	0.085	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Trichloroethene	ND		0.34	0.20	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Vinyl chloride	10		0.34	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1
Xylenes, Total	ND		0.69	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 21:49	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Date Collected: 02/20/23 11:46

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		56 - 125	02/21/23 19:38	02/23/23 21:49	1
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/24/23 15:48	4
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 19:38	02/23/23 21:49	1
Dibromofluoromethane (Surr)	101		41 - 138	02/21/23 19:38	02/24/23 15:48	4
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 19:38	02/23/23 21:49	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/21/23 19:38	02/24/23 15:48	4
1,2-Dichloroethane-d4 (Surr)	105		58 - 125	02/21/23 19:38	02/23/23 21:49	1
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/21/23 19:38	02/24/23 15:48	4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
bis (2-chloroisopropyl) ether	ND		3.0	0.30	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,4-Dinitrophenol	ND		9.9	4.2	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2-Methylnaphthalene	0.45		0.45	0.059	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2-Methylphenol	ND		6.0	0.93	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
3,3'-Dichlorobenzidine	ND		3.0	1.3	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4,6-Dinitro-2-methylphenol	ND		9.9	2.4	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4-Chloro-3-methylphenol	ND		4.5	1.3	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4-Chloroaniline	ND		4.5	0.90	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
4-Nitrophenol	ND		9.9	2.8	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Acenaphthene	ND		0.45	0.085	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Acenaphthylene	ND		0.45	0.12	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Acetophenone	2.0 J		3.0	0.33	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Anthracene	ND		0.45	0.072	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Benzo[a]anthracene	ND		0.45	0.10	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Benzo[a]pyrene	ND		0.45	0.28	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Benzo[b]fluoranthene	ND		0.45	0.19	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Benzo[g,h,i]perylene	ND		0.45	0.21	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Benzo[k]fluoranthene	ND		0.45	0.21	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/25/23 15:12	02/28/23 12:20	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Date Collected: 02/20/23 11:46

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		9.9	2.2	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Carbazole	ND		1.5	0.57	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Chrysene	0.11	J	0.45	0.045	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Dibenzofuran	ND		1.5	0.39	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Diethyl phthalate	ND		2.1	0.93	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Di-n-octyl phthalate	ND		2.1	0.84	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Fluoranthene	ND		0.45	0.13	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Fluorene	0.14	J	0.45	0.082	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Hexachlorobenzene	ND		0.45	0.085	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Hexachlorocyclopentadiene	ND		9.9	1.9	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Hexachloroethane	ND		1.5	0.27	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Indeno[1,2,3-cd]pyrene	ND		0.45	0.22	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Isophorone	ND		1.5	0.36	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Naphthalene	1.1		0.45	0.072	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Nitrobenzene	ND		3.0	0.39	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Pentachlorophenol	ND		4.5	1.7	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Phenanthrene	0.28	J	0.45	0.067	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Phenol	1.9		1.5	0.24	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
Pyrene	ND		0.45	0.064	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4
3 & 4 Methylphenol	ND		12	0.87	mg/Kg	✳	02/25/23 15:12	02/28/23 12:20	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	29	S1-	46 - 137	02/25/23 15:12	02/28/23 12:20	4
Phenol-d5 (Surr)	25	S1-	26 - 120	02/25/23 15:12	02/28/23 12:20	4
Nitrobenzene-d5 (Surr)	23	S1-	25 - 120	02/25/23 15:12	02/28/23 12:20	4
2-Fluorophenol (Surr)	25		20 - 120	02/25/23 15:12	02/28/23 12:20	4
2-Fluorobiphenyl (Surr)	30	S1-	34 - 120	02/25/23 15:12	02/28/23 12:20	4
2,4,6-Tribromophenol (Surr)	32		10 - 120	02/25/23 15:12	02/28/23 12:20	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0071	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:53	1
Barium	0.52	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:53	1
Cadmium	0.0039	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:53	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:53	1
Lead	0.024	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:53	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:53	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:53	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:51	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Date Collected: 02/20/23 11:46

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.2		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	20.8		0.1	0.1	%			02/21/23 14:25	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Date Collected: 02/20/23 11:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 73.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.37	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,1,2,2-Tetrachloroethane	ND		0.37	0.22	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.37	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,1,2-Trichloroethane	ND		0.37	0.085	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,1-Dichloroethane	ND		0.37	0.071	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,1-Dichloroethene	ND		0.37	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,2,4-Trichlorobenzene	ND		0.37	0.20	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,2-Dibromo-3-Chloropropane	ND		0.74	0.33	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Ethylene Dibromide	ND		0.37	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,2-Dichlorobenzene	ND		0.37	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,2-Dichloroethane	ND		0.37	0.070	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,2-Dichloropropane	ND		0.37	0.055	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,3-Dichlorobenzene	ND		0.37	0.068	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
1,4-Dichlorobenzene	ND		0.37	0.082	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
2-Butanone (MEK)	ND		1.5	0.23	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
2-Hexanone	ND		1.5	0.39	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.35	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Acetone	ND		1.5	0.36	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Benzene	0.19	J	0.62	0.10	mg/Kg	✱	02/21/23 19:38	02/23/23 22:14	1.6666
Dichlorobromomethane	ND		0.37	0.090	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Bromoform	ND		0.37	0.34	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Bromomethane	ND		0.37	0.25	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Carbon disulfide	ND		0.37	0.16	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Carbon tetrachloride	ND		0.37	0.15	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Chlorobenzene	ND		0.37	0.052	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Chloroethane	ND		0.37	0.22	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Chloroform	ND		0.37	0.080	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Chloromethane	0.12	J	0.37	0.098	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
cis-1,2-Dichloroethene	ND		0.37	0.059	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
cis-1,3-Dichloropropene	ND		0.37	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Cyclohexane	ND		0.74	0.24	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Chlorodibromomethane	ND		0.37	0.17	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Dichlorodifluoromethane	ND		0.37	0.079	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Ethylbenzene	0.18	J	0.37	0.070	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Isopropylbenzene	0.061	J	0.37	0.056	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Methyl acetate	0.42	J	1.9	0.25	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Methyl tert-butyl ether	ND		0.37	0.055	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Methylcyclohexane	0.24	J	0.74	0.098	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Methylene Chloride	ND		0.74	0.57	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Styrene	ND		0.37	0.077	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Tetrachloroethene	ND		0.37	0.14	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Toluene	0.88		0.37	0.36	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
trans-1,2-Dichloroethene	ND		0.37	0.092	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
trans-1,3-Dichloropropene	ND		0.37	0.16	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Trichloroethene	ND		0.37	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Trichlorofluoromethane	ND		0.37	0.20	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Vinyl chloride	0.44		0.37	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1
Xylenes, Total	0.45	J	0.74	0.14	mg/Kg	✱	02/21/23 19:38	02/24/23 15:23	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Date Collected: 02/20/23 11:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 73.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/23/23 22:14	1.6666
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/24/23 15:23	1
Dibromofluoromethane (Surr)	98		41 - 138	02/21/23 19:38	02/23/23 22:14	1.6666
Dibromofluoromethane (Surr)	99		41 - 138	02/21/23 19:38	02/24/23 15:23	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 19:38	02/23/23 22:14	1.6666
4-Bromofluorobenzene (Surr)	107		41 - 143	02/21/23 19:38	02/24/23 15:23	1
1,2-Dichloroethane-d4 (Surr)	107		58 - 125	02/21/23 19:38	02/23/23 22:14	1.6666
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/21/23 19:38	02/24/23 15:23	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.24	J	0.27	0.091	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
bis (2-chloroisopropyl) ether	ND		0.54	0.054	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,4,5-Trichlorophenol	ND		0.81	0.37	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,4,6-Trichlorophenol	ND		0.81	0.34	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,4-Dichlorophenol	ND		0.81	0.24	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,4-Dimethylphenol	ND		0.81	0.22	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,4-Dinitrophenol	ND		1.8	0.76	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,4-Dinitrotoluene	ND		1.1	0.33	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2,6-Dinitrotoluene	ND		1.1	0.30	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2-Chloronaphthalene	ND		0.27	0.075	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2-Chlorophenol	ND		0.27	0.054	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2-Methylnaphthalene	0.97		0.081	0.011	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2-Methylphenol	ND		1.1	0.17	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2-Nitroaniline	ND		1.1	0.22	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
2-Nitrophenol	ND		0.27	0.070	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
3,3'-Dichlorobenzidine	ND		0.54	0.23	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
3-Nitroaniline	ND		1.1	0.26	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4,6-Dinitro-2-methylphenol	ND		1.8	0.43	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4-Bromophenyl phenyl ether	ND		0.27	0.075	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4-Chloro-3-methylphenol	ND		0.81	0.24	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4-Chloroaniline	ND		0.81	0.16	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4-Chlorophenyl phenyl ether	ND		0.27	0.075	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4-Nitroaniline	ND		1.1	0.32	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
4-Nitrophenol	ND		1.8	0.51	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Acenaphthene	0.090		0.081	0.015	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Acenaphthylene	0.036	J	0.081	0.022	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Acetophenone	0.93		0.54	0.059	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Anthracene	0.082		0.081	0.013	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Atrazine	ND		1.1	0.19	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Benzaldehyde	ND		0.54	0.12	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Benzo[a]anthracene	0.19		0.081	0.018	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Benzo[a]pyrene	0.18		0.081	0.050	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Benzo[b]fluoranthene	0.21		0.081	0.035	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Benzo[g,h,i]perylene	0.081		0.081	0.038	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Benzo[k]fluoranthene	0.062	J	0.081	0.037	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Bis(2-chloroethoxy)methane	ND		0.54	0.065	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Bis(2-chloroethyl)ether	ND		0.54	0.065	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Bis(2-ethylhexyl) phthalate	ND		0.38	0.27	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4
Butyl benzyl phthalate	ND		0.38	0.12	mg/Kg	☼	02/22/23 09:34	02/24/23 14:59	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Date Collected: 02/20/23 11:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 73.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		1.8	0.40	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Carbazole	ND		0.27	0.10	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Chrysene	0.32		0.081	0.0080	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Dibenz(a,h)anthracene	ND		0.081	0.037	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Dibenzofuran	0.16	J	0.27	0.070	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Diethyl phthalate	ND		0.38	0.17	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Dimethyl phthalate	ND		0.38	0.075	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Di-n-butyl phthalate	ND		0.38	0.27	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Di-n-octyl phthalate	ND		0.38	0.15	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Fluoranthene	0.21		0.081	0.024	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Fluorene	0.25		0.081	0.015	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Hexachlorobenzene	ND		0.081	0.015	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Hexachlorobutadiene	ND		0.27	0.065	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Hexachlorocyclopentadiene	ND		1.8	0.33	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Hexachloroethane	ND		0.27	0.048	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Indeno[1,2,3-cd]pyrene	0.050	J	0.081	0.040	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Isophorone	ND		0.27	0.065	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
N-Nitrosodi-n-propylamine	ND		0.27	0.059	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
N-Nitrosodiphenylamine	ND		0.27	0.065	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Naphthalene	1.5		0.081	0.013	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Nitrobenzene	ND		0.54	0.070	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Pentachlorophenol	ND		0.81	0.31	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Phenanthrene	0.68		0.081	0.012	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Phenol	0.14	J	0.27	0.043	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
Pyrene	0.26		0.081	0.012	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4
3 & 4 Methylphenol	ND		2.2	0.16	mg/Kg	✳	02/22/23 09:34	02/24/23 14:59	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	57		46 - 137	02/22/23 09:34	02/24/23 14:59	4
<i>Phenol-d5 (Surr)</i>	58		26 - 120	02/22/23 09:34	02/24/23 14:59	4
<i>Nitrobenzene-d5 (Surr)</i>	61		25 - 120	02/22/23 09:34	02/24/23 14:59	4
<i>2-Fluorophenol (Surr)</i>	56		20 - 120	02/22/23 09:34	02/24/23 14:59	4
<i>2-Fluorobiphenyl (Surr)</i>	58		34 - 120	02/22/23 09:34	02/24/23 14:59	4
<i>2,4,6-Tribromophenol (Surr)</i>	42		10 - 120	02/22/23 09:34	02/24/23 14:59	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0099	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 12:57	1
Barium	2.7	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 12:57	1
Cadmium	0.0033	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 12:57	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 12:57	1
Lead	0.011	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 12:57	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 12:57	1
Silver	0.00088	J	0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 12:57	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:53	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Date Collected: 02/20/23 11:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 73.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	73.8		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	26.2		0.1	0.1	%			02/21/23 14:25	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-09 (3-4)

Lab Sample ID: 240-180684-10

Date Collected: 02/20/23 12:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.29	0.091	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,1,2,2-Tetrachloroethane	ND		0.29	0.17	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.29	0.078	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,1,2-Trichloroethane	ND		0.29	0.066	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,1-Dichloroethane	ND		0.29	0.056	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,1-Dichloroethene	ND		0.29	0.095	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,2,4-Trichlorobenzene	ND		0.29	0.15	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,2-Dibromo-3-Chloropropane	ND		0.58	0.26	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Ethylene Dibromide	ND		0.29	0.092	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,2-Dichlorobenzene	ND		0.29	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,2-Dichloroethane	1.0		0.29	0.055	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,2-Dichloropropane	ND		0.29	0.043	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,3-Dichlorobenzene	ND		0.29	0.054	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
1,4-Dichlorobenzene	ND		0.29	0.064	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
2-Butanone (MEK)	ND		1.2	0.18	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
2-Hexanone	ND		1.2	0.31	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
4-Methyl-2-pentanone (MIBK)	ND		1.2	0.28	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Acetone	1.0 J		1.2	0.28	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Benzene	11		0.29	0.049	mg/Kg	✱	02/21/23 19:38	02/24/23 16:13	1
Dichlorobromomethane	ND		0.29	0.071	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Bromoform	ND		0.29	0.27	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Bromomethane	ND		0.29	0.19	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Carbon disulfide	ND		0.29	0.13	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Carbon tetrachloride	ND		0.29	0.12	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Chlorobenzene	0.089 J		0.29	0.041	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Chloroethane	ND		0.29	0.17	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Chloroform	ND		0.29	0.063	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Chloromethane	0.29		0.29	0.077	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
cis-1,2-Dichloroethene	ND		0.29	0.047	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
cis-1,3-Dichloropropene	ND		0.29	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Cyclohexane	ND		0.58	0.19	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Chlorodibromomethane	ND		0.29	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Dichlorodifluoromethane	ND		0.29	0.062	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Ethylbenzene	0.24 J		0.29	0.055	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Isopropylbenzene	ND		0.29	0.044	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Methyl acetate	0.33 J		1.5	0.20	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Methyl tert-butyl ether	ND		0.29	0.043	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Methylcyclohexane	ND		0.58	0.077	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Methylene Chloride	ND		0.58	0.45	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Styrene	ND		0.29	0.061	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Tetrachloroethene	ND		0.29	0.11	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Toluene	1.5		0.29	0.28	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
trans-1,2-Dichloroethene	ND		0.29	0.072	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
trans-1,3-Dichloropropene	ND		0.29	0.12	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Trichloroethene	ND		0.29	0.17	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Trichlorofluoromethane	ND		0.29	0.16	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Vinyl chloride	0.18 J		0.29	0.14	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1
Xylenes, Total	0.41 J		0.58	0.11	mg/Kg	✱	02/21/23 19:38	02/23/23 22:40	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-09 (3-4)

Lab Sample ID: 240-180684-10

Date Collected: 02/20/23 12:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		56 - 125	02/21/23 19:38	02/23/23 22:40	1
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/24/23 16:13	1
Dibromofluoromethane (Surr)	97		41 - 138	02/21/23 19:38	02/23/23 22:40	1
Dibromofluoromethane (Surr)	106		41 - 138	02/21/23 19:38	02/24/23 16:13	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/21/23 19:38	02/23/23 22:40	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/24/23 16:13	1
1,2-Dichloroethane-d4 (Surr)	112		58 - 125	02/21/23 19:38	02/23/23 22:40	1
1,2-Dichloroethane-d4 (Surr)	117		58 - 125	02/21/23 19:38	02/24/23 16:13	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.18		0.062	0.021	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
bis (2-chloroisopropyl) ether	ND		0.12	0.012	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,4,5-Trichlorophenol	ND		0.19	0.086	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,4,6-Trichlorophenol	ND		0.19	0.079	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,4-Dichlorophenol	ND		0.19	0.055	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,4-Dimethylphenol	ND		0.19	0.050	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,4-Dinitrophenol	ND		0.41	0.18	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,4-Dinitrotoluene	ND		0.25	0.077	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2,6-Dinitrotoluene	ND		0.25	0.070	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2-Chloronaphthalene	ND		0.062	0.017	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2-Chlorophenol	ND		0.062	0.012	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2-Methylnaphthalene	0.52		0.019	0.0024	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2-Methylphenol	ND		0.25	0.038	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2-Nitroaniline	ND		0.25	0.050	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
2-Nitrophenol	ND		0.062	0.016	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
3,3'-Dichlorobenzidine	ND		0.12	0.053	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
3-Nitroaniline	ND		0.25	0.061	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4,6-Dinitro-2-methylphenol	ND		0.41	0.099	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4-Bromophenyl phenyl ether	ND		0.062	0.017	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4-Chloro-3-methylphenol	ND		0.19	0.056	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4-Chloroaniline	ND		0.19	0.037	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4-Chlorophenyl phenyl ether	ND		0.062	0.017	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4-Nitroaniline	ND		0.25	0.075	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
4-Nitrophenol	ND		0.41	0.12	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Acenaphthene	0.068		0.019	0.0036	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Acenaphthylene	0.022		0.019	0.0050	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Acetophenone	0.69		0.12	0.014	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Anthracene	0.065		0.019	0.0030	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Atrazine	ND		0.25	0.045	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Benzaldehyde	ND		0.12	0.029	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Benzo[a]anthracene	0.10		0.019	0.0042	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Benzo[a]pyrene	0.055		0.019	0.012	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Benzo[b]fluoranthene	0.11		0.019	0.0081	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Benzo[g,h,i]perylene	ND		0.019	0.0088	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Benzo[k]fluoranthene	0.027		0.019	0.0086	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Bis(2-chloroethoxy)methane	ND		0.12	0.015	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Bis(2-chloroethyl)ether	ND		0.12	0.015	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Bis(2-ethylhexyl) phthalate	ND		0.087	0.063	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Butyl benzyl phthalate	ND		0.087	0.027	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-09 (3-4)

Lab Sample ID: 240-180684-10

Date Collected: 02/20/23 12:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		0.41	0.093	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Carbazole	ND		0.062	0.024	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Chrysene	0.16		0.019	0.0019	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Dibenz(a,h)anthracene	ND		0.019	0.0086	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Dibenzofuran	0.059	J	0.062	0.016	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Diethyl phthalate	ND		0.087	0.038	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Dimethyl phthalate	ND		0.087	0.017	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Di-n-butyl phthalate	ND		0.087	0.063	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Di-n-octyl phthalate	ND		0.087	0.035	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Fluoranthene	0.13		0.019	0.0055	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Fluorene	0.23		0.019	0.0034	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Hexachlorobenzene	ND		0.019	0.0035	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Hexachlorobutadiene	ND		0.062	0.015	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Hexachlorocyclopentadiene	ND		0.41	0.077	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Hexachloroethane	ND		0.062	0.011	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Indeno[1,2,3-cd]pyrene	0.015	J	0.019	0.0091	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Isophorone	ND		0.062	0.015	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
N-Nitrosodi-n-propylamine	ND		0.062	0.014	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
N-Nitrosodiphenylamine	ND		0.062	0.015	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Naphthalene	1.1		0.019	0.0030	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Nitrobenzene	ND		0.12	0.016	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Pentachlorophenol	ND		0.19	0.072	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Phenanthrene	0.42		0.019	0.0028	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Phenol	0.057	J	0.062	0.0099	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
Pyrene	0.14		0.019	0.0027	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1
3 & 4 Methylphenol	ND		0.50	0.036	mg/Kg	☼	02/22/23 09:34	02/24/23 14:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	40	S1-	46 - 137	02/22/23 09:34	02/24/23 14:11	1
Phenol-d5 (Surr)	41		26 - 120	02/22/23 09:34	02/24/23 14:11	1
Nitrobenzene-d5 (Surr)	45		25 - 120	02/22/23 09:34	02/24/23 14:11	1
2-Fluorophenol (Surr)	41		20 - 120	02/22/23 09:34	02/24/23 14:11	1
2-Fluorobiphenyl (Surr)	41		34 - 120	02/22/23 09:34	02/24/23 14:11	1
2,4,6-Tribromophenol (Surr)	32		10 - 120	02/22/23 09:34	02/24/23 14:11	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 13:02	1
Barium	2.6	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 13:02	1
Cadmium	0.0017	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 13:02	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 13:02	1
Lead	0.0094	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 13:02	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 13:02	1
Silver	0.0011	J	0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 13:02	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:55	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-09 (3-4)

Lab Sample ID: 240-180684-10

Date Collected: 02/20/23 12:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.8		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	19.2		0.1	0.1	%			02/21/23 14:25	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-10 (2-3)

Lab Sample ID: 240-180684-11

Date Collected: 02/20/23 12:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 77.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.32	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,1,2,2-Tetrachloroethane	ND		0.32	0.19	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	0.086	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,1,2-Trichloroethane	ND		0.32	0.073	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,1-Dichloroethane	ND		0.32	0.061	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,1-Dichloroethene	ND		0.32	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,2,4-Trichlorobenzene	ND		0.32	0.17	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,2-Dibromo-3-Chloropropane	ND		0.64	0.28	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Ethylene Dibromide	ND		0.32	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,2-Dichlorobenzene	ND		0.32	0.15	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,2-Dichloroethane	ND		0.32	0.060	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,2-Dichloropropane	ND		0.32	0.047	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,3-Dichlorobenzene	ND		0.32	0.059	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
1,4-Dichlorobenzene	ND		0.32	0.070	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
2-Butanone (MEK)	ND		1.3	0.20	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
2-Hexanone	ND		1.3	0.34	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
4-Methyl-2-pentanone (MIBK)	ND		1.3	0.30	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Acetone	0.42	J	1.3	0.31	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Benzene	53		3.2	0.54	mg/Kg	✱	02/21/23 19:38	02/23/23 23:05	10
Dichlorobromomethane	ND		0.32	0.078	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Bromoform	ND		0.32	0.29	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Bromomethane	ND		0.32	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Carbon disulfide	ND		0.32	0.14	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Carbon tetrachloride	ND		0.32	0.13	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Chlorobenzene	0.096	J	0.32	0.045	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Chloroethane	ND		0.32	0.19	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Chloroform	ND		0.32	0.069	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Chloromethane	0.38		0.32	0.084	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
cis-1,2-Dichloroethene	ND		0.32	0.051	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
cis-1,3-Dichloropropene	ND		0.32	0.16	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Cyclohexane	ND		0.64	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Chlorodibromomethane	ND		0.32	0.15	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Dichlorodifluoromethane	ND		0.32	0.068	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Ethylbenzene	0.32		0.32	0.060	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Isopropylbenzene	0.056	J	0.32	0.049	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Methyl acetate	0.49	J	1.6	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Methyl tert-butyl ether	ND		0.32	0.047	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Methylcyclohexane	0.096	J	0.64	0.084	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Methylene Chloride	ND		0.64	0.49	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Styrene	ND		0.32	0.066	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Tetrachloroethene	ND		0.32	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Toluene	2.0		0.32	0.31	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
trans-1,2-Dichloroethene	ND		0.32	0.079	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
trans-1,3-Dichloropropene	ND		0.32	0.13	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Trichloroethene	ND		0.32	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Trichlorofluoromethane	ND		0.32	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Vinyl chloride	ND		0.32	0.16	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1
Xylenes, Total	0.47	J	0.64	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 16:39	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-10 (2-3)

Lab Sample ID: 240-180684-11

Date Collected: 02/20/23 12:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 77.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/23/23 23:05	10
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/24/23 16:39	1
Dibromofluoromethane (Surr)	100		41 - 138	02/21/23 19:38	02/23/23 23:05	10
Dibromofluoromethane (Surr)	96		41 - 138	02/21/23 19:38	02/24/23 16:39	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/23/23 23:05	10
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 19:38	02/24/23 16:39	1
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/21/23 19:38	02/23/23 23:05	10
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/21/23 19:38	02/24/23 16:39	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.52	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
bis (2-chloroisopropyl) ether	ND		3.1	0.31	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,4,5-Trichlorophenol	ND		4.6	2.1	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,4,6-Trichlorophenol	ND		4.6	2.0	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,4-Dichlorophenol	ND		4.6	1.3	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,4-Dimethylphenol	ND		4.6	1.2	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,4-Dinitrophenol	ND		10	4.4	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,4-Dinitrotoluene	ND		6.1	1.9	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2,6-Dinitrotoluene	ND		6.1	1.7	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2-Chloronaphthalene	ND		1.5	0.43	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2-Chlorophenol	ND		1.5	0.31	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2-Methylnaphthalene	0.61		0.46	0.060	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2-Methylphenol	ND		6.1	0.95	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2-Nitroaniline	ND		6.1	1.2	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
2-Nitrophenol	ND		1.5	0.40	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
3,3'-Dichlorobenzidine	ND		3.1	1.3	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
3-Nitroaniline	ND		6.1	1.5	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4-Bromophenyl phenyl ether	ND		1.5	0.43	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4-Chloro-3-methylphenol	ND		4.6	1.4	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4-Chloroaniline	ND		4.6	0.92	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4-Chlorophenyl phenyl ether	ND		1.5	0.43	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4-Nitroaniline	ND		6.1	1.8	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
4-Nitrophenol	ND		10	2.9	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Acenaphthene	ND		0.46	0.088	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Acenaphthylene	ND		0.46	0.12	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Acetophenone	1.8 J		3.1	0.34	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Anthracene	ND		0.46	0.074	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Atrazine	ND		6.1	1.1	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Benzaldehyde	ND		3.1	0.70	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Benzo[a]anthracene	ND		0.46	0.10	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Benzo[a]pyrene	ND		0.46	0.29	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Benzo[b]fluoranthene	ND		0.46	0.20	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Benzo[g,h,i]perylene	ND		0.46	0.22	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Benzo[k]fluoranthene	ND		0.46	0.21	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Bis(2-chloroethoxy)methane	ND		3.1	0.37	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Bis(2-chloroethyl)ether	ND		3.1	0.37	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Bis(2-ethylhexyl) phthalate	ND		2.1	1.6	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4
Butyl benzyl phthalate	ND		2.1	0.67	mg/Kg	☼	02/25/23 15:12	02/28/23 12:44	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-10 (2-3)

Lab Sample ID: 240-180684-11

Date Collected: 02/20/23 12:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 77.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.3	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Carbazole	ND		1.5	0.58	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Chrysene	0.22	J	0.46	0.046	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Dibenz(a,h)anthracene	ND		0.46	0.21	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Dibenzofuran	ND		1.5	0.40	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Diethyl phthalate	ND		2.1	0.95	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Dimethyl phthalate	ND		2.1	0.43	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Di-n-octyl phthalate	ND		2.1	0.86	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Fluoranthene	0.16	J	0.46	0.14	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Fluorene	0.24	J	0.46	0.084	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Hexachlorobenzene	ND		0.46	0.087	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Hexachlorobutadiene	ND		1.5	0.37	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Hexachlorocyclopentadiene	ND		10	1.9	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Hexachloroethane	ND		1.5	0.28	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Indeno[1,2,3-cd]pyrene	ND		0.46	0.23	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Isophorone	ND		1.5	0.37	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
N-Nitrosodi-n-propylamine	ND		1.5	0.34	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
N-Nitrosodiphenylamine	ND		1.5	0.37	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Naphthalene	1.6		0.46	0.074	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Nitrobenzene	ND		3.1	0.40	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Pentachlorophenol	ND		4.6	1.8	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Phenanthrene	0.49		0.46	0.068	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Phenol	ND		1.5	0.25	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
Pyrene	0.16	J	0.46	0.066	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4
3 & 4 Methylphenol	ND		12	0.89	mg/Kg	✳	02/25/23 15:12	02/28/23 12:44	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	65		46 - 137	02/25/23 15:12	02/28/23 12:44	4
Phenol-d5 (Surr)	48		26 - 120	02/25/23 15:12	02/28/23 12:44	4
Nitrobenzene-d5 (Surr)	45		25 - 120	02/25/23 15:12	02/28/23 12:44	4
2-Fluorophenol (Surr)	47		20 - 120	02/25/23 15:12	02/28/23 12:44	4
2-Fluorobiphenyl (Surr)	59		34 - 120	02/25/23 15:12	02/28/23 12:44	4
2,4,6-Tribromophenol (Surr)	65		10 - 120	02/25/23 15:12	02/28/23 12:44	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.014	J B	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 13:06	1
Barium	2.1	B	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 13:06	1
Cadmium	0.00093	J	0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 13:06	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 13:06	1
Lead	0.0077	J	0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 13:06	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 13:06	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 13:06	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 16:42	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-10 (2-3)

Lab Sample ID: 240-180684-11

Date Collected: 02/20/23 12:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 77.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.9		0.1	0.1	%			02/21/23 14:25	1
Percent Moisture (EPA Moisture)	22.1		0.1	0.1	%			02/21/23 14:25	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Lab Sample ID: 240-180684-12

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/23/23 17:46	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/23/23 17:46	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/23/23 17:46	1
Benzene	0.35		0.025	0.00042	mg/L			02/23/23 17:46	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/23/23 17:46	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/23/23 17:46	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/23/23 17:46	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/23/23 17:46	1
Vinyl chloride	0.087		0.025	0.00045	mg/L			02/23/23 17:46	1
Chloroform	ND		0.025	0.00047	mg/L			02/23/23 17:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120					02/23/23 17:46	1
Dibromofluoromethane (Surr)	96		71 - 121					02/23/23 17:46	1
4-Bromofluorobenzene (Surr)	115		80 - 120					02/23/23 17:46	1
1,2-Dichloroethane-d4 (Surr)	93		76 - 120					02/23/23 17:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/23/23 12:44	02/24/23 18:34	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/23/23 12:44	02/24/23 18:34	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/23/23 12:44	02/24/23 18:34	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/23/23 12:44	02/24/23 18:34	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/23/23 12:44	02/24/23 18:34	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/23/23 12:44	02/24/23 18:34	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/23/23 12:44	02/24/23 18:34	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/23/23 12:44	02/24/23 18:34	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/23/23 12:44	02/24/23 18:34	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/23/23 12:44	02/24/23 18:34	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/23/23 12:44	02/24/23 18:34	1
Pyridine	ND		0.0040	0.00036	mg/L		02/23/23 12:44	02/24/23 18:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137				02/23/23 12:44	02/24/23 18:34	1
Phenol-d5 (Surr)	57		26 - 120				02/23/23 12:44	02/24/23 18:34	1
Nitrobenzene-d5 (Surr)	64		24 - 120				02/23/23 12:44	02/24/23 18:34	1
2-Fluorophenol (Surr)	64		19 - 120				02/23/23 12:44	02/24/23 18:34	1
2-Fluorobiphenyl (Surr)	85		33 - 120				02/23/23 12:44	02/24/23 18:34	1
2,4,6-Tribromophenol (Surr)	90		10 - 120				02/23/23 12:44	02/24/23 18:34	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/23/23 12:51	02/24/23 11:30	1
Endrin	ND		0.00050	0.0000065	mg/L		02/23/23 12:51	02/24/23 11:30	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/23/23 12:51	02/24/23 11:30	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/23/23 12:51	02/24/23 11:30	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/23/23 12:51	02/24/23 11:30	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/23/23 12:51	02/24/23 11:30	1
Toxaphene	ND		0.020	0.000058	mg/L		02/23/23 12:51	02/24/23 11:30	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Lab Sample ID: 240-180684-12

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	73		10 - 145	02/23/23 12:51	02/24/23 11:30	1
DCB Decachlorobiphenyl	75		10 - 145	02/23/23 12:51	02/24/23 11:30	1
Tetrachloro-m-xylene	61		10 - 123	02/23/23 12:51	02/24/23 11:30	1
Tetrachloro-m-xylene	70		10 - 123	02/23/23 12:51	02/24/23 11:30	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/24/23 19:47	02/27/23 06:15	1
2,4-D	ND		0.050	0.016	mg/L		02/24/23 19:47	02/27/23 06:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	62		26 - 136	02/24/23 19:47	02/27/23 06:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.9		0.1	0.1	%			02/21/23 11:57	1
Percent Moisture (EPA Moisture)	22.1		0.1	0.1	%			02/21/23 11:57	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Lab Sample ID: 240-180684-12

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 77.9

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		67	33	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1221	ND		67	40	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1232	ND		67	28	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1242	ND		67	25	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1248	ND		67	23	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1254	ND		67	28	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1260	ND		67	28	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1262	ND		67	29	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Aroclor-1268	ND		67	21	ug/Kg	✳	02/22/23 08:41	02/23/23 10:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	69		10 - 149				02/22/23 08:41	02/23/23 10:43	1
DCB Decachlorobiphenyl	75	p	10 - 174				02/22/23 08:41	02/23/23 10:43	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.70	0.23	ng/g	✳	02/24/23 17:55	02/27/23 12:12	1
Perfluorooctanesulfonic acid	0.25	J	0.70	0.23	ng/g	✳	02/24/23 17:55	02/27/23 12:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	74		26 - 159				02/24/23 17:55	02/27/23 12:12	1
13C8 PFOS	83		41 - 154				02/24/23 17:55	02/27/23 12:12	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Date Collected: 02/20/23 17:40

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 66.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.45	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,1,2,2-Tetrachloroethane	ND		0.45	0.27	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.45	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,1,2-Trichloroethane	ND		0.45	0.10	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,1-Dichloroethane	ND		0.45	0.086	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,1-Dichloroethene	ND		0.45	0.15	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,2,4-Trichlorobenzene	ND		0.45	0.24	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,2-Dibromo-3-Chloropropane	ND		0.90	0.40	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Ethylene Dibromide	ND		0.45	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,2-Dichlorobenzene	ND		0.45	0.21	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,2-Dichloroethane	ND		0.45	0.084	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,2-Dichloropropane	ND		0.45	0.066	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,3-Dichlorobenzene	ND		0.45	0.082	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
1,4-Dichlorobenzene	ND		0.45	0.099	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
2-Butanone (MEK)	ND		1.8	0.28	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
2-Hexanone	ND		1.8	0.47	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
4-Methyl-2-pentanone (MIBK)	ND		1.8	0.43	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Acetone	0.66	J	1.8	0.44	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Benzene	ND		0.45	0.075	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Dichlorobromomethane	ND		0.45	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Bromoform	ND		0.45	0.41	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Bromomethane	ND		0.45	0.30	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Carbon disulfide	ND		0.45	0.19	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Carbon tetrachloride	ND		0.45	0.18	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Chlorobenzene	ND		0.45	0.063	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Chloroethane	ND		0.45	0.27	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Chloroform	ND		0.45	0.097	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Chloromethane	ND		0.45	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
cis-1,2-Dichloroethene	ND		0.45	0.072	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
cis-1,3-Dichloropropene	ND		0.45	0.22	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Cyclohexane	ND		0.90	0.29	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Chlorodibromomethane	ND		0.45	0.21	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Dichlorodifluoromethane	ND		0.45	0.095	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Ethylbenzene	ND		0.45	0.084	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Isopropylbenzene	ND		0.45	0.068	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Methyl acetate	ND		2.2	0.30	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Methyl tert-butyl ether	ND		0.45	0.066	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Methylcyclohexane	0.31	J	0.90	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Methylene Chloride	ND		0.90	0.69	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Styrene	ND		0.45	0.093	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Tetrachloroethene	ND		0.45	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Toluene	ND		0.45	0.43	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
trans-1,2-Dichloroethene	ND		0.45	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
trans-1,3-Dichloropropene	ND		0.45	0.19	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Trichloroethene	ND		0.45	0.26	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Trichlorofluoromethane	ND		0.45	0.25	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Vinyl chloride	ND		0.45	0.22	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1
Xylenes, Total	ND		0.90	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 23:30	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Date Collected: 02/20/23 17:40

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 66.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/23/23 23:30	1
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/24/23 17:04	1
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 19:38	02/23/23 23:30	1
Dibromofluoromethane (Surr)	104		41 - 138	02/21/23 19:38	02/24/23 17:04	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 19:38	02/23/23 23:30	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/21/23 19:38	02/24/23 17:04	1
1,2-Dichloroethane-d4 (Surr)	108		58 - 125	02/21/23 19:38	02/23/23 23:30	1
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/21/23 19:38	02/24/23 17:04	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.5	0.51	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
bis (2-chloroisopropyl) ether	ND	F1	3.0	0.30	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,4,5-Trichlorophenol	ND		4.5	2.1	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,4,6-Trichlorophenol	ND		4.5	1.9	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,4-Dichlorophenol	ND		4.5	1.3	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,4-Dimethylphenol	ND		4.5	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,4-Dinitrophenol	ND		10	4.3	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,4-Dinitrotoluene	ND		6.0	1.9	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2,6-Dinitrotoluene	ND		6.0	1.7	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2-Chloronaphthalene	ND		1.5	0.42	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2-Chlorophenol	ND		1.5	0.30	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2-Methylnaphthalene	1.2	F1 F2	0.45	0.059	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2-Methylphenol	ND		6.0	0.94	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2-Nitroaniline	ND		6.0	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
2-Nitrophenol	ND		1.5	0.39	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
3,3'-Dichlorobenzidine	ND	F1	3.0	1.3	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
3-Nitroaniline	ND		6.0	1.5	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4,6-Dinitro-2-methylphenol	ND		10	2.4	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4-Bromophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4-Chloro-3-methylphenol	ND		4.5	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4-Chloroaniline	ND	F1	4.5	0.91	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4-Chlorophenyl phenyl ether	ND		1.5	0.42	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4-Nitroaniline	ND		6.0	1.8	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
4-Nitrophenol	ND		10	2.8	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Acenaphthene	ND		0.45	0.086	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Acenaphthylene	ND		0.45	0.12	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Acetophenone	ND		3.0	0.33	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Anthracene	0.44	J	0.45	0.073	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Atrazine	ND		6.0	1.1	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Benzaldehyde	ND		3.0	0.69	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Benzo[a]anthracene	1.8		0.45	0.10	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Benzo[a]pyrene	1.4		0.45	0.28	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Benzo[b]fluoranthene	2.2	F1	0.45	0.20	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Benzo[g,h,i]perylene	0.61		0.45	0.21	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Benzo[k]fluoranthene	0.83		0.45	0.21	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Bis(2-chloroethoxy)methane	ND		3.0	0.36	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Bis(2-chloroethyl)ether	ND		3.0	0.36	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Bis(2-ethylhexyl) phthalate	ND		2.1	1.5	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20
Butyl benzyl phthalate	ND		2.1	0.66	mg/Kg	☼	02/23/23 08:32	02/25/23 13:54	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Date Collected: 02/20/23 17:40

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 66.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.3	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Carbazole	ND		1.5	0.57	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Chrysene	2.4	F1	0.45	0.045	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Dibenz(a,h)anthracene	ND		0.45	0.21	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Dibenzofuran	0.53	J F1	1.5	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Diethyl phthalate	ND	F1	2.1	0.94	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Dimethyl phthalate	ND		2.1	0.42	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Di-n-butyl phthalate	ND		2.1	1.5	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Di-n-octyl phthalate	ND		2.1	0.85	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Fluoranthene	4.4		0.45	0.13	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Fluorene	0.12	J	0.45	0.083	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Hexachlorobenzene	ND		0.45	0.086	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Hexachlorobutadiene	ND		1.5	0.36	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Hexachlorocyclopentadiene	ND		10	1.9	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Hexachloroethane	ND		1.5	0.27	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Indeno[1,2,3-cd]pyrene	0.55		0.45	0.22	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Isophorone	ND		1.5	0.36	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
N-Nitrosodi-n-propylamine	ND		1.5	0.33	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
N-Nitrosodiphenylamine	ND		1.5	0.36	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Naphthalene	0.75	F1 F2	0.45	0.073	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Nitrobenzene	ND		3.0	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Pentachlorophenol	ND	F1	4.5	1.8	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Phenanthrene	3.4	F1	0.45	0.067	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Phenol	ND		1.5	0.24	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
Pyrene	4.1		0.45	0.065	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20
3 & 4 Methylphenol	ND		12	0.88	mg/Kg	☆	02/23/23 08:32	02/25/23 13:54	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	108		46 - 137	02/23/23 08:32	02/25/23 13:54	20
Phenol-d5 (Surr)	107		26 - 120	02/23/23 08:32	02/25/23 13:54	20
Nitrobenzene-d5 (Surr)	78		25 - 120	02/23/23 08:32	02/25/23 13:54	20
2-Fluorophenol (Surr)	78		20 - 120	02/23/23 08:32	02/25/23 13:54	20
2-Fluorobiphenyl (Surr)	97		34 - 120	02/23/23 08:32	02/25/23 13:54	20
2,4,6-Tribromophenol (Surr)	118		10 - 120	02/23/23 08:32	02/25/23 13:54	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.25	0.020	mg/L		02/23/23 14:00	02/24/23 10:50	5
Barium	0.62	J B	2.5	0.0066	mg/L		02/23/23 14:00	02/24/23 10:50	5
Cadmium	0.0047	J	0.25	0.0010	mg/L		02/23/23 14:00	02/24/23 10:50	5
Chromium	ND		0.25	0.020	mg/L		02/23/23 14:00	02/24/23 10:50	5
Lead	ND		0.25	0.014	mg/L		02/23/23 14:00	02/24/23 10:50	5
Selenium	ND		0.25	0.030	mg/L		02/23/23 14:00	02/24/23 10:50	5
Silver	ND		0.25	0.0031	mg/L		02/23/23 14:00	02/24/23 10:50	5

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 09:45	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Date Collected: 02/20/23 17:40

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 66.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	66.3		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	33.7		0.1	0.1	%			02/23/23 10:54	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Date Collected: 02/20/23 17:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 63.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.51	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,1,2,2-Tetrachloroethane	ND		0.51	0.31	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.51	0.14	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,1,2-Trichloroethane	ND		0.51	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,1-Dichloroethane	ND		0.51	0.098	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,1-Dichloroethene	ND		0.51	0.17	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,2,4-Trichlorobenzene	ND		0.51	0.27	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.45	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Ethylene Dibromide	ND		0.51	0.16	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,2-Dichlorobenzene	ND		0.51	0.24	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,2-Dichloroethane	ND		0.51	0.096	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,2-Dichloropropane	ND		0.51	0.075	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,3-Dichlorobenzene	ND		0.51	0.094	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
1,4-Dichlorobenzene	ND		0.51	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
2-Butanone (MEK)	ND		2.0	0.32	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
2-Hexanone	ND		2.0	0.54	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
4-Methyl-2-pentanone (MIBK)	ND		2.0	0.49	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Acetone	0.58	J	2.0	0.50	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Benzene	ND		0.51	0.086	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Dichlorobromomethane	ND		0.51	0.12	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Bromoform	ND		0.51	0.46	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Bromomethane	ND		0.51	0.34	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Carbon disulfide	ND		0.51	0.22	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Carbon tetrachloride	ND		0.51	0.21	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Chlorobenzene	ND		0.51	0.071	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Chloroethane	ND		0.51	0.31	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Chloroform	ND		0.51	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Chloromethane	ND		0.51	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
cis-1,2-Dichloroethene	ND		0.51	0.082	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
cis-1,3-Dichloropropene	ND		0.51	0.25	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Cyclohexane	ND		1.0	0.33	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Chlorodibromomethane	ND		0.51	0.24	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Dichlorodifluoromethane	ND		0.51	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Ethylbenzene	ND		0.51	0.096	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Isopropylbenzene	ND		0.51	0.077	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Methyl acetate	0.38	J	2.5	0.34	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Methyl tert-butyl ether	ND		0.51	0.075	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Methylcyclohexane	0.25	J	1.0	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Methylene Chloride	ND		1.0	0.78	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Styrene	ND		0.51	0.11	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Tetrachloroethene	ND		0.51	0.20	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Toluene	ND		0.51	0.49	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
trans-1,2-Dichloroethene	ND		0.51	0.13	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
trans-1,3-Dichloropropene	ND		0.51	0.21	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Trichloroethene	ND		0.51	0.29	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Trichlorofluoromethane	ND		0.51	0.28	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Vinyl chloride	ND		0.51	0.25	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1
Xylenes, Total	0.24	J	1.0	0.19	mg/Kg	✳	02/21/23 19:38	02/23/23 23:55	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Date Collected: 02/20/23 17:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 63.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 19:38	02/23/23 23:55	1
Toluene-d8 (Surr)	107		56 - 125	02/21/23 19:38	02/24/23 17:29	1
Dibromofluoromethane (Surr)	98		41 - 138	02/21/23 19:38	02/23/23 23:55	1
Dibromofluoromethane (Surr)	101		41 - 138	02/21/23 19:38	02/24/23 17:29	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/23/23 23:55	1
4-Bromofluorobenzene (Surr)	108		41 - 143	02/21/23 19:38	02/24/23 17:29	1
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/21/23 19:38	02/23/23 23:55	1
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/21/23 19:38	02/24/23 17:29	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.54	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
bis (2-chloroisopropyl) ether	ND		3.2	0.32	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,4,5-Trichlorophenol	ND		4.8	2.2	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,4,6-Trichlorophenol	ND		4.8	2.0	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,4-Dichlorophenol	ND		4.8	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,4-Dimethylphenol	ND		4.8	1.3	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,4-Dinitrophenol	ND		10	4.5	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,4-Dinitrotoluene	ND		6.4	2.0	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2,6-Dinitrotoluene	ND		6.4	1.8	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2-Chloronaphthalene	ND		1.6	0.44	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2-Chlorophenol	ND		1.6	0.32	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2-Methylnaphthalene	5.3		0.48	0.062	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2-Methylphenol	ND		6.4	0.99	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2-Nitroaniline	ND		6.4	1.3	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
2-Nitrophenol	ND		1.6	0.41	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
3,3'-Dichlorobenzidine	ND		3.2	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
3-Nitroaniline	ND		6.4	1.6	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4-Bromophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4-Chloro-3-methylphenol	ND		4.8	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4-Chloroaniline	ND		4.8	0.95	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4-Chlorophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4-Nitroaniline	ND		6.4	1.9	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
4-Nitrophenol	ND		10	3.0	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Acenaphthene	0.18	J	0.48	0.091	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Acenaphthylene	ND		0.48	0.13	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Acetophenone	ND		3.2	0.35	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Anthracene	0.30	J	0.48	0.077	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Atrazine	ND		6.4	1.1	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Benzaldehyde	ND		3.2	0.73	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Benzo[a]anthracene	1.7		0.48	0.11	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Benzo[a]pyrene	1.6		0.48	0.30	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Benzo[b]fluoranthene	2.8		0.48	0.21	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Benzo[g,h,i]perylene	0.59		0.48	0.23	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Benzo[k]fluoranthene	0.86		0.48	0.22	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Bis(2-chloroethoxy)methane	ND		3.2	0.38	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Bis(2-chloroethyl)ether	ND		3.2	0.38	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20
Butyl benzyl phthalate	ND		2.2	0.70	mg/Kg	☼	02/23/23 08:32	02/25/23 15:37	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Date Collected: 02/20/23 17:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 63.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.4	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Carbazole	ND		1.6	0.60	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Chrysene	2.0		0.48	0.047	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Dibenz(a,h)anthracene	ND		0.48	0.22	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Dibenzofuran	1.5 J		1.6	0.41	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Diethyl phthalate	ND		2.2	0.99	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Dimethyl phthalate	ND		2.2	0.44	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Di-n-octyl phthalate	ND		2.2	0.89	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Fluoranthene	2.8		0.48	0.14	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Fluorene	0.17 J		0.48	0.087	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Hexachlorobenzene	ND		0.48	0.091	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Hexachlorobutadiene	ND		1.6	0.38	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Hexachlorocyclopentadiene	ND		10	2.0	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Hexachloroethane	ND		1.6	0.29	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Indeno[1,2,3-cd]pyrene	0.53		0.48	0.23	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Isophorone	ND		1.6	0.38	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
N-Nitrosodi-n-propylamine	ND		1.6	0.35	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
N-Nitrosodiphenylamine	ND		1.6	0.38	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Naphthalene	3.5		0.48	0.077	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Nitrobenzene	ND		3.2	0.41	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Pentachlorophenol	ND		4.8	1.8	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Phenanthrene	2.9		0.48	0.071	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Phenol	ND		1.6	0.25	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
Pyrene	2.7		0.48	0.068	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20
3 & 4 Methylphenol	ND		13	0.92	mg/Kg	☆	02/23/23 08:32	02/25/23 15:37	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	111		46 - 137	02/23/23 08:32	02/25/23 15:37	20
Phenol-d5 (Surr)	100		26 - 120	02/23/23 08:32	02/25/23 15:37	20
Nitrobenzene-d5 (Surr)	83		25 - 120	02/23/23 08:32	02/25/23 15:37	20
2-Fluorophenol (Surr)	82		20 - 120	02/23/23 08:32	02/25/23 15:37	20
2-Fluorobiphenyl (Surr)	95		34 - 120	02/23/23 08:32	02/25/23 15:37	20
2,4,6-Tribromophenol (Surr)	125	S1+	10 - 120	02/23/23 08:32	02/25/23 15:37	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J	0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 11:16	1
Barium	0.51	B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 11:16	1
Cadmium	0.0040	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 11:16	1
Chromium	0.0058	J	0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 11:16	1
Lead	0.033	J	0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 11:16	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 11:16	1
Silver	0.0014	J	0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 11:16	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 09:56	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Date Collected: 02/20/23 17:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 63.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	63.8		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	36.2		0.1	0.1	%			02/23/23 10:54	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2598-N. DITCH

Lab Sample ID: 240-180684-15

Date Collected: 02/20/23 18:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 64.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.49	0.15	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,1,2,2-Tetrachloroethane	ND		0.49	0.29	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.49	0.13	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,1,2-Trichloroethane	ND		0.49	0.11	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,1-Dichloroethane	ND		0.49	0.094	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,1-Dichloroethene	ND		0.49	0.16	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,2,4-Trichlorobenzene	ND		0.49	0.26	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,2-Dibromo-3-Chloropropane	ND		0.97	0.43	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Ethylene Dibromide	ND		0.49	0.15	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,2-Dichlorobenzene	ND		0.49	0.23	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,2-Dichloroethane	ND		0.49	0.092	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,2-Dichloropropane	ND		0.49	0.072	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,3-Dichlorobenzene	ND		0.49	0.090	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
1,4-Dichlorobenzene	ND		0.49	0.11	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
2-Butanone (MEK)	ND		1.9	0.31	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
2-Hexanone	ND		1.9	0.51	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
4-Methyl-2-pentanone (MIBK)	ND		1.9	0.46	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Acetone	0.71	J	1.9	0.48	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Benzene	ND		0.49	0.082	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Dichlorobromomethane	ND		0.49	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Bromoform	ND		0.49	0.44	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Bromomethane	ND		0.49	0.32	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Carbon disulfide	ND		0.49	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Carbon tetrachloride	ND		0.49	0.20	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Chlorobenzene	ND		0.49	0.068	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Chloroethane	ND		0.49	0.29	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Chloroform	ND		0.49	0.11	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Chloromethane	ND		0.49	0.13	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
cis-1,2-Dichloroethene	ND		0.49	0.078	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
cis-1,3-Dichloropropene	ND		0.49	0.24	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Cyclohexane	ND		0.97	0.32	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Chlorodibromomethane	ND		0.49	0.23	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Dichlorodifluoromethane	ND		0.49	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Ethylbenzene	ND		0.49	0.092	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Isopropylbenzene	ND		0.49	0.074	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Methyl acetate	ND		2.4	0.33	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Methyl tert-butyl ether	ND		0.49	0.072	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Methylcyclohexane	0.45	J	0.97	0.13	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Methylene Chloride	ND		0.97	0.75	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Styrene	ND		0.49	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Tetrachloroethene	ND		0.49	0.19	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Toluene	ND		0.49	0.47	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
trans-1,2-Dichloroethene	ND		0.49	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
trans-1,3-Dichloropropene	ND		0.49	0.20	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Trichloroethene	ND		0.49	0.28	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Trichlorofluoromethane	ND		0.49	0.27	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Vinyl chloride	ND		0.49	0.24	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1
Xylenes, Total	0.24	J	0.97	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 00:21	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2598-N. DITCH

Lab Sample ID: 240-180684-15

Date Collected: 02/20/23 18:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 64.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 19:38	02/24/23 00:21	1
Dibromofluoromethane (Surr)	96		41 - 138	02/21/23 19:38	02/24/23 00:21	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 19:38	02/24/23 00:21	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125	02/21/23 19:38	02/24/23 00:21	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.72		0.38	0.13	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
bis (2-chloroisopropyl) ether	ND		0.77	0.077	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,4,5-Trichlorophenol	ND		1.2	0.53	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,4,6-Trichlorophenol	ND		1.2	0.49	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,4-Dichlorophenol	ND		1.2	0.34	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,4-Dimethylphenol	ND		1.2	0.31	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,4-Dinitrophenol	ND		2.5	1.1	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,4-Dinitrotoluene	ND		1.5	0.48	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2,6-Dinitrotoluene	ND		1.5	0.43	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2-Chloronaphthalene	ND		0.38	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2-Chlorophenol	ND		0.38	0.077	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2-Methylnaphthalene	6.2		0.12	0.015	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2-Methylphenol	ND		1.5	0.24	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2-Nitroaniline	ND		1.5	0.31	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
2-Nitrophenol	ND		0.38	0.10	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
3,3'-Dichlorobenzidine	ND		0.77	0.33	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
3-Nitroaniline	ND		1.5	0.38	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4,6-Dinitro-2-methylphenol	ND		2.5	0.61	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4-Bromophenyl phenyl ether	ND		0.38	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4-Chloro-3-methylphenol	ND		1.2	0.35	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4-Chloroaniline	ND		1.2	0.23	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4-Chlorophenyl phenyl ether	ND		0.38	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4-Nitroaniline	ND		1.5	0.46	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
4-Nitrophenol	ND		2.5	0.72	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Acenaphthene	0.32		0.12	0.022	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Acenaphthylene	0.17		0.12	0.031	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Acetophenone	ND		0.77	0.084	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Anthracene	0.41		0.12	0.018	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Atrazine	ND		1.5	0.28	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Benzaldehyde	0.21 J		0.77	0.18	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Benzo[a]anthracene	1.8		0.12	0.026	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Benzo[a]pyrene	1.9		0.12	0.072	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Benzo[b]fluoranthene	2.9		0.12	0.050	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Benzo[g,h,i]perylene	0.46		0.12	0.055	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Benzo[k]fluoranthene	1.2		0.12	0.053	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Bis(2-chloroethoxy)methane	ND		0.77	0.092	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Bis(2-chloroethyl)ether	ND		0.77	0.092	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Bis(2-ethylhexyl) phthalate	3.1		0.54	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Butyl benzyl phthalate	ND		0.54	0.17	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Caprolactam	ND		2.5	0.58	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Carbazole	0.45		0.38	0.15	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Chrysene	2.2		0.12	0.011	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5
Dibenz(a,h)anthracene	0.12		0.12	0.053	mg/Kg	☆	02/23/23 08:32	02/25/23 17:47	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2598-N. DITCH

Lab Sample ID: 240-180684-15

Date Collected: 02/20/23 18:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 64.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	2.4		0.38	0.10	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Diethyl phthalate	ND		0.54	0.24	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Dimethyl phthalate	ND		0.54	0.11	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Di-n-butyl phthalate	ND		0.54	0.39	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Di-n-octyl phthalate	ND		0.54	0.21	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Fluoranthene	3.3		0.12	0.034	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Fluorene	0.31		0.12	0.021	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Hexachlorobenzene	ND		0.12	0.022	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Hexachlorobutadiene	ND		0.38	0.092	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Hexachlorocyclopentadiene	ND		2.5	0.48	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Hexachloroethane	ND		0.38	0.069	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Indeno[1,2,3-cd]pyrene	0.38		0.12	0.056	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Isophorone	ND		0.38	0.092	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
N-Nitrosodi-n-propylamine	ND		0.38	0.084	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
N-Nitrosodiphenylamine	ND		0.38	0.092	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Naphthalene	4.1		0.12	0.018	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Nitrobenzene	ND		0.77	0.10	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Pentachlorophenol	ND		1.2	0.45	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Phenanthrene	5.6		0.12	0.017	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Phenol	ND		0.38	0.061	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
Pyrene	3.1		0.12	0.016	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5
3 & 4 Methylphenol	ND		3.1	0.22	mg/Kg	✱	02/23/23 08:32	02/25/23 17:47	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	97		46 - 137	02/23/23 08:32	02/25/23 17:47	5
Phenol-d5 (Surr)	88		26 - 120	02/23/23 08:32	02/25/23 17:47	5
Nitrobenzene-d5 (Surr)	78		25 - 120	02/23/23 08:32	02/25/23 17:47	5
2-Fluorophenol (Surr)	66		20 - 120	02/23/23 08:32	02/25/23 17:47	5
2-Fluorobiphenyl (Surr)	96		34 - 120	02/23/23 08:32	02/25/23 17:47	5
2,4,6-Tribromophenol (Surr)	99		10 - 120	02/23/23 08:32	02/25/23 17:47	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J	0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 11:21	1
Barium	0.37	J B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 11:21	1
Cadmium	0.0032	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 11:21	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 11:21	1
Lead	0.24		0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 11:21	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 11:21	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 11:21	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 09:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	64.4		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	35.6		0.1	0.1	%			02/23/23 10:54	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1852-N. DITCH

Lab Sample ID: 240-180684-16

Date Collected: 02/20/23 18:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 69.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.44	0.14	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,1,2,2-Tetrachloroethane	ND		0.44	0.27	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.44	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,1,2-Trichloroethane	ND		0.44	0.10	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,1-Dichloroethane	ND		0.44	0.085	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,1-Dichloroethene	ND		0.44	0.15	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,2,4-Trichlorobenzene	ND		0.44	0.24	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,2-Dibromo-3-Chloropropane	ND		0.89	0.39	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Ethylene Dibromide	ND		0.44	0.14	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,2-Dichlorobenzene	ND		0.44	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,2-Dichloroethane	ND		0.44	0.083	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,2-Dichloropropane	ND		0.44	0.065	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,3-Dichlorobenzene	ND		0.44	0.081	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
1,4-Dichlorobenzene	ND		0.44	0.097	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
2-Butanone (MEK)	ND		1.8	0.28	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
2-Hexanone	ND		1.8	0.47	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
4-Methyl-2-pentanone (MIBK)	ND		1.8	0.42	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Acetone	0.74	J	1.8	0.43	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Benzene	ND		0.44	0.074	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Dichlorobromomethane	ND		0.44	0.11	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Bromoform	ND		0.44	0.40	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Bromomethane	ND		0.44	0.29	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Carbon disulfide	ND		0.44	0.19	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Carbon tetrachloride	ND		0.44	0.18	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Chlorobenzene	ND		0.44	0.062	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Chloroethane	ND		0.44	0.27	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Chloroform	ND		0.44	0.096	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Chloromethane	ND		0.44	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
cis-1,2-Dichloroethene	ND		0.44	0.071	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
cis-1,3-Dichloropropene	ND		0.44	0.22	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Cyclohexane	ND		0.89	0.29	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Chlorodibromomethane	ND		0.44	0.21	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Dichlorodifluoromethane	ND		0.44	0.094	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Ethylbenzene	ND		0.44	0.083	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Isopropylbenzene	ND		0.44	0.067	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Methyl acetate	ND		2.2	0.30	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Methyl tert-butyl ether	ND		0.44	0.065	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Methylcyclohexane	0.20	J	0.89	0.12	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Methylene Chloride	ND		0.89	0.68	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Styrene	ND		0.44	0.092	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Tetrachloroethene	ND		0.44	0.17	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Toluene	ND		0.44	0.42	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
trans-1,2-Dichloroethene	ND		0.44	0.11	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
trans-1,3-Dichloropropene	ND		0.44	0.19	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Trichloroethene	ND		0.44	0.25	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Trichlorofluoromethane	ND		0.44	0.24	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Vinyl chloride	0.23	J	0.44	0.22	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1
Xylenes, Total	ND		0.89	0.16	mg/Kg	✱	02/21/23 19:38	02/24/23 00:46	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1852-N. DITCH

Lab Sample ID: 240-180684-16

Date Collected: 02/20/23 18:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 69.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/21/23 19:38	02/24/23 00:46	1
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 19:38	02/24/23 00:46	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/24/23 00:46	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125	02/21/23 19:38	02/24/23 00:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.4	0.48	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
bis (2-chloroisopropyl) ether	ND		2.8	0.28	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,4,5-Trichlorophenol	ND		4.2	1.9	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,4,6-Trichlorophenol	ND		4.2	1.8	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,4-Dichlorophenol	ND		4.2	1.2	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,4-Dimethylphenol	ND		4.2	1.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,4-Dinitrophenol	ND		9.3	4.0	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,4-Dinitrotoluene	ND		5.6	1.7	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2,6-Dinitrotoluene	ND		5.6	1.6	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2-Chloronaphthalene	ND		1.4	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2-Chlorophenol	ND		1.4	0.28	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2-Methylnaphthalene	3.8		0.42	0.055	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2-Methylphenol	ND		5.6	0.87	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2-Nitroaniline	ND		5.6	1.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
2-Nitrophenol	ND		1.4	0.37	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
3,3'-Dichlorobenzidine	ND		2.8	1.2	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
3-Nitroaniline	ND		5.6	1.4	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4,6-Dinitro-2-methylphenol	ND		9.3	2.3	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4-Bromophenyl phenyl ether	ND		1.4	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4-Chloro-3-methylphenol	ND		4.2	1.3	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4-Chloroaniline	ND		4.2	0.85	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4-Chlorophenyl phenyl ether	ND		1.4	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4-Nitroaniline	ND		5.6	1.7	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
4-Nitrophenol	ND		9.3	2.7	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Acenaphthene	0.48		0.42	0.081	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Acenaphthylene	0.38 J		0.42	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Acetophenone	ND		2.8	0.31	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Anthracene	1.3		0.42	0.068	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Atrazine	ND		5.6	1.0	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Benzaldehyde	ND		2.8	0.65	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Benzo[a]anthracene	3.3		0.42	0.096	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Benzo[a]pyrene	2.8		0.42	0.26	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Benzo[b]fluoranthene	4.2		0.42	0.18	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Benzo[g,h,i]perylene	0.85		0.42	0.20	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Benzo[k]fluoranthene	1.6		0.42	0.20	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Bis(2-chloroethoxy)methane	ND		2.8	0.34	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Bis(2-chloroethyl)ether	ND		2.8	0.34	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Bis(2-ethylhexyl) phthalate	ND		2.0	1.4	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Butyl benzyl phthalate	ND		2.0	0.62	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Caprolactam	ND		9.3	2.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Carbazole	0.76 J		1.4	0.54	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Chrysene	3.9		0.42	0.042	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20
Dibenz(a,h)anthracene	0.26 J		0.42	0.20	mg/Kg	☆	02/23/23 08:32	02/25/23 16:03	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1852-N. DITCH

Lab Sample ID: 240-180684-16

Date Collected: 02/20/23 18:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 69.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	1.7		1.4	0.37	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Diethyl phthalate	ND		2.0	0.87	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Dimethyl phthalate	ND		2.0	0.39	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Di-n-butyl phthalate	ND		2.0	1.4	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Di-n-octyl phthalate	ND		2.0	0.79	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Fluoranthene	7.7		0.42	0.13	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Fluorene	1.0		0.42	0.077	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Hexachlorobenzene	ND		0.42	0.080	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Hexachlorobutadiene	ND		1.4	0.34	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Hexachlorocyclopentadiene	ND		9.3	1.7	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Hexachloroethane	ND		1.4	0.25	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Indeno[1,2,3-cd]pyrene	0.87		0.42	0.21	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Isophorone	ND		1.4	0.34	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
N-Nitrosodi-n-propylamine	ND		1.4	0.31	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
N-Nitrosodiphenylamine	ND		1.4	0.34	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Naphthalene	2.5		0.42	0.068	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Nitrobenzene	ND		2.8	0.37	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Pentachlorophenol	ND		4.2	1.6	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Phenanthrene	9.8		0.42	0.063	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Phenol	ND		1.4	0.23	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
Pyrene	7.1		0.42	0.060	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20
3 & 4 Methylphenol	ND		11	0.82	mg/Kg	✱	02/23/23 08:32	02/25/23 16:03	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	102		46 - 137	02/23/23 08:32	02/25/23 16:03	20
Phenol-d5 (Surr)	94		26 - 120	02/23/23 08:32	02/25/23 16:03	20
Nitrobenzene-d5 (Surr)	71		25 - 120	02/23/23 08:32	02/25/23 16:03	20
2-Fluorophenol (Surr)	72		20 - 120	02/23/23 08:32	02/25/23 16:03	20
2-Fluorobiphenyl (Surr)	87		34 - 120	02/23/23 08:32	02/25/23 16:03	20
2,4,6-Tribromophenol (Surr)	126	S1+	10 - 120	02/23/23 08:32	02/25/23 16:03	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0068	J	0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 11:25	1
Barium	0.70	B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 11:25	1
Cadmium	0.0037	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 11:25	1
Chromium	0.0051	J	0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 11:25	1
Lead	0.025	J	0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 11:25	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 11:25	1
Silver	0.0013	J	0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 11:25	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	69.7		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	30.3		0.1	0.1	%			02/23/23 10:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Date Collected: 02/21/23 13:15

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 55.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		42	13	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,1,2,2-Tetrachloroethane	ND		42	25	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		42	11	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,1,2-Trichloroethane	ND		42	9.5	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,1-Dichloroethane	ND		42	8.0	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,1-Dichloroethene	ND		42	14	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,2,4-Trichlorobenzene	ND		42	22	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,2-Dibromo-3-Chloropropane	ND		84	37	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Ethylene Dibromide	ND		42	13	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,2-Dichlorobenzene	ND		42	20	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,2-Dichloroethane	ND		42	7.8	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,2-Dichloropropane	ND		42	6.2	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,3-Dichlorobenzene	ND		42	7.7	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
1,4-Dichlorobenzene	ND		42	9.2	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
2-Butanone (MEK)	ND		170	26	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
2-Hexanone	ND		170	44	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
4-Methyl-2-pentanone (MIBK)	ND		170	40	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Acetone	58 J		170	41	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Benzene	ND		42	7.0	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Dichlorobromomethane	ND		42	10	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Bromoform	ND		42	38	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Bromomethane	ND		42	28	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Carbon disulfide	ND		42	18	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Carbon tetrachloride	ND		42	17	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Chlorobenzene	ND		42	5.8	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Chloroethane	ND		42	25	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Chloroform	ND		42	9.0	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Chloromethane	ND		42	11	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
cis-1,2-Dichloroethene	ND		42	6.7	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
cis-1,3-Dichloropropene	ND		42	21	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Cyclohexane	ND		84	27	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Chlorodibromomethane	ND		42	20	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Dichlorodifluoromethane	ND		42	8.9	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Ethylbenzene	ND		42	7.8	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Isopropylbenzene	ND		42	6.3	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Methyl acetate	ND		210	28	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Methyl tert-butyl ether	ND		42	6.2	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Methylcyclohexane	ND		84	11	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Methylene Chloride	ND		84	64	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Styrene	ND		42	8.7	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Tetrachloroethene	ND		42	16	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Toluene	ND		42	40	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
trans-1,2-Dichloroethene	ND		42	10	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
trans-1,3-Dichloropropene	ND		42	18	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Trichloroethene	ND		42	24	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Trichlorofluoromethane	ND		42	23	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666
Vinyl chloride	0.063		0.0091	0.0032	mg/Kg	✱	02/22/23 11:38	02/26/23 19:07	1
Xylenes, Total	ND		84	15	mg/Kg	✱	02/22/23 19:09	02/24/23 01:11	66.6666

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Date Collected: 02/21/23 13:15

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 55.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/22/23 19:09	02/24/23 01:11	66.6666
Toluene-d8 (Surr)	118		56 - 125	02/22/23 11:38	02/26/23 19:07	1
Dibromofluoromethane (Surr)	102		41 - 138	02/22/23 19:09	02/24/23 01:11	66.6666
Dibromofluoromethane (Surr)	96		41 - 138	02/22/23 11:38	02/26/23 19:07	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/22/23 19:09	02/24/23 01:11	66.6666
4-Bromofluorobenzene (Surr)	138	*3	41 - 143	02/22/23 11:38	02/26/23 19:07	1
1,2-Dichloroethane-d4 (Surr)	108		58 - 125	02/22/23 19:09	02/24/23 01:11	66.6666
1,2-Dichloroethane-d4 (Surr)	85		58 - 125	02/22/23 11:38	02/26/23 19:07	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.8	0.60	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
bis (2-chloroisopropyl) ether	ND		3.5	0.35	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,4,5-Trichlorophenol	ND		5.3	2.4	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,4,6-Trichlorophenol	ND		5.3	2.3	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,4-Dichlorophenol	ND		5.3	1.6	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,4-Dimethylphenol	ND		5.3	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,4-Dinitrophenol	ND		12	5.0	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,4-Dinitrotoluene	ND		7.1	2.2	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2,6-Dinitrotoluene	ND		7.1	2.0	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2-Chloronaphthalene	ND		1.8	0.50	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2-Chlorophenol	ND		1.8	0.35	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2-Methylnaphthalene	2.0		0.53	0.070	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2-Methylphenol	ND		7.1	1.1	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2-Nitroaniline	ND		7.1	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
2-Nitrophenol	ND		1.8	0.46	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
3,3'-Dichlorobenzidine	ND		3.5	1.5	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
3-Nitroaniline	ND		7.1	1.7	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4,6-Dinitro-2-methylphenol	ND		12	2.8	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4-Bromophenyl phenyl ether	ND		1.8	0.50	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4-Chloro-3-methylphenol	ND		5.3	1.6	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4-Chloroaniline	ND		5.3	1.1	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4-Chlorophenyl phenyl ether	ND		1.8	0.50	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4-Nitroaniline	ND		7.1	2.1	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
4-Nitrophenol	ND		12	3.3	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Acenaphthene	0.27	J	0.53	0.10	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Acenaphthylene	0.19	J	0.53	0.14	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Acetophenone	ND		3.5	0.39	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Anthracene	0.64		0.53	0.086	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Atrazine	ND		7.1	1.3	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Benzaldehyde	ND		3.5	0.82	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Benzo[a]anthracene	2.1		0.53	0.12	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Benzo[a]pyrene	2.2		0.53	0.33	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Benzo[b]fluoranthene	3.7		0.53	0.23	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Benzo[g,h,i]perylene	0.54		0.53	0.25	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Benzo[k]fluoranthene	1.1		0.53	0.25	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Bis(2-chloroethoxy)methane	ND		3.5	0.43	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Bis(2-chloroethyl)ether	ND		3.5	0.43	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Bis(2-ethylhexyl) phthalate	ND		2.5	1.8	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20
Butyl benzyl phthalate	ND		2.5	0.78	mg/Kg	☼	02/23/23 08:32	02/25/23 16:29	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Date Collected: 02/21/23 13:15

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 55.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		12	2.7	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Carbazole	ND		1.8	0.67	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Chrysene	2.7		0.53	0.053	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Dibenz(a,h)anthracene	ND		0.53	0.25	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Dibenzofuran	0.85	J	1.8	0.46	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Diethyl phthalate	ND		2.5	1.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Dimethyl phthalate	ND		2.5	0.50	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Di-n-butyl phthalate	ND		2.5	1.8	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Di-n-octyl phthalate	ND		2.5	0.99	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Fluoranthene	4.5		0.53	0.16	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Fluorene	0.37	J	0.53	0.097	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Hexachlorobenzene	ND		0.53	0.10	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Hexachlorobutadiene	ND		1.8	0.43	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Hexachlorocyclopentadiene	ND		12	2.2	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Hexachloroethane	ND		1.8	0.32	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Indeno[1,2,3-cd]pyrene	0.62		0.53	0.26	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Isophorone	ND		1.8	0.43	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
N-Nitrosodi-n-propylamine	ND		1.8	0.39	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
N-Nitrosodiphenylamine	ND		1.8	0.43	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Naphthalene	1.5		0.53	0.086	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Nitrobenzene	ND		3.5	0.46	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Pentachlorophenol	ND		5.3	2.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Phenanthrene	4.0		0.53	0.079	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Phenol	ND		1.8	0.28	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
Pyrene	4.0		0.53	0.076	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20
3 & 4 Methylphenol	ND		14	1.0	mg/Kg	☆	02/23/23 08:32	02/25/23 16:29	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137	02/23/23 08:32	02/25/23 16:29	20
Phenol-d5 (Surr)	86		26 - 120	02/23/23 08:32	02/25/23 16:29	20
Nitrobenzene-d5 (Surr)	72		25 - 120	02/23/23 08:32	02/25/23 16:29	20
2-Fluorophenol (Surr)	71		20 - 120	02/23/23 08:32	02/25/23 16:29	20
2-Fluorobiphenyl (Surr)	84		34 - 120	02/23/23 08:32	02/25/23 16:29	20
2,4,6-Tribromophenol (Surr)	112		10 - 120	02/23/23 08:32	02/25/23 16:29	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.10	0.0081	mg/L		02/23/23 14:00	02/24/23 12:54	2
Barium	0.45	J B	1.0	0.0027	mg/L		02/23/23 14:00	02/24/23 12:54	2
Cadmium	0.0064	J	0.10	0.00041	mg/L		02/23/23 14:00	02/24/23 12:54	2
Chromium	ND		0.10	0.0081	mg/L		02/23/23 14:00	02/24/23 12:54	2
Lead	0.041	J	0.10	0.0055	mg/L		02/23/23 14:00	02/24/23 12:54	2
Selenium	ND		0.10	0.012	mg/L		02/23/23 14:00	02/24/23 12:54	2
Silver	0.0014	J	0.10	0.0012	mg/L		02/23/23 14:00	02/24/23 12:54	2

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Date Collected: 02/21/23 13:15

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 55.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	55.8		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	44.2		0.1	0.1	%			02/22/23 13:18	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-180684-18

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/23/23 18:09	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/23/23 18:09	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/23/23 18:09	1
Benzene	ND		0.025	0.00042	mg/L			02/23/23 18:09	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/23/23 18:09	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/23/23 18:09	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/23/23 18:09	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/23/23 18:09	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/23/23 18:09	1
Chloroform	ND		0.025	0.00047	mg/L			02/23/23 18:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		80 - 120					02/23/23 18:09	1
Dibromofluoromethane (Surr)	98		71 - 121					02/23/23 18:09	1
4-Bromofluorobenzene (Surr)	115		80 - 120					02/23/23 18:09	1
1,2-Dichloroethane-d4 (Surr)	95		76 - 120					02/23/23 18:09	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/23/23 12:44	02/24/23 18:58	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/23/23 12:44	02/24/23 18:58	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/23/23 12:44	02/24/23 18:58	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/23/23 12:44	02/24/23 18:58	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/23/23 12:44	02/24/23 18:58	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/23/23 12:44	02/24/23 18:58	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/23/23 12:44	02/24/23 18:58	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/23/23 12:44	02/24/23 18:58	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/23/23 12:44	02/24/23 18:58	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/23/23 12:44	02/24/23 18:58	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/23/23 12:44	02/24/23 18:58	1
Pyridine	ND		0.0040	0.00036	mg/L		02/23/23 12:44	02/24/23 18:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		46 - 137				02/23/23 12:44	02/24/23 18:58	1
Phenol-d5 (Surr)	61		26 - 120				02/23/23 12:44	02/24/23 18:58	1
Nitrobenzene-d5 (Surr)	73		24 - 120				02/23/23 12:44	02/24/23 18:58	1
2-Fluorophenol (Surr)	70		19 - 120				02/23/23 12:44	02/24/23 18:58	1
2-Fluorobiphenyl (Surr)	100		33 - 120				02/23/23 12:44	02/24/23 18:58	1
2,4,6-Tribromophenol (Surr)	109		10 - 120				02/23/23 12:44	02/24/23 18:58	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/23/23 12:51	02/24/23 11:47	1
Endrin	ND		0.00050	0.0000065	mg/L		02/23/23 12:51	02/24/23 11:47	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/23/23 12:51	02/24/23 11:47	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/23/23 12:51	02/24/23 11:47	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/23/23 12:51	02/24/23 11:47	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/23/23 12:51	02/24/23 11:47	1
Toxaphene	ND		0.020	0.000058	mg/L		02/23/23 12:51	02/24/23 11:47	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-180684-18

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	76		10 - 145	02/23/23 12:51	02/24/23 11:47	1
DCB Decachlorobiphenyl	79		10 - 145	02/23/23 12:51	02/24/23 11:47	1
Tetrachloro-m-xylene	61		10 - 123	02/23/23 12:51	02/24/23 11:47	1
Tetrachloro-m-xylene	65		10 - 123	02/23/23 12:51	02/24/23 11:47	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/24/23 19:47	02/27/23 06:43	1
2,4-D	ND		0.050	0.016	mg/L		02/24/23 19:47	02/27/23 06:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	72		26 - 136	02/24/23 19:47	02/27/23 06:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	61.0		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	39.0		0.1	0.1	%			02/22/23 13:18	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-180684-18

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 61.0

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		78	39	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1221	ND		78	47	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1232	ND		78	33	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1242	ND		78	30	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1248	ND		78	27	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1254	ND		78	33	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1260	ND		78	33	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1262	ND		78	34	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Aroclor-1268	ND		78	25	ug/Kg	✳	02/24/23 09:04	02/24/23 12:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	95		10 - 149				02/24/23 09:04	02/24/23 12:52	1
DCB Decachlorobiphenyl	108		10 - 174				02/24/23 09:04	02/24/23 12:52	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.92	0.31	ng/g	✳	02/24/23 17:55	02/27/23 12:45	1
Perfluorooctanesulfonic acid	0.87	J	0.92	0.31	ng/g	✳	02/24/23 17:55	02/27/23 12:45	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C8 PFOA	72		26 - 159				02/24/23 17:55	02/27/23 12:45	1
¹³ C8 PFOS	79		41 - 154				02/24/23 17:55	02/27/23 12:45	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.92	0.31	ng/g	✳	02/24/23 17:55	02/27/23 14:58	1
Perfluorooctanesulfonic acid	1.0		0.92	0.31	ng/g	✳	02/24/23 17:55	02/27/23 14:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C8 PFOA	70		26 - 159				02/24/23 17:55	02/27/23 14:58	1
¹³ C8 PFOS	79		41 - 154				02/24/23 17:55	02/27/23 14:58	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Date Collected: 02/21/23 13:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 47.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.81	0.25	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,1,2,2-Tetrachloroethane	ND		0.81	0.48	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.81	0.22	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,1,2-Trichloroethane	ND		0.81	0.18	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,1-Dichloroethane	ND		0.81	0.15	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,1-Dichloroethene	ND		0.81	0.26	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,2,4-Trichlorobenzene	ND		0.81	0.43	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,2-Dibromo-3-Chloropropane	ND		1.6	0.71	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Ethylene Dibromide	ND		0.81	0.26	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,2-Dichlorobenzene	ND		0.81	0.39	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,2-Dichloroethane	ND		0.81	0.15	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,2-Dichloropropane	ND		0.81	0.12	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,3-Dichlorobenzene	ND		0.81	0.15	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
1,4-Dichlorobenzene	ND		0.81	0.18	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
2-Butanone (MEK)	ND		3.2	0.51	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
2-Hexanone	ND		3.2	0.85	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
4-Methyl-2-pentanone (MIBK)	ND		3.2	0.77	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Acetone	1.4	J	3.2	0.79	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Benzene	ND		0.81	0.14	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Dichlorobromomethane	ND		0.81	0.20	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Bromoform	ND		0.81	0.74	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Bromomethane	ND		0.81	0.54	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Carbon disulfide	ND		0.81	0.35	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Carbon tetrachloride	ND		0.81	0.33	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Chlorobenzene	ND		0.81	0.11	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Chloroethane	ND		0.81	0.48	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Chloroform	ND		0.81	0.17	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Chloromethane	ND		0.81	0.21	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
cis-1,2-Dichloroethene	ND		0.81	0.13	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
cis-1,3-Dichloropropene	ND		0.81	0.40	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Cyclohexane	ND		1.6	0.53	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Chlorodibromomethane	ND		0.81	0.38	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Dichlorodifluoromethane	ND		0.81	0.17	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Ethylbenzene	ND		0.81	0.15	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Isopropylbenzene	ND		0.81	0.12	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Methyl acetate	1.3	J	4.0	0.54	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Methyl tert-butyl ether	ND		0.81	0.12	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Methylcyclohexane	ND		1.6	0.21	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Methylene Chloride	ND		1.6	1.2	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Styrene	ND		0.81	0.17	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Tetrachloroethene	ND		0.81	0.31	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Toluene	ND		0.81	0.77	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
trans-1,2-Dichloroethene	ND		0.81	0.20	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
trans-1,3-Dichloropropene	ND		0.81	0.34	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Trichloroethene	ND		0.81	0.46	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Trichlorofluoromethane	ND		0.81	0.44	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Vinyl chloride	3.2		0.81	0.40	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1
Xylenes, Total	ND		1.6	0.29	mg/Kg	✳	02/22/23 19:09	02/24/23 01:36	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Date Collected: 02/21/23 13:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 47.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	106		56 - 125	02/22/23 19:09	02/24/23 01:36	1
Toluene-d8 (Surr)	107		56 - 125	02/22/23 19:09	02/24/23 17:55	2.857
Dibromofluoromethane (Surr)	96		41 - 138	02/22/23 19:09	02/24/23 01:36	1
Dibromofluoromethane (Surr)	103		41 - 138	02/22/23 19:09	02/24/23 17:55	2.857
4-Bromofluorobenzene (Surr)	105		41 - 143	02/22/23 19:09	02/24/23 01:36	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/22/23 19:09	02/24/23 17:55	2.857
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/22/23 19:09	02/24/23 01:36	1
1,2-Dichloroethane-d4 (Surr)	113		58 - 125	02/22/23 19:09	02/24/23 17:55	2.857

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.7	0.90	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
bis (2-chloroisopropyl) ether	ND		5.3	0.53	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,4,5-Trichlorophenol	ND		8.0	3.7	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,4,6-Trichlorophenol	ND		8.0	3.4	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,4-Dichlorophenol	ND		8.0	2.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,4-Dimethylphenol	ND		8.0	2.1	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,4-Dinitrophenol	ND		18	7.6	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,4-Dinitrotoluene	ND		11	3.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2,6-Dinitrotoluene	ND		11	3.0	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2-Chloronaphthalene	ND		2.7	0.75	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2-Chlorophenol	ND		2.7	0.53	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2-Methylnaphthalene	5.9		0.80	0.10	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2-Methylphenol	ND		11	1.6	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2-Nitroaniline	ND		11	2.1	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
2-Nitrophenol	ND		2.7	0.69	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
3,3'-Dichlorobenzidine	ND		5.3	2.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
3-Nitroaniline	ND		11	2.6	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4,6-Dinitro-2-methylphenol	ND		18	4.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4-Bromophenyl phenyl ether	ND		2.7	0.75	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4-Chloro-3-methylphenol	ND		8.0	2.4	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4-Chloroaniline	ND		8.0	1.6	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4-Chlorophenyl phenyl ether	ND		2.7	0.75	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4-Nitroaniline	ND		11	3.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
4-Nitrophenol	ND		18	5.0	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Acenaphthene	0.89		0.80	0.15	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Acenaphthylene	0.65 J		0.80	0.21	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Acetophenone	ND		5.3	0.59	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Anthracene	0.95		0.80	0.13	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Atrazine	ND		11	1.9	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Benzaldehyde	ND		5.3	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Benzo[a]anthracene	3.2		0.80	0.18	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Benzo[a]pyrene	3.1		0.80	0.50	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Benzo[b]fluoranthene	4.2		0.80	0.35	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Benzo[g,h,i]perylene	1.6		0.80	0.38	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Benzo[k]fluoranthene	1.7		0.80	0.37	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Bis(2-chloroethoxy)methane	ND		5.3	0.64	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Bis(2-chloroethyl)ether	ND		5.3	0.64	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Bis(2-ethylhexyl) phthalate	ND		3.7	2.7	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25
Butyl benzyl phthalate	ND		3.7	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:36	25

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Date Collected: 02/21/23 13:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 47.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		18	4.0	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Carbazole	ND		2.7	1.0	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Chrysene	3.8		0.80	0.079	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Dibenz(a,h)anthracene	0.40	J	0.80	0.37	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Dibenzofuran	2.5	J	2.7	0.69	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Diethyl phthalate	ND		3.7	1.6	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Dimethyl phthalate	ND		3.7	0.75	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Di-n-butyl phthalate	ND		3.7	2.7	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Di-n-octyl phthalate	ND		3.7	1.5	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Fluoranthene	7.6		0.80	0.24	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Fluorene	1.1		0.80	0.15	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Hexachlorobenzene	ND		0.80	0.15	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Hexachlorobutadiene	ND		2.7	0.64	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Hexachlorocyclopentadiene	ND		18	3.3	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Hexachloroethane	ND		2.7	0.48	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Indeno[1,2,3-cd]pyrene	1.4		0.80	0.39	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Isophorone	ND		2.7	0.64	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
N-Nitrosodi-n-propylamine	ND		2.7	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
N-Nitrosodiphenylamine	ND		2.7	0.64	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Naphthalene	4.8		0.80	0.13	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Nitrobenzene	ND		5.3	0.69	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Pentachlorophenol	ND		8.0	3.1	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Phenanthrene	9.0		0.80	0.12	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Phenol	ND		2.7	0.43	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
Pyrene	7.7		0.80	0.11	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25
3 & 4 Methylphenol	ND		21	1.5	mg/Kg	✱	02/23/23 08:32	02/25/23 12:36	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		46 - 137	02/23/23 08:32	02/25/23 12:36	25
Phenol-d5 (Surr)	99		26 - 120	02/23/23 08:32	02/25/23 12:36	25
Nitrobenzene-d5 (Surr)	82		25 - 120	02/23/23 08:32	02/25/23 12:36	25
2-Fluorophenol (Surr)	85		20 - 120	02/23/23 08:32	02/25/23 12:36	25
2-Fluorobiphenyl (Surr)	91		34 - 120	02/23/23 08:32	02/25/23 12:36	25
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/23/23 08:32	02/25/23 12:36	25

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RA

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	104		46 - 137	02/23/23 08:32	02/25/23 18:12	50
Phenol-d5 (Surr)	106		26 - 120	02/23/23 08:32	02/25/23 18:12	50
Nitrobenzene-d5 (Surr)	84		25 - 120	02/23/23 08:32	02/25/23 18:12	50
2-Fluorophenol (Surr)	91		20 - 120	02/23/23 08:32	02/25/23 18:12	50
2-Fluorobiphenyl (Surr)	95		34 - 120	02/23/23 08:32	02/25/23 18:12	50
2,4,6-Tribromophenol (Surr)	196	S1+	10 - 120	02/23/23 08:32	02/25/23 18:12	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 11:42	1
Barium	0.44	J B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 11:42	1
Cadmium	0.016	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 11:42	1
Chromium	0.0054	J	0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 11:42	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Date Collected: 02/21/23 13:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 47.4

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.12		0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 11:42	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 11:42	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 11:42	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	47.4		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	52.6		0.1	0.1	%			02/22/23 13:18	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Date Collected: 02/21/23 13:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 40.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.95	0.30	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,1,2,2-Tetrachloroethane	ND		0.95	0.57	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.95	0.25	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,1,2-Trichloroethane	ND		0.95	0.22	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,1-Dichloroethane	ND		0.95	0.18	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,1-Dichloroethene	ND		0.95	0.31	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,2,4-Trichlorobenzene	ND		0.95	0.50	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,2-Dibromo-3-Chloropropane	ND		1.9	0.84	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Ethylene Dibromide	ND		0.95	0.30	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,2-Dichlorobenzene	ND		0.95	0.45	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,2-Dichloroethane	ND		0.95	0.18	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,2-Dichloropropane	ND		0.95	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,3-Dichlorobenzene	ND		0.95	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
1,4-Dichlorobenzene	ND		0.95	0.21	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
2-Butanone (MEK)	ND		3.8	0.60	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
2-Hexanone	ND		3.8	1.0	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
4-Methyl-2-pentanone (MIBK)	ND		3.8	0.90	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Acetone	1.6	J	3.8	0.92	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Benzene	ND		0.95	0.16	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Dichlorobromomethane	ND		0.95	0.23	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Bromoform	ND		0.95	0.86	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Bromomethane	ND		0.95	0.63	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Carbon disulfide	ND		0.95	0.41	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Carbon tetrachloride	ND		0.95	0.39	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Chlorobenzene	ND		0.95	0.13	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Chloroethane	ND		0.95	0.57	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Chloroform	ND		0.95	0.20	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Chloromethane	ND		0.95	0.25	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
cis-1,2-Dichloroethene	ND		0.95	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
cis-1,3-Dichloropropene	ND		0.95	0.47	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Cyclohexane	ND		1.9	0.62	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Chlorodibromomethane	ND		0.95	0.44	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Dichlorodifluoromethane	ND		0.95	0.20	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Ethylbenzene	ND		0.95	0.18	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Isopropylbenzene	ND		0.95	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Methyl acetate	ND		4.7	0.64	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Methyl tert-butyl ether	ND		0.95	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Methylcyclohexane	ND		1.9	0.25	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Methylene Chloride	ND		1.9	1.5	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Styrene	ND		0.95	0.20	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Tetrachloroethene	ND		0.95	0.37	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Toluene	ND		0.95	0.91	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
trans-1,2-Dichloroethene	ND		0.95	0.24	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
trans-1,3-Dichloropropene	ND		0.95	0.40	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Trichloroethene	ND		0.95	0.54	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Trichlorofluoromethane	ND		0.95	0.52	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1
Vinyl chloride	0.14		0.010	0.0037	mg/Kg	✱	02/22/23 11:38	02/25/23 02:06	1
Xylenes, Total	ND		1.9	0.34	mg/Kg	✱	02/22/23 19:09	02/24/23 02:02	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Date Collected: 02/21/23 13:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 40.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/22/23 19:09	02/24/23 02:02	1
Toluene-d8 (Surr)	107		56 - 125	02/22/23 19:09	02/24/23 18:20	1
Toluene-d8 (Surr)	105		56 - 125	02/22/23 11:38	02/25/23 02:06	1
Dibromofluoromethane (Surr)	94		41 - 138	02/22/23 19:09	02/24/23 02:02	1
Dibromofluoromethane (Surr)	97		41 - 138	02/22/23 19:09	02/24/23 18:20	1
Dibromofluoromethane (Surr)	89		41 - 138	02/22/23 11:38	02/25/23 02:06	1
4-Bromofluorobenzene (Surr)	104		41 - 143	02/22/23 19:09	02/24/23 02:02	1
4-Bromofluorobenzene (Surr)	107		41 - 143	02/22/23 19:09	02/24/23 18:20	1
4-Bromofluorobenzene (Surr)	132		41 - 143	02/22/23 11:38	02/25/23 02:06	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125	02/22/23 19:09	02/24/23 02:02	1
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/22/23 19:09	02/24/23 18:20	1
1,2-Dichloroethane-d4 (Surr)	80		58 - 125	02/22/23 11:38	02/25/23 02:06	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.4	0.83	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
bis (2-chloroisopropyl) ether	ND		4.9	0.49	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,4,5-Trichlorophenol	ND		7.3	3.4	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,4,6-Trichlorophenol	ND		7.3	3.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,4-Dichlorophenol	ND		7.3	2.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,4-Dimethylphenol	ND		7.3	2.0	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,4-Dinitrophenol	ND		16	6.9	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,4-Dinitrotoluene	ND		9.8	3.0	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2,6-Dinitrotoluene	ND		9.8	2.7	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2-Chloronaphthalene	ND		2.4	0.68	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2-Chlorophenol	ND		2.4	0.49	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2-Methylnaphthalene	2.5		0.73	0.096	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2-Methylphenol	ND		9.8	1.5	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2-Nitroaniline	ND		9.8	2.0	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
2-Nitrophenol	ND		2.4	0.63	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
3,3'-Dichlorobenzidine	ND		4.9	2.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
3-Nitroaniline	ND		9.8	2.4	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4,6-Dinitro-2-methylphenol	ND		16	3.9	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4-Bromophenyl phenyl ether	ND		2.4	0.68	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4-Chloro-3-methylphenol	ND		7.3	2.2	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4-Chloroaniline	ND		7.3	1.5	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4-Chlorophenyl phenyl ether	ND		2.4	0.68	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4-Nitroaniline	ND		9.8	2.9	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
4-Nitrophenol	ND		16	4.6	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Acenaphthene	0.47	J	0.73	0.14	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Acenaphthylene	0.30	J	0.73	0.20	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Acetophenone	ND		4.9	0.54	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Anthracene	0.68	J	0.73	0.12	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Atrazine	ND		9.8	1.8	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Benzaldehyde	ND		4.9	1.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Benzo[a]anthracene	4.7		0.73	0.17	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Benzo[a]pyrene	4.8		0.73	0.46	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Benzo[b]fluoranthene	6.9		0.73	0.32	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Benzo[g,h,i]perylene	1.8		0.73	0.35	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Benzo[k]fluoranthene	2.7		0.73	0.34	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Date Collected: 02/21/23 13:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 40.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		4.9	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Bis(2-chloroethyl)ether	ND		4.9	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Bis(2-ethylhexyl) phthalate	ND		3.4	2.5	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Butyl benzyl phthalate	ND		3.4	1.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Caprolactam	ND		16	3.7	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Carbazole	ND		2.4	0.93	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Chrysene	4.6		0.73	0.073	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Dibenz(a,h)anthracene	0.45	J	0.73	0.34	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Dibenzofuran	1.0	J	2.4	0.63	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Diethyl phthalate	ND		3.4	1.5	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Dimethyl phthalate	ND		3.4	0.68	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Di-n-butyl phthalate	ND		3.4	2.5	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Di-n-octyl phthalate	ND		3.4	1.4	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Fluoranthene	7.5		0.73	0.22	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Fluorene	0.50	J	0.73	0.13	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Hexachlorobenzene	ND		0.73	0.14	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Hexachlorobutadiene	ND		2.4	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Hexachlorocyclopentadiene	ND		16	3.0	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Hexachloroethane	ND		2.4	0.44	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Indeno[1,2,3-cd]pyrene	1.8		0.73	0.36	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Isophorone	ND		2.4	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
N-Nitrosodi-n-propylamine	ND		2.4	0.54	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
N-Nitrosodiphenylamine	ND		2.4	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Naphthalene	1.9		0.73	0.12	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Nitrobenzene	ND		4.9	0.63	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Pentachlorophenol	ND		7.3	2.8	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Phenanthrene	3.6		0.73	0.11	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Phenol	ND		2.4	0.39	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
Pyrene	7.3		0.73	0.10	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20
3 & 4 Methylphenol	ND		20	1.4	mg/Kg	✱	02/23/23 08:32	02/25/23 13:28	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	90		46 - 137	02/23/23 08:32	02/25/23 13:28	20
Phenol-d5 (Surr)	90		26 - 120	02/23/23 08:32	02/25/23 13:28	20
Nitrobenzene-d5 (Surr)	71		25 - 120	02/23/23 08:32	02/25/23 13:28	20
2-Fluorophenol (Surr)	71		20 - 120	02/23/23 08:32	02/25/23 13:28	20
2-Fluorobiphenyl (Surr)	86		34 - 120	02/23/23 08:32	02/25/23 13:28	20
2,4,6-Tribromophenol (Surr)	107		10 - 120	02/23/23 08:32	02/25/23 13:28	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 11:46	1
Barium	0.28	J B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 11:46	1
Cadmium	0.0032	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 11:46	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 11:46	1
Lead	0.012	J	0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 11:46	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 11:46	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 11:46	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Date Collected: 02/21/23 13:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 40.7

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	40.7		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	59.3		0.1	0.1	%			02/22/23 13:18	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 59.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.54	0.17	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,1,2,2-Tetrachloroethane	ND		0.54	0.32	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.54	0.14	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,1,2-Trichloroethane	ND		0.54	0.12	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,1-Dichloroethane	ND		0.54	0.10	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,1-Dichloroethene	ND		0.54	0.18	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,2,4-Trichlorobenzene	ND		0.54	0.29	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,2-Dibromo-3-Chloropropane	ND		1.1	0.48	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Ethylene Dibromide	ND		0.54	0.17	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,2-Dichlorobenzene	ND		0.54	0.26	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,2-Dichloroethane	ND		0.54	0.10	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,2-Dichloropropane	ND		0.54	0.080	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,3-Dichlorobenzene	ND		0.54	0.10	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
1,4-Dichlorobenzene	ND		0.54	0.12	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
2-Butanone (MEK)	ND		2.2	0.34	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
2-Hexanone	ND		2.2	0.57	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
4-Methyl-2-pentanone (MIBK)	ND		2.2	0.51	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Acetone	0.93	J	2.2	0.53	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Benzene	ND		0.54	0.091	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Dichlorobromomethane	ND		0.54	0.13	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Bromoform	ND		0.54	0.49	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Bromomethane	ND		0.54	0.36	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Carbon disulfide	ND		0.54	0.23	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Carbon tetrachloride	ND		0.54	0.22	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Chlorobenzene	ND		0.54	0.076	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Chloroethane	ND		0.54	0.32	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Chloroform	ND		0.54	0.12	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Chloromethane	ND		0.54	0.14	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
cis-1,2-Dichloroethene	ND		0.54	0.087	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
cis-1,3-Dichloropropene	ND		0.54	0.27	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Cyclohexane	ND		1.1	0.35	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Chlorodibromomethane	ND		0.54	0.25	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Dichlorodifluoromethane	ND		0.54	0.11	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Ethylbenzene	ND		0.54	0.10	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Isopropylbenzene	ND		0.54	0.082	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Methyl acetate	ND		2.7	0.36	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Methyl tert-butyl ether	ND		0.54	0.080	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Methylcyclohexane	0.19	J	1.1	0.14	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Methylene Chloride	ND		1.1	0.83	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Styrene	ND		0.54	0.11	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Tetrachloroethene	ND		0.54	0.21	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Toluene	ND		0.54	0.52	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
trans-1,2-Dichloroethene	ND		0.54	0.13	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
trans-1,3-Dichloropropene	ND		0.54	0.23	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Trichloroethene	ND		0.54	0.31	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Trichlorofluoromethane	ND		0.54	0.30	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Vinyl chloride	ND		0.54	0.27	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1
Xylenes, Total	ND		1.1	0.20	mg/Kg	✳	02/22/23 19:09	02/24/23 02:27	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 59.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/22/23 19:09	02/24/23 02:27	1
Toluene-d8 (Surr)	105		56 - 125	02/22/23 19:09	02/24/23 18:45	2
Dibromofluoromethane (Surr)	94		41 - 138	02/22/23 19:09	02/24/23 02:27	1
Dibromofluoromethane (Surr)	99		41 - 138	02/22/23 19:09	02/24/23 18:45	2
4-Bromofluorobenzene (Surr)	106		41 - 143	02/22/23 19:09	02/24/23 02:27	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/22/23 19:09	02/24/23 18:45	2
1,2-Dichloroethane-d4 (Surr)	104		58 - 125	02/22/23 19:09	02/24/23 02:27	1
1,2-Dichloroethane-d4 (Surr)	112		58 - 125	02/22/23 19:09	02/24/23 18:45	2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		4.2	1.4	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
bis (2-chloroisopropyl) ether	ND		8.3	0.83	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,4,5-Trichlorophenol	ND		13	5.8	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,4,6-Trichlorophenol	ND		13	5.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,4-Dichlorophenol	ND		13	3.7	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,4-Dimethylphenol	ND		13	3.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,4-Dinitrophenol	ND		28	12	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,4-Dinitrotoluene	ND		17	5.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2,6-Dinitrotoluene	ND		17	4.7	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2-Chloronaphthalene	ND		4.2	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2-Chlorophenol	ND		4.2	0.83	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2-Methylnaphthalene	1.6		1.3	0.16	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2-Methylphenol	ND		17	2.6	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2-Nitroaniline	ND		17	3.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
2-Nitrophenol	ND		4.2	1.1	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
3,3'-Dichlorobenzidine	ND		8.3	3.6	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
3-Nitroaniline	ND		17	4.1	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4,6-Dinitro-2-methylphenol	ND		28	6.7	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4-Bromophenyl phenyl ether	ND		4.2	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4-Chloro-3-methylphenol	ND		13	3.8	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4-Chloroaniline	ND		13	2.5	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4-Chlorophenyl phenyl ether	ND		4.2	1.2	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4-Nitroaniline	ND		17	5.0	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
4-Nitrophenol	ND		28	7.8	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Acenaphthene	ND		1.3	0.24	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Acenaphthylene	ND		1.3	0.33	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Acetophenone	ND		8.3	0.92	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Anthracene	ND		1.3	0.20	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Atrazine	ND		17	3.0	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Benzaldehyde	ND		8.3	1.9	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Benzo[a]anthracene	0.90 J		1.3	0.28	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Benzo[a]pyrene	ND		1.3	0.78	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Benzo[b]fluoranthene	1.4		1.3	0.54	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Benzo[g,h,i]perylene	0.76 J		1.3	0.59	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Benzo[k]fluoranthene	ND		1.3	0.58	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Bis(2-chloroethoxy)methane	ND		8.3	1.0	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Bis(2-chloroethyl)ether	ND		8.3	1.0	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Bis(2-ethylhexyl) phthalate	ND		5.8	4.3	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50
Butyl benzyl phthalate	ND		5.8	1.8	mg/Kg	☼	02/23/23 08:32	02/25/23 12:10	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 59.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		28	6.3	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Carbazole	ND		4.2	1.6	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Chrysene	0.97	J	1.3	0.12	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Dibenz(a,h)anthracene	ND		1.3	0.58	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Dibenzofuran	ND		4.2	1.1	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Diethyl phthalate	ND		5.8	2.6	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Dimethyl phthalate	ND		5.8	1.2	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Di-n-butyl phthalate	ND		5.8	4.2	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Di-n-octyl phthalate	ND		5.8	2.3	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Fluoranthene	1.5		1.3	0.37	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Fluorene	ND		1.3	0.23	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Hexachlorobenzene	ND		1.3	0.24	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Hexachlorobutadiene	ND		4.2	1.0	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Hexachlorocyclopentadiene	ND		28	5.2	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Hexachloroethane	ND		4.2	0.75	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Indeno[1,2,3-cd]pyrene	ND		1.3	0.61	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Isophorone	ND		4.2	1.0	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
N-Nitrosodi-n-propylamine	ND		4.2	0.92	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
N-Nitrosodiphenylamine	ND		4.2	1.0	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Naphthalene	1.1	J	1.3	0.20	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Nitrobenzene	ND		8.3	1.1	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Pentachlorophenol	ND		13	4.8	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Phenanthrene	1.2	J	1.3	0.19	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Phenol	ND		4.2	0.67	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
Pyrene	1.4		1.3	0.18	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50
3 & 4 Methylphenol	ND		33	2.4	mg/Kg	✳	02/23/23 08:32	02/25/23 12:10	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	103		46 - 137	02/23/23 08:32	02/25/23 12:10	50
Phenol-d5 (Surr)	102		26 - 120	02/23/23 08:32	02/25/23 12:10	50
Nitrobenzene-d5 (Surr)	79		25 - 120	02/23/23 08:32	02/25/23 12:10	50
2-Fluorophenol (Surr)	78		20 - 120	02/23/23 08:32	02/25/23 12:10	50
2-Fluorobiphenyl (Surr)	100		34 - 120	02/23/23 08:32	02/25/23 12:10	50
2,4,6-Tribromophenol (Surr)	193	S1+	10 - 120	02/23/23 08:32	02/25/23 12:10	50

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - RA

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	95		46 - 137	02/23/23 08:32	02/25/23 15:11	100
Phenol-d5 (Surr)	96		26 - 120	02/23/23 08:32	02/25/23 15:11	100
Nitrobenzene-d5 (Surr)	79		25 - 120	02/23/23 08:32	02/25/23 15:11	100
2-Fluorophenol (Surr)	59		20 - 120	02/23/23 08:32	02/25/23 15:11	100
2-Fluorobiphenyl (Surr)	85		34 - 120	02/23/23 08:32	02/25/23 15:11	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/23/23 08:32	02/25/23 15:11	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J	0.10	0.0081	mg/L		02/23/23 14:00	02/24/23 12:59	2
Barium	0.49	J B	1.0	0.0027	mg/L		02/23/23 14:00	02/24/23 12:59	2
Cadmium	0.0081	J	0.10	0.00041	mg/L		02/23/23 14:00	02/24/23 12:59	2
Chromium	ND		0.10	0.0081	mg/L		02/23/23 14:00	02/24/23 12:59	2

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 59.7

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.22		0.10	0.0055	mg/L		02/23/23 14:00	02/24/23 12:59	2
Selenium	ND		0.10	0.012	mg/L		02/23/23 14:00	02/24/23 12:59	2
Silver	0.0016	J	0.10	0.0012	mg/L		02/23/23 14:00	02/24/23 12:59	2

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	59.7		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	40.3		0.1	0.1	%			02/22/23 13:18	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Date Collected: 02/21/23 14:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 84.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.28	0.087	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,1,2,2-Tetrachloroethane	ND		0.28	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.28	0.074	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,1,2-Trichloroethane	ND		0.28	0.063	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,1-Dichloroethane	ND		0.28	0.053	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,1-Dichloroethene	ND		0.28	0.091	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,2,4-Trichlorobenzene	ND		0.28	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,2-Dibromo-3-Chloropropane	ND		0.55	0.25	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Ethylene Dibromide	ND		0.28	0.088	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,2-Dichlorobenzene	ND		0.28	0.13	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,2-Dichloroethane	ND		0.28	0.052	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,2-Dichloropropane	ND		0.28	0.041	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,3-Dichlorobenzene	ND		0.28	0.051	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
1,4-Dichlorobenzene	ND		0.28	0.061	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
2-Butanone (MEK)	ND		1.1	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
2-Hexanone	ND		1.1	0.29	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
4-Methyl-2-pentanone (MIBK)	ND		1.1	0.26	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Acetone	0.53	J	1.1	0.27	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Benzene	ND		0.28	0.047	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Dichlorobromomethane	ND		0.28	0.068	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Bromoform	ND		0.28	0.25	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Bromomethane	ND		0.28	0.18	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Carbon disulfide	ND		0.28	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Carbon tetrachloride	ND		0.28	0.11	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Chlorobenzene	ND		0.28	0.039	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Chloroethane	ND		0.28	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Chloroform	ND		0.28	0.060	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Chloromethane	ND		0.28	0.073	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
cis-1,2-Dichloroethene	ND		0.28	0.044	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
cis-1,3-Dichloropropene	ND		0.28	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Cyclohexane	ND		0.55	0.18	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Chlorodibromomethane	ND		0.28	0.13	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Dichlorodifluoromethane	ND		0.28	0.059	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Ethylbenzene	ND		0.28	0.052	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Isopropylbenzene	ND		0.28	0.042	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Methyl acetate	ND		1.4	0.19	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Methyl tert-butyl ether	ND		0.28	0.041	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Methylcyclohexane	ND		0.55	0.073	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Methylene Chloride	ND		0.55	0.43	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Styrene	ND		0.28	0.058	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Tetrachloroethene	ND		0.28	0.11	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Toluene	ND		0.28	0.27	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
trans-1,2-Dichloroethene	ND		0.28	0.069	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
trans-1,3-Dichloropropene	ND		0.28	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Trichloroethene	ND		0.28	0.16	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Trichlorofluoromethane	ND		0.28	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Vinyl chloride	ND		0.28	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1
Xylenes, Total	ND		0.55	0.10	mg/Kg	✱	02/22/23 19:09	02/24/23 02:52	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Date Collected: 02/21/23 14:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 84.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	02/22/23 19:09	02/24/23 02:52	1
Toluene-d8 (Surr)	105		56 - 125	02/22/23 19:09	02/24/23 19:10	4
Dibromofluoromethane (Surr)	100		41 - 138	02/22/23 19:09	02/24/23 02:52	1
Dibromofluoromethane (Surr)	98		41 - 138	02/22/23 19:09	02/24/23 19:10	4
4-Bromofluorobenzene (Surr)	105		41 - 143	02/22/23 19:09	02/24/23 02:52	1
4-Bromofluorobenzene (Surr)	103		41 - 143	02/22/23 19:09	02/24/23 19:10	4
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/22/23 19:09	02/24/23 02:52	1
1,2-Dichloroethane-d4 (Surr)	110		58 - 125	02/22/23 19:09	02/24/23 19:10	4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.40	0.14	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
bis (2-chloroisopropyl) ether	ND		0.80	0.080	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,4,5-Trichlorophenol	ND		1.2	0.55	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,4,6-Trichlorophenol	ND		1.2	0.51	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,4-Dichlorophenol	ND		1.2	0.35	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,4-Dimethylphenol	ND		1.2	0.32	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,4-Dinitrophenol	ND		2.6	1.1	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,4-Dinitrotoluene	ND		1.6	0.50	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2,6-Dinitrotoluene	ND		1.6	0.45	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2-Chloronaphthalene	ND		0.40	0.11	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2-Chlorophenol	ND		0.40	0.080	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2-Methylnaphthalene	0.21		0.12	0.016	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2-Methylphenol	ND		1.6	0.25	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2-Nitroaniline	ND		1.6	0.32	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
2-Nitrophenol	ND		0.40	0.10	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
3,3'-Dichlorobenzidine	ND		0.80	0.34	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
3-Nitroaniline	ND		1.6	0.39	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4,6-Dinitro-2-methylphenol	ND		2.6	0.64	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4-Bromophenyl phenyl ether	ND		0.40	0.11	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4-Chloro-3-methylphenol	ND		1.2	0.36	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4-Chloroaniline	ND		1.2	0.24	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4-Chlorophenyl phenyl ether	ND		0.40	0.11	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4-Nitroaniline	ND		1.6	0.48	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
4-Nitrophenol	ND		2.6	0.75	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Acenaphthene	0.11	J	0.12	0.023	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Acenaphthylene	ND		0.12	0.032	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Acetophenone	ND		0.80	0.088	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Anthracene	0.25		0.12	0.019	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Atrazine	ND		1.6	0.29	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Benzaldehyde	ND		0.80	0.18	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Benzo[a]anthracene	0.78		0.12	0.027	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Benzo[a]pyrene	0.64		0.12	0.075	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Benzo[b]fluoranthene	1.0		0.12	0.052	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Benzo[g,h,i]perylene	0.16		0.12	0.057	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Benzo[k]fluoranthene	0.44		0.12	0.056	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Bis(2-chloroethoxy)methane	ND		0.80	0.096	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Bis(2-chloroethyl)ether	ND		0.80	0.096	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Bis(2-ethylhexyl) phthalate	0.63		0.56	0.41	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667
Butyl benzyl phthalate	ND		0.56	0.18	mg/Kg	☼	02/23/23 08:32	02/25/23 17:21	6.667

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Date Collected: 02/21/23 14:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 84.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.6	0.60	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Carbazole	0.21	J	0.40	0.15	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Chrysene	0.89		0.12	0.012	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Dibenz(a,h)anthracene	ND		0.12	0.055	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Dibenzofuran	0.14	J	0.40	0.10	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Diethyl phthalate	ND		0.56	0.25	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Dimethyl phthalate	ND		0.56	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Di-n-butyl phthalate	ND		0.56	0.41	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Di-n-octyl phthalate	ND		0.56	0.22	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Fluoranthene	2.0		0.12	0.036	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Fluorene	0.15		0.12	0.022	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Hexachlorobenzene	ND		0.12	0.023	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Hexachlorobutadiene	ND		0.40	0.096	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Hexachlorocyclopentadiene	ND		2.6	0.50	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Hexachloroethane	ND		0.40	0.072	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Indeno[1,2,3-cd]pyrene	0.17		0.12	0.059	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Isophorone	ND		0.40	0.096	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
N-Nitrosodi-n-propylamine	ND		0.40	0.088	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
N-Nitrosodiphenylamine	ND		0.40	0.096	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Naphthalene	0.17		0.12	0.019	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Nitrobenzene	ND		0.80	0.10	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Pentachlorophenol	ND		1.2	0.47	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Phenanthrene	1.3		0.12	0.018	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Phenol	ND		0.40	0.064	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
Pyrene	1.6		0.12	0.017	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667
3 & 4 Methylphenol	ND		3.2	0.23	mg/Kg	☆	02/23/23 08:32	02/25/23 17:21	6.667

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	109		46 - 137	02/23/23 08:32	02/25/23 17:21	6.667
Phenol-d5 (Surr)	112		26 - 120	02/23/23 08:32	02/25/23 17:21	6.667
Nitrobenzene-d5 (Surr)	83		25 - 120	02/23/23 08:32	02/25/23 17:21	6.667
2-Fluorophenol (Surr)	89		20 - 120	02/23/23 08:32	02/25/23 17:21	6.667
2-Fluorobiphenyl (Surr)	98		34 - 120	02/23/23 08:32	02/25/23 17:21	6.667
2,4,6-Tribromophenol (Surr)	90		10 - 120	02/23/23 08:32	02/25/23 17:21	6.667

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 11:55	1
Barium	0.89	B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 11:55	1
Cadmium	0.0019	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 11:55	1
Chromium	0.0041	J	0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 11:55	1
Lead	0.0083	J	0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 11:55	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 11:55	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 11:55	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:15	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Date Collected: 02/21/23 14:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 84.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.5		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	15.5		0.1	0.1	%			02/22/23 13:18	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2405-N. DITCH

Lab Sample ID: 240-180684-23

Date Collected: 02/21/23 14:30

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 65.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.47	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,1,2,2-Tetrachloroethane	ND		0.47	0.28	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.47	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,1,2-Trichloroethane	ND		0.47	0.11	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,1-Dichloroethane	ND		0.47	0.089	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,1-Dichloroethene	ND		0.47	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,2,4-Trichlorobenzene	ND		0.47	0.25	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,2-Dibromo-3-Chloropropane	ND		0.93	0.41	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Ethylene Dibromide	ND		0.47	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,2-Dichlorobenzene	ND		0.47	0.22	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,2-Dichloroethane	ND		0.47	0.088	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,2-Dichloropropane	ND		0.47	0.069	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,3-Dichlorobenzene	ND		0.47	0.086	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
1,4-Dichlorobenzene	ND		0.47	0.10	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
2-Butanone (MEK)	ND		1.9	0.29	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
2-Hexanone	ND		1.9	0.49	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
4-Methyl-2-pentanone (MIBK)	ND		1.9	0.44	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Acetone	1.0	J	1.9	0.45	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Benzene	ND		0.47	0.078	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Dichlorobromomethane	ND		0.47	0.11	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Bromoform	ND		0.47	0.42	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Bromomethane	ND		0.47	0.31	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Carbon disulfide	ND		0.47	0.20	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Carbon tetrachloride	ND		0.47	0.19	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Chlorobenzene	ND		0.47	0.065	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Chloroethane	ND		0.47	0.28	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Chloroform	ND		0.47	0.10	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Chloromethane	ND		0.47	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
cis-1,2-Dichloroethene	ND		0.47	0.074	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
cis-1,3-Dichloropropene	ND		0.47	0.23	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Cyclohexane	ND		0.93	0.30	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Chlorodibromomethane	ND		0.47	0.22	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Dichlorodifluoromethane	ND		0.47	0.099	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Ethylbenzene	ND		0.47	0.088	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Isopropylbenzene	ND		0.47	0.071	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Methyl acetate	0.62	J	2.3	0.31	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Methyl tert-butyl ether	ND		0.47	0.069	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Methylcyclohexane	ND		0.93	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Methylene Chloride	ND		0.93	0.71	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Styrene	ND		0.47	0.097	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Tetrachloroethene	ND		0.47	0.18	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Toluene	ND		0.47	0.45	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
trans-1,2-Dichloroethene	ND		0.47	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
trans-1,3-Dichloropropene	ND		0.47	0.20	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Trichloroethene	ND		0.47	0.27	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Trichlorofluoromethane	ND		0.47	0.26	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Vinyl chloride	ND		0.47	0.23	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1
Xylenes, Total	ND		0.93	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 03:18	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2405-N. DITCH

Lab Sample ID: 240-180684-23

Date Collected: 02/21/23 14:30

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 65.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	108		56 - 125	02/22/23 19:09	02/24/23 03:18	1
Dibromofluoromethane (Surr)	101		41 - 138	02/22/23 19:09	02/24/23 03:18	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/22/23 19:09	02/24/23 03:18	1
1,2-Dichloroethane-d4 (Surr)	111		58 - 125	02/22/23 19:09	02/24/23 03:18	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.76	0.26	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
bis (2-chloroisopropyl) ether	ND		1.5	0.15	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,4,5-Trichlorophenol	ND		2.3	1.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,4,6-Trichlorophenol	ND		2.3	0.98	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,4-Dichlorophenol	ND		2.3	0.67	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,4-Dimethylphenol	ND		2.3	0.61	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,4-Dinitrophenol	ND		5.0	2.2	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,4-Dinitrotoluene	ND		3.1	0.95	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2,6-Dinitrotoluene	ND		3.1	0.86	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2-Chloronaphthalene	ND		0.76	0.21	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2-Chlorophenol	ND		0.76	0.15	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2-Methylnaphthalene	0.88		0.23	0.030	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2-Methylphenol	ND		3.1	0.47	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2-Nitroaniline	ND		3.1	0.61	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
2-Nitrophenol	ND		0.76	0.20	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
3,3'-Dichlorobenzidine	ND		1.5	0.66	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
3-Nitroaniline	ND		3.1	0.75	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4,6-Dinitro-2-methylphenol	ND		5.0	1.2	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4-Bromophenyl phenyl ether	ND		0.76	0.21	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4-Chloro-3-methylphenol	ND		2.3	0.69	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4-Chloroaniline	ND		2.3	0.46	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4-Chlorophenyl phenyl ether	ND		0.76	0.21	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4-Nitroaniline	ND		3.1	0.92	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
4-Nitrophenol	ND		5.0	1.4	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Acenaphthene	0.052	J	0.23	0.044	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Acenaphthylene	0.065	J	0.23	0.061	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Acetophenone	ND		1.5	0.17	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Anthracene	0.15	J	0.23	0.037	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Atrazine	ND		3.1	0.55	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Benzaldehyde	ND		1.5	0.35	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Benzo[a]anthracene	0.63		0.23	0.052	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Benzo[a]pyrene	0.87		0.23	0.14	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Benzo[b]fluoranthene	1.7		0.23	0.099	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Benzo[g,h,i]perylene	0.33		0.23	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Benzo[k]fluoranthene	0.57		0.23	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Bis(2-chloroethoxy)methane	ND		1.5	0.18	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Bis(2-chloroethyl)ether	ND		1.5	0.18	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Bis(2-ethylhexyl) phthalate	0.86	J	1.1	0.78	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Butyl benzyl phthalate	ND		1.1	0.34	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Caprolactam	ND		5.0	1.1	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Carbazole	ND		0.76	0.29	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Chrysene	0.84		0.23	0.023	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10
Dibenz(a,h)anthracene	ND		0.23	0.11	mg/Kg	☆	02/23/23 08:32	02/25/23 16:55	10

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2405-N. DITCH

Lab Sample ID: 240-180684-23

Date Collected: 02/21/23 14:30

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 65.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.30	J	0.76	0.20	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Diethyl phthalate	ND		1.1	0.47	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Dimethyl phthalate	ND		1.1	0.21	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Di-n-butyl phthalate	ND		1.1	0.77	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Di-n-octyl phthalate	ND		1.1	0.43	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Fluoranthene	1.2		0.23	0.068	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Fluorene	0.063	J	0.23	0.042	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Hexachlorobenzene	ND		0.23	0.044	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Hexachlorobutadiene	ND		0.76	0.18	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Hexachlorocyclopentadiene	ND		5.0	0.95	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Hexachloroethane	ND		0.76	0.14	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Indeno[1,2,3-cd]pyrene	0.31		0.23	0.11	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Isophorone	ND		0.76	0.18	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
N-Nitrosodi-n-propylamine	ND		0.76	0.17	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
N-Nitrosodiphenylamine	ND		0.76	0.18	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Naphthalene	0.56		0.23	0.037	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Nitrobenzene	ND		1.5	0.20	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Pentachlorophenol	ND		2.3	0.89	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Phenanthrene	0.77		0.23	0.034	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Phenol	ND		0.76	0.12	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
Pyrene	1.1		0.23	0.033	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10
3 & 4 Methylphenol	ND		6.1	0.44	mg/Kg	✳	02/23/23 08:32	02/25/23 16:55	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	100		46 - 137	02/23/23 08:32	02/25/23 16:55	10
Phenol-d5 (Surr)	93		26 - 120	02/23/23 08:32	02/25/23 16:55	10
Nitrobenzene-d5 (Surr)	70		25 - 120	02/23/23 08:32	02/25/23 16:55	10
2-Fluorophenol (Surr)	72		20 - 120	02/23/23 08:32	02/25/23 16:55	10
2-Fluorobiphenyl (Surr)	91		34 - 120	02/23/23 08:32	02/25/23 16:55	10
2,4,6-Tribromophenol (Surr)	103		10 - 120	02/23/23 08:32	02/25/23 16:55	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.11		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 12:00	1
Barium	0.35	J B	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 12:00	1
Cadmium	0.0022	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 12:00	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 12:00	1
Lead	0.035	J	0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 12:00	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 12:00	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 12:00	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	65.9		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	34.1		0.1	0.1	%			02/22/23 13:18	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP2-N. DITCH

Lab Sample ID: 240-180684-24

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/23/23 18:32	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/23/23 18:32	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/23/23 18:32	1
Benzene	ND		0.025	0.00042	mg/L			02/23/23 18:32	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/23/23 18:32	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/23/23 18:32	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/23/23 18:32	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/23/23 18:32	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/23/23 18:32	1
Chloroform	ND		0.025	0.00047	mg/L			02/23/23 18:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		80 - 120					02/23/23 18:32	1
Dibromofluoromethane (Surr)	97		71 - 121					02/23/23 18:32	1
4-Bromofluorobenzene (Surr)	112		80 - 120					02/23/23 18:32	1
1,2-Dichloroethane-d4 (Surr)	93		76 - 120					02/23/23 18:32	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/23/23 12:44	02/24/23 19:22	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/23/23 12:44	02/24/23 19:22	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/23/23 12:44	02/24/23 19:22	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/23/23 12:44	02/24/23 19:22	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/23/23 12:44	02/24/23 19:22	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/23/23 12:44	02/24/23 19:22	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/23/23 12:44	02/24/23 19:22	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/23/23 12:44	02/24/23 19:22	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/23/23 12:44	02/24/23 19:22	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/23/23 12:44	02/24/23 19:22	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/23/23 12:44	02/24/23 19:22	1
Pyridine	ND		0.0040	0.00036	mg/L		02/23/23 12:44	02/24/23 19:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	114		46 - 137				02/23/23 12:44	02/24/23 19:22	1
Phenol-d5 (Surr)	66		26 - 120				02/23/23 12:44	02/24/23 19:22	1
Nitrobenzene-d5 (Surr)	77		24 - 120				02/23/23 12:44	02/24/23 19:22	1
2-Fluorophenol (Surr)	76		19 - 120				02/23/23 12:44	02/24/23 19:22	1
2-Fluorobiphenyl (Surr)	97		33 - 120				02/23/23 12:44	02/24/23 19:22	1
2,4,6-Tribromophenol (Surr)	104		10 - 120				02/23/23 12:44	02/24/23 19:22	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/23/23 12:51	02/24/23 12:04	1
Endrin	ND		0.00050	0.0000065	mg/L		02/23/23 12:51	02/24/23 12:04	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/23/23 12:51	02/24/23 12:04	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/23/23 12:51	02/24/23 12:04	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/23/23 12:51	02/24/23 12:04	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/23/23 12:51	02/24/23 12:04	1
Toxaphene	ND		0.020	0.000058	mg/L		02/23/23 12:51	02/24/23 12:04	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP2-N. DITCH

Lab Sample ID: 240-180684-24

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	78		10 - 145	02/23/23 12:51	02/24/23 12:04	1
DCB Decachlorobiphenyl	74		10 - 145	02/23/23 12:51	02/24/23 12:04	1
Tetrachloro-m-xylene	62		10 - 123	02/23/23 12:51	02/24/23 12:04	1
Tetrachloro-m-xylene	64		10 - 123	02/23/23 12:51	02/24/23 12:04	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/24/23 19:47	02/27/23 07:11	1
2,4-D	ND		0.050	0.016	mg/L		02/24/23 19:47	02/27/23 07:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136	02/24/23 19:47	02/27/23 07:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	74.1		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	25.9		0.1	0.1	%			02/22/23 13:18	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP2-N. DITCH

Lab Sample ID: 240-180684-24

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 74.1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		69	35	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1221	ND		69	42	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1232	ND		69	29	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1242	ND		69	26	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1248	ND		69	24	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1254	ND		69	29	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1260	ND		69	29	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1262	ND		69	31	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Aroclor-1268	ND		69	22	ug/Kg	✳	02/24/23 09:04	02/24/23 13:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	98		10 - 149				02/24/23 09:04	02/24/23 13:10	1
DCB Decachlorobiphenyl	119		10 - 174				02/24/23 09:04	02/24/23 13:10	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.76	0.25	ng/g	✳	02/24/23 17:55	02/27/23 15:10	1
Perfluorooctanesulfonic acid	0.78		0.76	0.25	ng/g	✳	02/24/23 17:55	02/27/23 15:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
¹³ C8 PFOA	76		26 - 159				02/24/23 17:55	02/27/23 15:10	1
¹³ C8 PFOS	80		41 - 154				02/24/23 17:55	02/27/23 15:10	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 95.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
2-Hexanone	ND		1.0	0.26	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Acetone	2.6		1.0	0.24	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Benzene	0.091	J	0.25	0.042	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Bromoform	ND		0.25	0.23	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Bromomethane	ND		0.25	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Carbon disulfide	ND		0.25	0.11	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Chlorobenzene	ND		0.25	0.035	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Chloroethane	ND		0.25	0.15	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Chloroform	ND		0.25	0.054	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Chloromethane	ND		0.25	0.066	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Cyclohexane	ND		0.50	0.16	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Ethylbenzene	ND		0.25	0.047	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Methyl acetate	0.27	J	1.2	0.17	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Methylcyclohexane	0.11	J	0.50	0.066	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Methylene Chloride	ND		0.50	0.38	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Styrene	ND		0.25	0.052	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Toluene	ND		0.25	0.24	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
trans-1,3-Dichloropropene	ND		0.25	0.10	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Trichloroethene	ND		0.25	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Vinyl chloride	ND		0.25	0.12	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1
Xylenes, Total	ND		0.50	0.091	mg/Kg	✱	02/22/23 19:09	02/24/23 03:43	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 95.1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/22/23 19:09	02/24/23 03:43	1
Dibromofluoromethane (Surr)	94		41 - 138	02/22/23 19:09	02/24/23 03:43	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/22/23 19:09	02/24/23 03:43	1
1,2-Dichloroethane-d4 (Surr)	107		58 - 125	02/22/23 19:09	02/24/23 03:43	1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/23/23 18:56	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/23/23 18:56	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/23/23 18:56	1
Benzene	ND		0.025	0.00042	mg/L			02/23/23 18:56	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/23/23 18:56	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/23/23 18:56	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/23/23 18:56	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/23/23 18:56	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/23/23 18:56	1
Chloroform	ND		0.025	0.00047	mg/L			02/23/23 18:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		80 - 120		02/23/23 18:56	1
Dibromofluoromethane (Surr)	95		71 - 121		02/23/23 18:56	1
4-Bromofluorobenzene (Surr)	113		80 - 120		02/23/23 18:56	1
1,2-Dichloroethane-d4 (Surr)	92		76 - 120		02/23/23 18:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.1	0.36	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
bis (2-chloroisopropyl) ether	ND		2.1	0.21	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,4,5-Trichlorophenol	ND		3.2	1.5	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,4,6-Trichlorophenol	ND		3.2	1.4	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,4-Dichlorophenol	ND		3.2	0.93	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,4-Dimethylphenol	ND		3.2	0.85	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,4-Dinitrophenol	ND		7.0	3.0	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,4-Dinitrotoluene	ND		4.2	1.3	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2,6-Dinitrotoluene	ND		4.2	1.2	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2-Chloronaphthalene	ND		1.1	0.30	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2-Chlorophenol	ND		1.1	0.21	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2-Methylnaphthalene	0.29	J	0.32	0.041	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2-Methylphenol	ND		4.2	0.66	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2-Nitroaniline	ND		4.2	0.85	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
2-Nitrophenol	ND		1.1	0.28	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
3,3'-Dichlorobenzidine	ND		2.1	0.91	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
3-Nitroaniline	ND		4.2	1.0	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4,6-Dinitro-2-methylphenol	ND		7.0	1.7	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4-Bromophenyl phenyl ether	ND		1.1	0.30	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4-Chloro-3-methylphenol	ND		3.2	0.95	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4-Chloroaniline	ND		3.2	0.63	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4-Chlorophenyl phenyl ether	ND		1.1	0.30	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4-Nitroaniline	ND		4.2	1.3	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
4-Nitrophenol	ND		7.0	2.0	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20
Acenaphthene	0.32		0.32	0.061	mg/Kg	✳	02/23/23 08:32	02/25/23 13:02	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 95.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		0.32	0.085	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Acetophenone	ND		2.1	0.23	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Anthracene	0.84		0.32	0.051	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Atrazine	ND		4.2	0.76	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Benzaldehyde	ND		2.1	0.49	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Benzo[a]anthracene	4.7		0.32	0.072	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Benzo[a]pyrene	4.8		0.32	0.20	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Benzo[b]fluoranthene	8.5		0.32	0.14	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Benzo[g,h,i]perylene	2.0		0.32	0.15	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Benzo[k]fluoranthene	3.0		0.32	0.15	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Bis(2-chloroethoxy)methane	ND		2.1	0.25	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Bis(2-chloroethyl)ether	ND		2.1	0.25	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Bis(2-ethylhexyl) phthalate	ND		1.5	1.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Butyl benzyl phthalate	1.2 J		1.5	0.47	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Caprolactam	ND		7.0	1.6	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Carbazole	1.6		1.1	0.40	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Chrysene	7.2		0.32	0.032	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Dibenz(a,h)anthracene	0.59		0.32	0.15	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Dibenzofuran	ND		1.1	0.28	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Diethyl phthalate	ND		1.5	0.66	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Dimethyl phthalate	ND		1.5	0.30	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Di-n-butyl phthalate	ND		1.5	1.1	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Di-n-octyl phthalate	ND		1.5	0.59	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Fluoranthene	15		0.32	0.094	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Fluorene	0.41		0.32	0.058	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Hexachlorobenzene	ND		0.32	0.060	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Hexachlorobutadiene	ND		1.1	0.25	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Hexachlorocyclopentadiene	ND		7.0	1.3	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Hexachloroethane	ND		1.1	0.19	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Indeno[1,2,3-cd]pyrene	2.0		0.32	0.16	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Isophorone	ND		1.1	0.25	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
N-Nitrosodi-n-propylamine	ND		1.1	0.23	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
N-Nitrosodiphenylamine	ND		1.1	0.25	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Naphthalene	0.23 J		0.32	0.051	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Nitrobenzene	ND		2.1	0.28	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Pentachlorophenol	ND		3.2	1.2	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Phenanthrene	6.9		0.32	0.047	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Phenol	ND		1.1	0.17	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
Pyrene	12		0.32	0.045	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20
3 & 4 Methylphenol	ND		8.5	0.61	mg/Kg	✱	02/23/23 08:32	02/25/23 13:02	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	79		46 - 137	02/23/23 08:32	02/25/23 13:02	20
Phenol-d5 (Surr)	90		26 - 120	02/23/23 08:32	02/25/23 13:02	20
Nitrobenzene-d5 (Surr)	69		25 - 120	02/23/23 08:32	02/25/23 13:02	20
2-Fluorophenol (Surr)	72		20 - 120	02/23/23 08:32	02/25/23 13:02	20
2-Fluorobiphenyl (Surr)	81		34 - 120	02/23/23 08:32	02/25/23 13:02	20
2,4,6-Tribromophenol (Surr)	115		10 - 120	02/23/23 08:32	02/25/23 13:02	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 95.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/23/23 12:44	02/24/23 19:47	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/23/23 12:44	02/24/23 19:47	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/23/23 12:44	02/24/23 19:47	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/23/23 12:44	02/24/23 19:47	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/23/23 12:44	02/24/23 19:47	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/23/23 12:44	02/24/23 19:47	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/23/23 12:44	02/24/23 19:47	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/23/23 12:44	02/24/23 19:47	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/23/23 12:44	02/24/23 19:47	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/23/23 12:44	02/24/23 19:47	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/23/23 12:44	02/24/23 19:47	1
Pyridine	ND		0.0040	0.00036	mg/L		02/23/23 12:44	02/24/23 19:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	119		46 - 137	02/23/23 12:44	02/24/23 19:47	1
Phenol-d5 (Surr)	62		26 - 120	02/23/23 12:44	02/24/23 19:47	1
Nitrobenzene-d5 (Surr)	76		24 - 120	02/23/23 12:44	02/24/23 19:47	1
2-Fluorophenol (Surr)	72		19 - 120	02/23/23 12:44	02/24/23 19:47	1
2-Fluorobiphenyl (Surr)	96		33 - 120	02/23/23 12:44	02/24/23 19:47	1
2,4,6-Tribromophenol (Surr)	102		10 - 120	02/23/23 12:44	02/24/23 19:47	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/23/23 12:51	02/24/23 12:21	1
Endrin	ND		0.00050	0.0000065	mg/L		02/23/23 12:51	02/24/23 12:21	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/23/23 12:51	02/24/23 12:21	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/23/23 12:51	02/24/23 12:21	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/23/23 12:51	02/24/23 12:21	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/23/23 12:51	02/24/23 12:21	1
Toxaphene	ND		0.020	0.000058	mg/L		02/23/23 12:51	02/24/23 12:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	69		10 - 145	02/23/23 12:51	02/24/23 12:21	1
DCB Decachlorobiphenyl	67		10 - 145	02/23/23 12:51	02/24/23 12:21	1
Tetrachloro-m-xylene	53		10 - 123	02/23/23 12:51	02/24/23 12:21	1
Tetrachloro-m-xylene	60		10 - 123	02/23/23 12:51	02/24/23 12:21	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		54	27	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1221	ND		54	33	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1232	ND		54	23	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1242	ND		54	21	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1248	ND		54	18	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1254	ND		54	23	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1260	ND		54	23	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1262	ND		54	24	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1
Aroclor-1268	ND		54	17	ug/Kg	✱	02/24/23 09:04	02/24/23 13:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	104		10 - 149	02/24/23 09:04	02/24/23 13:27	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 95.1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	83		10 - 174	02/24/23 09:04	02/24/23 13:27	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/24/23 19:47	02/27/23 07:38	1
2,4-D	ND		0.050	0.016	mg/L		02/24/23 19:47	02/27/23 07:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	70		26 - 136	02/24/23 19:47	02/27/23 07:38	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 12:45	1
Barium	0.48	J	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 12:45	1
Cadmium	0.0017	J B	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 12:45	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 12:45	1
Lead	0.0080	J	0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 12:45	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 12:45	1
Silver	0.00083	J	0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 12:45	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	95.1		0.1	0.1	%			02/22/23 13:18	1
Percent Solids (EPA Moisture)	95.1		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	4.9		0.1	0.1	%			02/22/23 13:18	1
Percent Moisture (EPA Moisture)	4.9		0.1	0.1	%			02/22/23 13:18	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180684-1	WC-WS-NORTH-01 (4-5)	107	97	106	108
240-180684-1	WC-WS-NORTH-01 (4-5)	107	105	108	112
240-180684-2	WC-WS-NORTH-02 (6-7)	107	95	107	105
240-180684-3	WC-WS-NORTH-03 (7-8)	108	95	107	104
240-180684-4	WC-WS-NORTH-04 (4-5)	106	94	106	104
240-180684-5	WC-WS-NORTH-05 (5-6)	107	105	106	109
240-180684-7	WC-WS-NORTH-06 (5-6)	107	96	105	109
240-180684-8	WC-WS-NORTH-07 (3-4)	108	95	105	105
240-180684-8	WC-WS-NORTH-07 (3-4)	107	101	107	111
240-180684-9	WC-WS-NORTH-08 (3-4)	106	98	105	107
240-180684-9	WC-WS-NORTH-08 (3-4)	107	99	107	110
240-180684-10	WC-WS-NORTH-09 (3-4)	108	97	107	112
240-180684-10	WC-WS-NORTH-09 (3-4)	106	106	106	117
240-180684-11	WC-WS-NORTH-10 (2-3)	106	100	106	110
240-180684-11	WC-WS-NORTH-10 (2-3)	107	96	105	110
240-180684-13	WC-SB2650-N. DITCH	106	95	105	108
240-180684-13	WC-SB2650-N. DITCH	106	104	107	111
240-180684-14	WC-SB1692-N. DITCH	105	98	106	110
240-180684-14	WC-SB1692-N. DITCH	107	101	108	111
240-180684-15	WC-SB2598-N. DITCH	105	96	105	106
240-180684-16	WC-SB1852-N. DITCH	106	95	106	106
240-180684-17	WC-SB1865-N. DITCH	105	102	105	108
240-180684-17	WC-SB1865-N. DITCH	118	96	138 *3	85
240-180684-19	WC-SB2621-N. DITCH	106	96	105	110
240-180684-19	WC-SB2621-N. DITCH	107	103	107	113
240-180684-20	WC-SB1634-N. DITCH	105	94	104	105
240-180684-20	WC-SB1634-N. DITCH	107	97	107	110
240-180684-20	WC-SB1634-N. DITCH	105	89	132	80
240-180684-21	WC-SB2624-N. DITCH	105	94	106	104
240-180684-21	WC-SB2624-N. DITCH	105	99	106	112
240-180684-22	WC-SB2474-N. DITCH	107	100	105	111
240-180684-22	WC-SB2474-N. DITCH	105	98	103	110
240-180684-23	WC-SB2405-N. DITCH	108	101	105	111
240-180684-25	WC-RT1538A-ST. SWEEPINGS	105	94	105	107
LCS 240-562918/2-A	Lab Control Sample	108	105	107	105
LCS 240-562940/2-A	Lab Control Sample	109	104	107	105
LCS 240-563078/2-A	Lab Control Sample	111	108	109	104
LCS 240-563382/4	Lab Control Sample	87	82	97	76
LCS 240-563458/4	Lab Control Sample	99	96	110	84
MB 240-562918/1-A	Method Blank	105	95	105	106
MB 240-562940/1-A	Method Blank	105	95	106	106
MB 240-563078/1-A	Method Blank	109	97	109	108
MB 240-563391/1-A	Method Blank	94	85	102	76
MB 240-563434/1-A	Method Blank	98	93	109	81

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-563142/10	Lab Control Sample	99	98	114	93

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-180684-6	WC-WS-NORTH-COMP (1-5)	98	95	112	93
240-180684-12	WC-WS-NORTH-COMP (6-10)	101	96	115	93
240-180684-18	WC-COMP1-N. DITCH	99	98	115	95
240-180684-24	WC-COMP2-N. DITCH	99	97	112	93
240-180684-25	WC-RT1538A-ST. SWEEPINGS	100	95	113	92
LB 240-563082/1-A MB	Method Blank	100	95	116	93

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180684-1	WC-WS-NORTH-01 (4-5)	108	86	85	79	85	55
240-180684-2	WC-WS-NORTH-02 (6-7)	67	46	43	45	58	62
240-180684-3	WC-WS-NORTH-03 (7-8)	64	58	57	46	62	45
240-180684-4	WC-WS-NORTH-04 (4-5)	71	60	63	56	61	44
240-180684-5	WC-WS-NORTH-05 (5-6)	55	48	48	38	48	27
240-180684-7	WC-WS-NORTH-06 (5-6)	21 S1-	17 S1-	17 S1-	18 S1-	20 S1-	30
240-180684-8	WC-WS-NORTH-07 (3-4)	29 S1-	25 S1-	23 S1-	25	30 S1-	32
240-180684-9	WC-WS-NORTH-08 (3-4)	57	58	61	56	58	42
240-180684-10	WC-WS-NORTH-09 (3-4)	40 S1-	41	45	41	41	32
240-180684-11	WC-WS-NORTH-10 (2-3)	65	48	45	47	59	65
240-180684-13	WC-SB2650-N. DITCH	108	107	78	78	97	118
240-180684-13 MS	WC-SB2650-N. DITCH	114	111	85	76	109	134 S1+
240-180684-13 MSD	WC-SB2650-N. DITCH	103	101	85	88	96	127 S1+
240-180684-14	WC-SB1692-N. DITCH	111	100	83	82	95	125 S1+
240-180684-15	WC-SB2598-N. DITCH	97	88	78	66	96	99
240-180684-16	WC-SB1852-N. DITCH	102	94	71	72	87	126 S1+
240-180684-17	WC-SB1865-N. DITCH	89	86	72	71	84	112
240-180684-19	WC-SB2621-N. DITCH	93	99	82	85	91	0 S1-

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180684-19 - RA	WC-SB2621-N. DITCH	104	106	84	91	95	196 S1+
240-180684-20	WC-SB1634-N. DITCH	90	90	71	71	86	107
240-180684-21 - RA	WC-SB2624-N. DITCH	95	96	79	59	85	0 S1-
240-180684-21	WC-SB2624-N. DITCH	103	102	79	78	100	193 S1+
240-180684-22	WC-SB2474-N. DITCH	109	112	83	89	98	90
240-180684-23	WC-SB2405-N. DITCH	100	93	70	72	91	103
240-180684-25	WC-RT1538A-ST. SWEEPINGS	79	90	69	72	81	115
LCS 240-563018/24-A	Lab Control Sample	105	82	79	80	83	74
LCS 240-563018/25-A	Lab Control Sample	101	70	72	68	68	45
LCS 240-563018/26-A	Lab Control Sample	119	92	92	73	92	34
LCS 240-563130/2-A	Lab Control Sample	115	89	86	79	92	89
LCS 240-563130/3-A	Lab Control Sample	106	73	73	53	77	31
LCS 240-563436/23-A	Lab Control Sample	115	67	60	68	83	103
LCS 240-563436/24-A	Lab Control Sample	104	38	33	36	46	31
MB 240-563018/23-A	Method Blank	104	80	83	73	80	40
MB 240-563130/1-A	Method Blank	113	85	79	67	84	50
MB 240-563436/22-A	Method Blank	100	58	52	52	71	48

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-563202/14-A	Lab Control Sample	119	64	74	73	98	108
MB 240-563202/13-A	Method Blank	111	59	73	69	94	99

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180684-6	WC-WS-NORTH-COMP (1-5)	119	61	72	70	99	103
240-180684-12	WC-WS-NORTH-COMP (6-10)	106	57	64	64	85	90
240-180684-18	WC-COMP1-N. DITCH	118	61	73	70	100	109

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180684-24	WC-COMP2-N. DITCH	114	66	77	76	97	104
240-180684-25	WC-RT1538A-ST. SWEEPINGS	119	62	76	72	96	102

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-563205/11-A	Lab Control Sample	84	82	69	84
MB 240-563205/10-A	Method Blank	86	88	76	94

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-180684-6	WC-WS-NORTH-COMP (1-5)	77	80	61	67
240-180684-12	WC-WS-NORTH-COMP (6-10)	73	75	61	70
240-180684-18	WC-COMP1-N. DITCH	76	79	61	65
240-180684-24	WC-COMP2-N. DITCH	78	74	62	64
240-180684-25	WC-RT1538A-ST. SWEEPINGS	69	67	53	60

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (10-149)	DCBP2 (10-174)
240-180684-6	WC-WS-NORTH-COMP (1-5)	95	95 p
240-180684-6 MS	WC-WS-NORTH-COMP (1-5)	88	96 p
240-180684-6 MSD	WC-WS-NORTH-COMP (1-5)	88	103 p
240-180684-12	WC-WS-NORTH-COMP (6-10)	69	75 p
240-180684-18	WC-COMP1-N. DITCH	95	108
240-180684-24	WC-COMP2-N. DITCH	98	119
240-180684-25	WC-RT1538A-ST. SWEEPINGS	104	83

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (10-149)	DCBP2 (10-174)
LCS 240-562981/2-A	Lab Control Sample	109	102
LCS 240-563290/2-A	Lab Control Sample	111	121
MB 240-562981/1-A	Method Blank	79	70
MB 240-563290/1-A	Method Blank	113	146

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA2 (26-136)
LCS 410-347942/2-A	Lab Control Sample	73
MB 410-347942/1-A	Method Blank	61

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)
240-180684-6	WC-WS-NORTH-COMP (1-5)	70
240-180684-25	WC-RT1538A-ST. SWEEPINGS	70

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA2 (26-136)
240-180684-12	WC-WS-NORTH-COMP (6-10)	62
240-180684-18	WC-COMP1-N. DITCH	72
240-180684-24	WC-COMP2-N. DITCH	65

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Acetone	ND		1.0	0.24	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Benzene	ND		0.25	0.042	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Bromoform	ND		0.25	0.23	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Chloroform	ND		0.25	0.054	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Styrene	ND		0.25	0.052	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Toluene	ND		0.25	0.24	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 13:30	02/23/23 17:18	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/21/23 13:30	02/23/23 17:18	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562918/1-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562918

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	105		56 - 125	02/21/23 13:30	02/23/23 17:18	1
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 13:30	02/23/23 17:18	1
4-Bromofluorobenzene (Surr)	105		41 - 143	02/21/23 13:30	02/23/23 17:18	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125	02/21/23 13:30	02/23/23 17:18	1

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.24		mg/Kg		99	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.41		mg/Kg		113	64 - 148
1,1,2-Trichloroethane	1.25	1.31		mg/Kg		105	79 - 120
1,1-Dichloroethane	1.25	1.27		mg/Kg		101	74 - 121
1,1-Dichloroethene	1.25	1.32		mg/Kg		106	68 - 141
1,2,4-Trichlorobenzene	1.25	1.33		mg/Kg		106	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.909		mg/Kg		73	52 - 133
Ethylene Dibromide	1.25	1.30		mg/Kg		104	80 - 121
1,2-Dichlorobenzene	1.25	1.38		mg/Kg		111	73 - 120
1,2-Dichloroethane	1.25	1.30		mg/Kg		104	71 - 123
1,2-Dichloropropane	1.25	1.28		mg/Kg		102	76 - 126
1,3-Dichlorobenzene	1.25	1.36		mg/Kg		109	73 - 120
1,4-Dichlorobenzene	1.25	1.37		mg/Kg		110	74 - 120
2-Butanone (MEK)	2.50	2.54		mg/Kg		102	63 - 142
2-Hexanone	2.50	2.48		mg/Kg		99	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.48		mg/Kg		99	62 - 142
Acetone	2.50	2.91		mg/Kg		116	58 - 160
Benzene	1.25	1.32		mg/Kg		105	76 - 121
Dichlorobromomethane	1.25	1.14		mg/Kg		91	71 - 138
Bromoform	1.25	0.941		mg/Kg		75	57 - 140
Bromomethane	1.25	0.731		mg/Kg		58	10 - 171
Carbon disulfide	1.25	1.04		mg/Kg		83	43 - 152
Carbon tetrachloride	1.25	1.11		mg/Kg		89	64 - 144
Chlorobenzene	1.25	1.35		mg/Kg		108	80 - 120
Chloroethane	1.25	0.610		mg/Kg		49	11 - 164
Chloroform	1.25	1.30		mg/Kg		104	78 - 120
Chloromethane	1.25	1.35		mg/Kg		108	41 - 142
cis-1,2-Dichloroethene	1.25	1.36		mg/Kg		109	78 - 124
cis-1,3-Dichloropropene	1.25	1.19		mg/Kg		96	70 - 133
Cyclohexane	1.25	1.35		mg/Kg		108	65 - 137
Chlorodibromomethane	1.25	1.07		mg/Kg		85	68 - 131
Dichlorodifluoromethane	1.25	1.57		mg/Kg		125	21 - 150
Ethylbenzene	1.25	1.36		mg/Kg		109	80 - 120
Isopropylbenzene	1.25	1.38		mg/Kg		110	80 - 130
Methyl acetate	2.50	2.35		mg/Kg		94	60 - 133
Methyl tert-butyl ether	1.25	1.32		mg/Kg		106	70 - 130
Methylcyclohexane	1.25	1.34		mg/Kg		107	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562918/2-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	1.25	1.38		mg/Kg		111	71 - 124
Styrene	1.25	1.38		mg/Kg		110	75 - 140
Tetrachloroethene	1.25	1.45		mg/Kg		116	76 - 127
Toluene	1.25	1.32		mg/Kg		106	80 - 120
trans-1,2-Dichloroethene	1.25	1.31		mg/Kg		105	76 - 130
trans-1,3-Dichloropropene	1.25	1.24		mg/Kg		99	61 - 121
Trichloroethene	1.25	1.35		mg/Kg		108	74 - 130
Trichlorofluoromethane	1.25	1.02		mg/Kg		81	50 - 154
Vinyl chloride	1.25	1.41		mg/Kg		113	49 - 146
Xylenes, Total	2.50	2.70		mg/Kg		108	80 - 122
m-Xylene & p-Xylene	1.25	1.35		mg/Kg		108	80 - 122
o-Xylene	1.25	1.35		mg/Kg		108	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	108		56 - 125
Dibromofluoromethane (Surr)	105		41 - 138
4-Bromofluorobenzene (Surr)	107		41 - 143
1,2-Dichloroethane-d4 (Surr)	105		58 - 125

Lab Sample ID: MB 240-562940/1-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562940

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Acetone	ND		1.0	0.24	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Benzene	ND		0.25	0.042	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Bromoform	ND		0.25	0.23	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/21/23 19:38	02/23/23 18:53	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-562940/1-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562940

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Chloroform	ND		0.25	0.054	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Styrene	ND		0.25	0.052	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Toluene	ND		0.25	0.24	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/21/23 19:38	02/23/23 18:53	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/21/23 19:38	02/23/23 18:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	105		56 - 125	02/21/23 19:38	02/23/23 18:53	1
Dibromofluoromethane (Surr)	95		41 - 138	02/21/23 19:38	02/23/23 18:53	1
4-Bromofluorobenzene (Surr)	106		41 - 143	02/21/23 19:38	02/23/23 18:53	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125	02/21/23 19:38	02/23/23 18:53	1

Lab Sample ID: LCS 240-562940/2-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562940

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	1.25	1.25		mg/Kg		100	74 - 136
1,1,2,2-Tetrachloroethane	1.25	1.15		mg/Kg		92	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.36		mg/Kg		108	64 - 148
1,1,2-Trichloroethane	1.25	1.24		mg/Kg		99	79 - 120
1,1-Dichloroethane	1.25	1.22		mg/Kg		97	74 - 121
1,1-Dichloroethene	1.25	1.26		mg/Kg		101	68 - 141
1,2,4-Trichlorobenzene	1.25	1.27		mg/Kg		102	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.831		mg/Kg		66	52 - 133
Ethylene Dibromide	1.25	1.25		mg/Kg		100	80 - 121
1,2-Dichlorobenzene	1.25	1.33		mg/Kg		107	73 - 120
1,2-Dichloroethane	1.25	1.24		mg/Kg		99	71 - 123
1,2-Dichloropropane	1.25	1.22		mg/Kg		98	76 - 126

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-562940/2-A
Matrix: Solid
Analysis Batch: 563220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562940

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,3-Dichlorobenzene	1.25	1.29		mg/Kg		103	73 - 120
1,4-Dichlorobenzene	1.25	1.32		mg/Kg		105	74 - 120
2-Butanone (MEK)	2.50	2.29		mg/Kg		92	63 - 142
2-Hexanone	2.50	2.36		mg/Kg		94	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.37		mg/Kg		95	62 - 142
Acetone	2.50	2.83		mg/Kg		113	58 - 160
Benzene	1.25	1.27		mg/Kg		102	76 - 121
Dichlorobromomethane	1.25	1.07		mg/Kg		86	71 - 138
Bromoform	1.25	0.880		mg/Kg		70	57 - 140
Bromomethane	1.25	0.737		mg/Kg		59	10 - 171
Carbon disulfide	1.25	0.969		mg/Kg		78	43 - 152
Carbon tetrachloride	1.25	1.04		mg/Kg		83	64 - 144
Chlorobenzene	1.25	1.29		mg/Kg		103	80 - 120
Chloroethane	1.25	0.622		mg/Kg		50	11 - 164
Chloroform	1.25	1.24		mg/Kg		99	78 - 120
Chloromethane	1.25	1.42		mg/Kg		113	41 - 142
cis-1,2-Dichloroethene	1.25	1.27		mg/Kg		102	78 - 124
cis-1,3-Dichloropropene	1.25	1.13		mg/Kg		91	70 - 133
Cyclohexane	1.25	1.26		mg/Kg		100	65 - 137
Chlorodibromomethane	1.25	0.993		mg/Kg		79	68 - 131
Dichlorodifluoromethane	1.25	1.55		mg/Kg		124	21 - 150
Ethylbenzene	1.25	1.29		mg/Kg		103	80 - 120
Isopropylbenzene	1.25	1.31		mg/Kg		105	80 - 130
Methyl acetate	2.50	2.16		mg/Kg		86	60 - 133
Methyl tert-butyl ether	1.25	1.24		mg/Kg		100	70 - 130
Methylcyclohexane	1.25	1.28		mg/Kg		102	70 - 138
Methylene Chloride	1.25	1.37		mg/Kg		110	71 - 124
Styrene	1.25	1.32		mg/Kg		106	75 - 140
Tetrachloroethene	1.25	1.39		mg/Kg		111	76 - 127
Toluene	1.25	1.26		mg/Kg		101	80 - 120
trans-1,2-Dichloroethene	1.25	1.20		mg/Kg		96	76 - 130
trans-1,3-Dichloropropene	1.25	1.18		mg/Kg		94	61 - 121
Trichloroethene	1.25	1.26		mg/Kg		101	74 - 130
Trichlorofluoromethane	1.25	1.02		mg/Kg		82	50 - 154
Vinyl chloride	1.25	1.43		mg/Kg		114	49 - 146
Xylenes, Total	2.50	2.61		mg/Kg		104	80 - 122
m-Xylene & p-Xylene	1.25	1.33		mg/Kg		106	80 - 122
o-Xylene	1.25	1.28		mg/Kg		102	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	109		56 - 125
Dibromofluoromethane (Surr)	104		41 - 138
4-Bromofluorobenzene (Surr)	107		41 - 143
1,2-Dichloroethane-d4 (Surr)	105		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-563078/1-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563078

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Acetone	ND		1.0	0.24	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Benzene	ND		0.25	0.042	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Bromoform	ND		0.25	0.23	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Chloroform	ND		0.25	0.054	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Styrene	ND		0.25	0.052	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Toluene	ND		0.25	0.24	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/22/23 15:14	02/22/23 16:21	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/22/23 15:14	02/22/23 16:21	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-563078/1-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563078

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	109		56 - 125	02/22/23 15:14	02/22/23 16:21	1
Dibromofluoromethane (Surr)	97		41 - 138	02/22/23 15:14	02/22/23 16:21	1
4-Bromofluorobenzene (Surr)	109		41 - 143	02/22/23 15:14	02/22/23 16:21	1
1,2-Dichloroethane-d4 (Surr)	108		58 - 125	02/22/23 15:14	02/22/23 16:21	1

Lab Sample ID: LCS 240-563078/2-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563078

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	1.25	1.27		mg/Kg		102	74 - 136
1,1,2,2-Tetrachloroethane	1.25	1.19		mg/Kg		95	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.31		mg/Kg		105	64 - 148
1,1,2-Trichloroethane	1.25	1.26		mg/Kg		101	79 - 120
1,1-Dichloroethane	1.25	1.23		mg/Kg		99	74 - 121
1,1-Dichloroethene	1.25	1.26		mg/Kg		100	68 - 141
1,2,4-Trichlorobenzene	1.25	1.30		mg/Kg		104	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.923		mg/Kg		74	52 - 133
Ethylene Dibromide	1.25	1.23		mg/Kg		98	80 - 121
1,2-Dichlorobenzene	1.25	1.32		mg/Kg		106	73 - 120
1,2-Dichloroethane	1.25	1.22		mg/Kg		98	71 - 123
1,2-Dichloropropane	1.25	1.19		mg/Kg		96	76 - 126
1,3-Dichlorobenzene	1.25	1.33		mg/Kg		107	73 - 120
1,4-Dichlorobenzene	1.25	1.35		mg/Kg		108	74 - 120
2-Butanone (MEK)	2.50	2.39		mg/Kg		96	63 - 142
2-Hexanone	2.50	2.37		mg/Kg		95	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.35		mg/Kg		94	62 - 142
Acetone	2.50	2.64		mg/Kg		106	58 - 160
Benzene	1.25	1.30		mg/Kg		104	76 - 121
Dichlorobromomethane	1.25	1.07		mg/Kg		86	71 - 138
Bromoform	1.25	0.883		mg/Kg		71	57 - 140
Bromomethane	1.25	0.674		mg/Kg		54	10 - 171
Carbon disulfide	1.25	0.912		mg/Kg		73	43 - 152
Carbon tetrachloride	1.25	1.07		mg/Kg		86	64 - 144
Chlorobenzene	1.25	1.31		mg/Kg		105	80 - 120
Chloroethane	1.25	0.638		mg/Kg		51	11 - 164
Chloroform	1.25	1.26		mg/Kg		101	78 - 120
Chloromethane	1.25	1.46		mg/Kg		117	41 - 142
cis-1,2-Dichloroethene	1.25	1.27		mg/Kg		102	78 - 124
cis-1,3-Dichloropropene	1.25	1.14		mg/Kg		91	70 - 133
Cyclohexane	1.25	1.27		mg/Kg		101	65 - 137
Chlorodibromomethane	1.25	1.02		mg/Kg		82	68 - 131
Dichlorodifluoromethane	1.25	1.66		mg/Kg		133	21 - 150
Ethylbenzene	1.25	1.33		mg/Kg		106	80 - 120
Isopropylbenzene	1.25	1.37		mg/Kg		110	80 - 130
Methyl acetate	2.50	2.25		mg/Kg		90	60 - 133
Methyl tert-butyl ether	1.25	1.21		mg/Kg		97	70 - 130
Methylcyclohexane	1.25	1.29		mg/Kg		104	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-563078/2-A
Matrix: Solid
Analysis Batch: 563073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563078

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	1.25	1.33		mg/Kg		106	71 - 124
Styrene	1.25	1.36		mg/Kg		109	75 - 140
Tetrachloroethene	1.25	1.41		mg/Kg		113	76 - 127
Toluene	1.25	1.30		mg/Kg		104	80 - 120
trans-1,2-Dichloroethene	1.25	1.26		mg/Kg		101	76 - 130
trans-1,3-Dichloropropene	1.25	1.17		mg/Kg		94	61 - 121
Trichloroethene	1.25	1.31		mg/Kg		105	74 - 130
Trichlorofluoromethane	1.25	1.14		mg/Kg		91	50 - 154
Vinyl chloride	1.25	1.48		mg/Kg		118	49 - 146
Xylenes, Total	2.50	2.64		mg/Kg		106	80 - 122
m-Xylene & p-Xylene	1.25	1.34		mg/Kg		107	80 - 122
o-Xylene	1.25	1.30		mg/Kg		104	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	111		56 - 125
Dibromofluoromethane (Surr)	108		41 - 138
4-Bromofluorobenzene (Surr)	109		41 - 143
1,2-Dichloroethane-d4 (Surr)	104		58 - 125

Lab Sample ID: LCS 240-563142/10
Matrix: Solid
Analysis Batch: 563142

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	1.07		mg/L		107	74 - 127
1,2-Dichloroethane	1.00	0.894		mg/L		89	72 - 120
2-Butanone (MEK)	2.00	2.09		mg/L		104	68 - 130
Benzene	1.00	1.09		mg/L		109	80 - 121
Carbon tetrachloride	1.00	0.889		mg/L		89	69 - 120
Chlorobenzene	1.00	0.972		mg/L		97	80 - 120
Chloroform	1.00	1.02		mg/L		102	75 - 120
Tetrachloroethene	1.00	0.874		mg/L		87	74 - 120
Trichloroethene	1.00	0.910		mg/L		91	75 - 120
Vinyl chloride	1.00	1.04		mg/L		104	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	98		71 - 121
4-Bromofluorobenzene (Surr)	114		80 - 120
1,2-Dichloroethane-d4 (Surr)	93		76 - 120

Lab Sample ID: LCS 240-563382/4
Matrix: Solid
Analysis Batch: 563382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl chloride	0.0250	0.0258		mg/Kg		103	49 - 146

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-563382/4
Matrix: Solid
Analysis Batch: 563382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	87		56 - 125
Dibromofluoromethane (Surr)	82		41 - 138
4-Bromofluorobenzene (Surr)	97		41 - 143
1,2-Dichloroethane-d4 (Surr)	76		58 - 125

Lab Sample ID: MB 240-563391/1-A
Matrix: Solid
Analysis Batch: 563382

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563391

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		02/24/23 21:04	02/25/23 01:42	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	94		56 - 125	02/24/23 21:04	02/25/23 01:42	1
Dibromofluoromethane (Surr)	85		41 - 138	02/24/23 21:04	02/25/23 01:42	1
4-Bromofluorobenzene (Surr)	102		41 - 143	02/24/23 21:04	02/25/23 01:42	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125	02/24/23 21:04	02/25/23 01:42	1

Lab Sample ID: MB 240-563434/1-A
Matrix: Solid
Analysis Batch: 563458

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563434

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		02/25/23 14:15	02/26/23 18:43	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	98		56 - 125	02/25/23 14:15	02/26/23 18:43	1
Dibromofluoromethane (Surr)	93		41 - 138	02/25/23 14:15	02/26/23 18:43	1
4-Bromofluorobenzene (Surr)	109		41 - 143	02/25/23 14:15	02/26/23 18:43	1
1,2-Dichloroethane-d4 (Surr)	81		58 - 125	02/25/23 14:15	02/26/23 18:43	1

Lab Sample ID: MB 240-563457/1-A
Matrix: Solid
Analysis Batch: 563458

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563457

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		02/26/23 16:41	02/26/23 19:55	1

Lab Sample ID: LCS 240-563458/4
Matrix: Solid
Analysis Batch: 563458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	99		56 - 125
Dibromofluoromethane (Surr)	96		41 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-563458/4
Matrix: Solid
Analysis Batch: 563458

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	110		41 - 143
1,2-Dichloroethane-d4 (Surr)	84		58 - 125

Lab Sample ID: LB 240-563082/1-A MB
Matrix: Solid
Analysis Batch: 563142

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/23/23 16:13	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/23/23 16:13	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/23/23 16:13	1
Benzene	ND		0.025	0.00042	mg/L			02/23/23 16:13	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/23/23 16:13	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/23/23 16:13	1
Chloroform	ND		0.025	0.00047	mg/L			02/23/23 16:13	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/23/23 16:13	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/23/23 16:13	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/23/23 16:13	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	100		80 - 120		02/23/23 16:13	1
Dibromofluoromethane (Surr)	95		71 - 121		02/23/23 16:13	1
4-Bromofluorobenzene (Surr)	116		80 - 120		02/23/23 16:13	1
1,2-Dichloroethane-d4 (Surr)	93		76 - 120		02/23/23 16:13	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-563018/23-A
Matrix: Solid
Analysis Batch: 563266

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563018

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/22/23 09:34	02/24/23 10:09	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563018/23-A
Matrix: Solid
Analysis Batch: 563266

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563018

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Atrazine	ND		0.20	0.036	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Carbazole	ND		0.050	0.019	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Isophorone	ND		0.050	0.012	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Phenol	ND		0.050	0.0080	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/22/23 09:34	02/24/23 10:09	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/22/23 09:34	02/24/23 10:09	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	104		46 - 137	02/22/23 09:34	02/24/23 10:09	1
Phenol-d5 (Surr)	80		26 - 120	02/22/23 09:34	02/24/23 10:09	1
Nitrobenzene-d5 (Surr)	83		25 - 120	02/22/23 09:34	02/24/23 10:09	1
2-Fluorophenol (Surr)	73		20 - 120	02/22/23 09:34	02/24/23 10:09	1
2-Fluorobiphenyl (Surr)	80		34 - 120	02/22/23 09:34	02/24/23 10:09	1
2,4,6-Tribromophenol (Surr)	40		10 - 120	02/22/23 09:34	02/24/23 10:09	1

Lab Sample ID: LCS 240-563018/24-A
Matrix: Solid
Analysis Batch: 563266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563018

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
bis (2-chloroisopropyl) ether	0.667	0.548		mg/Kg		82	38 - 120
2,4,5-Trichlorophenol	0.667	0.545		mg/Kg		82	50 - 120
2,4,6-Trichlorophenol	0.667	0.524		mg/Kg		79	50 - 120
2,4-Dichlorophenol	0.667	0.436		mg/Kg		65	50 - 120
2,4-Dimethylphenol	0.667	0.450		mg/Kg		68	24 - 120
2,4-Dinitrophenol	1.33	0.682		mg/Kg		51	19 - 132
2,4-Dinitrotoluene	0.667	0.606		mg/Kg		91	64 - 120
2,6-Dinitrotoluene	0.667	0.632		mg/Kg		95	62 - 120
2-Chloronaphthalene	0.667	0.491		mg/Kg		74	51 - 120
2-Chlorophenol	0.667	0.451		mg/Kg		68	47 - 120
2-Methylnaphthalene	0.667	0.407		mg/Kg		61	38 - 120
2-Methylphenol	0.667	0.507		mg/Kg		76	45 - 120
2-Nitroaniline	0.667	0.758		mg/Kg		114	57 - 120
2-Nitrophenol	0.667	0.463		mg/Kg		69	51 - 120
3,3'-Dichlorobenzidine	1.33	1.22		mg/Kg		92	27 - 199
3-Nitroaniline	0.667	0.585		mg/Kg		88	41 - 120
4,6-Dinitro-2-methylphenol	1.33	0.946		mg/Kg		71	46 - 126
4-Bromophenyl phenyl ether	0.667	0.534		mg/Kg		80	65 - 120
4-Chloro-3-methylphenol	0.667	0.558		mg/Kg		84	51 - 120
4-Chloroaniline	0.667	0.444		mg/Kg		67	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.523		mg/Kg		78	59 - 120
4-Nitroaniline	0.667	0.651		mg/Kg		98	48 - 128
4-Nitrophenol	1.33	1.39		mg/Kg		104	43 - 120
Acenaphthene	0.667	0.527		mg/Kg		79	52 - 120
Acenaphthylene	0.667	0.515		mg/Kg		77	52 - 120
Acetophenone	0.667	0.510		mg/Kg		76	47 - 120
Anthracene	0.667	0.569		mg/Kg		85	64 - 120
Atrazine	1.33	1.31		mg/Kg		98	71 - 125
Benzaldehyde	1.33	1.05		mg/Kg		79	42 - 120
Benzo[a]anthracene	0.667	0.630		mg/Kg		95	70 - 120
Benzo[a]pyrene	0.667	0.582		mg/Kg		87	63 - 125
Benzo[b]fluoranthene	0.667	0.608		mg/Kg		91	64 - 121
Benzo[g,h,i]perylene	0.667	0.589		mg/Kg		88	62 - 120
Benzo[k]fluoranthene	0.667	0.560		mg/Kg		84	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.493		mg/Kg		74	50 - 120
Bis(2-chloroethyl)ether	0.667	0.489		mg/Kg		73	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.824		mg/Kg		124	63 - 133
Butyl benzyl phthalate	0.667	0.786		mg/Kg		118	66 - 127

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563018/24-A
Matrix: Solid
Analysis Batch: 563266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563018

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Caprolactam	1.33	1.37		mg/Kg		102	67 - 120
Carbazole	0.667	0.609		mg/Kg		91	61 - 129
Chrysene	0.667	0.593		mg/Kg		89	67 - 120
Dibenz(a,h)anthracene	0.667	0.570		mg/Kg		85	62 - 120
Dibenzofuran	0.667	0.525		mg/Kg		79	55 - 120
Diethyl phthalate	0.667	0.627		mg/Kg		94	61 - 120
Dimethyl phthalate	0.667	0.610		mg/Kg		91	64 - 120
Di-n-butyl phthalate	0.667	0.699		mg/Kg		105	70 - 129
Di-n-octyl phthalate	0.667	0.795		mg/Kg		119	64 - 129
Fluoranthene	0.667	0.567		mg/Kg		85	71 - 124
Fluorene	0.667	0.558		mg/Kg		84	58 - 120
Hexachlorobenzene	0.667	0.524		mg/Kg		79	59 - 120
Hexachlorobutadiene	0.667	0.395		mg/Kg		59	45 - 120
Hexachlorocyclopentadiene	0.667	0.290	J	mg/Kg		43	10 - 120
Hexachloroethane	0.667	0.451		mg/Kg		68	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.597		mg/Kg		89	65 - 122
Isophorone	0.667	0.529		mg/Kg		79	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.522		mg/Kg		78	48 - 120
N-Nitrosodiphenylamine	0.667	0.573		mg/Kg		86	64 - 120
Naphthalene	0.667	0.419		mg/Kg		63	34 - 120
Nitrobenzene	0.667	0.498		mg/Kg		75	48 - 120
Pentachlorophenol	1.33	0.482		mg/Kg		36	10 - 120
Phenanthrene	0.667	0.571		mg/Kg		86	60 - 120
Phenol	0.667	0.532		mg/Kg		80	48 - 120
Pyrene	0.667	0.695		mg/Kg		104	67 - 120
3 & 4 Methylphenol	0.667	0.520		mg/Kg		78	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	105		46 - 137
Phenol-d5 (Surr)	82		26 - 120
Nitrobenzene-d5 (Surr)	79		25 - 120
2-Fluorophenol (Surr)	80		20 - 120
2-Fluorobiphenyl (Surr)	83		34 - 120
2,4,6-Tribromophenol (Surr)	74		10 - 120

Lab Sample ID: LCS 240-563018/25-A
Matrix: Solid
Analysis Batch: 563266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563018

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	101		46 - 137
Phenol-d5 (Surr)	70		26 - 120
Nitrobenzene-d5 (Surr)	72		25 - 120
2-Fluorophenol (Surr)	68		20 - 120
2-Fluorobiphenyl (Surr)	68		34 - 120
2,4,6-Tribromophenol (Surr)	45		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563018/26-A
Matrix: Solid
Analysis Batch: 563266

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563018

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	119		46 - 137
Phenol-d5 (Surr)	92		26 - 120
Nitrobenzene-d5 (Surr)	92		25 - 120
2-Fluorophenol (Surr)	73		20 - 120
2-Fluorobiphenyl (Surr)	92		34 - 120
2,4,6-Tribromophenol (Surr)	34		10 - 120

Lab Sample ID: MB 240-563130/1-A
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563130

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Atrazine	ND		0.20	0.036	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/23/23 08:32	02/25/23 10:52	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563130/1-A
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563130

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Carbazole	ND		0.050	0.019	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Isophorone	ND		0.050	0.012	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Phenol	ND		0.050	0.0080	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/23/23 08:32	02/25/23 10:52	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/23/23 08:32	02/25/23 10:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	113		46 - 137	02/23/23 08:32	02/25/23 10:52	1
Phenol-d5 (Surr)	85		26 - 120	02/23/23 08:32	02/25/23 10:52	1
Nitrobenzene-d5 (Surr)	79		25 - 120	02/23/23 08:32	02/25/23 10:52	1
2-Fluorophenol (Surr)	67		20 - 120	02/23/23 08:32	02/25/23 10:52	1
2-Fluorobiphenyl (Surr)	84		34 - 120	02/23/23 08:32	02/25/23 10:52	1
2,4,6-Tribromophenol (Surr)	50		10 - 120	02/23/23 08:32	02/25/23 10:52	1

Lab Sample ID: LCS 240-563130/2-A
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.580		mg/Kg		87	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.562		mg/Kg		84	38 - 120
2,4,5-Trichlorophenol	0.667	0.596		mg/Kg		89	50 - 120
2,4,6-Trichlorophenol	0.667	0.601		mg/Kg		90	50 - 120
2,4-Dichlorophenol	0.667	0.556		mg/Kg		83	50 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563130/2-A
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-Dimethylphenol	0.667	0.466		mg/Kg		70	24 - 120
2,4-Dinitrophenol	1.33	1.27		mg/Kg		95	19 - 132
2,4-Dinitrotoluene	0.667	0.707		mg/Kg		106	64 - 120
2,6-Dinitrotoluene	0.667	0.663		mg/Kg		99	62 - 120
2-Chloronaphthalene	0.667	0.574		mg/Kg		86	51 - 120
2-Chlorophenol	0.667	0.496		mg/Kg		74	47 - 120
2-Methylnaphthalene	0.667	0.496		mg/Kg		74	38 - 120
2-Methylphenol	0.667	0.513		mg/Kg		77	45 - 120
2-Nitroaniline	0.667	0.692		mg/Kg		104	57 - 120
2-Nitrophenol	0.667	0.519		mg/Kg		78	51 - 120
3,3'-Dichlorobenzidine	1.33	1.22		mg/Kg		92	27 - 199
3-Nitroaniline	0.667	0.508		mg/Kg		76	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.30		mg/Kg		98	46 - 126
4-Bromophenyl phenyl ether	0.667	0.574		mg/Kg		86	65 - 120
4-Chloro-3-methylphenol	0.667	0.617		mg/Kg		92	51 - 120
4-Chloroaniline	0.667	0.337		mg/Kg		51	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.569		mg/Kg		85	59 - 120
4-Nitroaniline	0.667	0.600		mg/Kg		90	48 - 128
4-Nitrophenol	1.33	1.39		mg/Kg		104	43 - 120
Acenaphthene	0.667	0.565		mg/Kg		85	52 - 120
Acenaphthylene	0.667	0.571		mg/Kg		86	52 - 120
Acetophenone	0.667	0.536		mg/Kg		80	47 - 120
Anthracene	0.667	0.601		mg/Kg		90	64 - 120
Atrazine	1.33	1.28		mg/Kg		96	71 - 125
Benzaldehyde	1.33	1.07		mg/Kg		80	42 - 120
Benzo[a]anthracene	0.667	0.705		mg/Kg		106	70 - 120
Benzo[a]pyrene	0.667	0.630		mg/Kg		94	63 - 125
Benzo[b]fluoranthene	0.667	0.679		mg/Kg		102	64 - 121
Benzo[g,h,i]perylene	0.667	0.675		mg/Kg		101	62 - 120
Benzo[k]fluoranthene	0.667	0.638		mg/Kg		96	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.529		mg/Kg		79	50 - 120
Bis(2-chloroethyl)ether	0.667	0.489		mg/Kg		73	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.791		mg/Kg		119	63 - 133
Butyl benzyl phthalate	0.667	0.751		mg/Kg		113	66 - 127
Caprolactam	1.33	1.28		mg/Kg		96	67 - 120
Carbazole	0.667	0.595		mg/Kg		89	61 - 129
Chrysene	0.667	0.691		mg/Kg		104	67 - 120
Dibenz(a,h)anthracene	0.667	0.684		mg/Kg		103	62 - 120
Dibenzofuran	0.667	0.569		mg/Kg		85	55 - 120
Diethyl phthalate	0.667	0.655		mg/Kg		98	61 - 120
Dimethyl phthalate	0.667	0.636		mg/Kg		95	64 - 120
Di-n-butyl phthalate	0.667	0.654		mg/Kg		98	70 - 129
Di-n-octyl phthalate	0.667	0.744		mg/Kg		112	64 - 129
Fluoranthene	0.667	0.625		mg/Kg		94	71 - 124
Fluorene	0.667	0.568		mg/Kg		85	58 - 120
Hexachlorobenzene	0.667	0.544		mg/Kg		82	59 - 120
Hexachlorobutadiene	0.667	0.469		mg/Kg		70	45 - 120
Hexachlorocyclopentadiene	0.667	0.414		mg/Kg		62	10 - 120
Hexachloroethane	0.667	0.510		mg/Kg		77	39 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563130/2-A
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563130

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Indeno[1,2,3-cd]pyrene	0.667	0.696		mg/Kg		104	65 - 122
Isophorone	0.667	0.571		mg/Kg		86	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.564		mg/Kg		85	48 - 120
N-Nitrosodiphenylamine	0.667	0.585		mg/Kg		88	64 - 120
Naphthalene	0.667	0.489		mg/Kg		73	34 - 120
Nitrobenzene	0.667	0.538		mg/Kg		81	48 - 120
Pentachlorophenol	1.33	0.816		mg/Kg		61	10 - 120
Phenanthrene	0.667	0.596		mg/Kg		89	60 - 120
Phenol	0.667	0.524		mg/Kg		79	48 - 120
Pyrene	0.667	0.732		mg/Kg		110	67 - 120
3 & 4 Methylphenol	0.667	0.548		mg/Kg		82	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	115		46 - 137
Phenol-d5 (Surr)	89		26 - 120
Nitrobenzene-d5 (Surr)	86		25 - 120
2-Fluorophenol (Surr)	79		20 - 120
2-Fluorobiphenyl (Surr)	92		34 - 120
2,4,6-Tribromophenol (Surr)	89		10 - 120

Lab Sample ID: LCS 240-563130/3-A
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	106		46 - 137
Phenol-d5 (Surr)	73		26 - 120
Nitrobenzene-d5 (Surr)	73		25 - 120
2-Fluorophenol (Surr)	53		20 - 120
2-Fluorobiphenyl (Surr)	77		34 - 120
2,4,6-Tribromophenol (Surr)	31		10 - 120

Lab Sample ID: 240-180684-13 MS
Matrix: Solid
Analysis Batch: 563419

Client Sample ID: WC-SB2650-N. DITCH
Prep Type: Total/NA
Prep Batch: 563130

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	ND		1.01	1.19	J	mg/Kg	☼	118	29 - 120
bis (2-chloroisopropyl) ether	ND	F1	1.01	1.78	J F1	mg/Kg	☼	176	10 - 120
2,4,5-Trichlorophenol	ND		1.01	ND		mg/Kg	☼	NC	35 - 120
2,4,6-Trichlorophenol	ND		1.01	ND		mg/Kg	☼	NC	18 - 120
2,4-Dichlorophenol	ND		1.01	ND		mg/Kg	☼	NC	21 - 120
2,4-Dimethylphenol	ND		1.01	ND		mg/Kg	☼	NC	10 - 120
2,4-Dinitrophenol	ND		2.02	ND		mg/Kg	☼	NC	10 - 126
2,4-Dinitrotoluene	ND		1.01	ND		mg/Kg	☼	NC	46 - 120
2,6-Dinitrotoluene	ND		1.01	ND		mg/Kg	☼	NC	44 - 120
2-Chloronaphthalene	ND		1.01	1.00	J	mg/Kg	☼	100	33 - 120
2-Chlorophenol	ND		1.01	0.920	J	mg/Kg	☼	91	19 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180684-13 MS

Matrix: Solid

Analysis Batch: 563419

Client Sample ID: WC-SB2650-N. DITCH

Prep Type: Total/NA

Prep Batch: 563130

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
2-Methylnaphthalene	1.2	F1 F2	1.01	3.74	F1	mg/Kg	☼	253	13 - 122
2-Methylphenol	ND		1.01	1.05	J	mg/Kg	☼	104	12 - 120
2-Nitroaniline	ND		1.01	ND		mg/Kg	☼	NC	36 - 122
2-Nitrophenol	ND		1.01	0.906	J	mg/Kg	☼	90	28 - 120
3,3'-Dichlorobenzidine	ND	F1	2.02	ND	F1	mg/Kg	☼	0	10 - 179
3-Nitroaniline	ND		1.01	ND		mg/Kg	☼	NC	10 - 123
4,6-Dinitro-2-methylphenol	ND		2.02	ND		mg/Kg	☼	NC	11 - 120
4-Bromophenyl phenyl ether	ND		1.01	0.965	J	mg/Kg	☼	96	49 - 120
4-Chloro-3-methylphenol	ND		1.01	ND		mg/Kg	☼	NC	35 - 120
4-Chloroaniline	ND	F1	1.01	ND	F1	mg/Kg	☼	0	10 - 120
4-Chlorophenyl phenyl ether	ND		1.01	1.02	J	mg/Kg	☼	101	45 - 120
4-Nitroaniline	ND		1.01	ND		mg/Kg	☼	NC	13 - 129
4-Nitrophenol	ND		2.02	2.80	J	mg/Kg	☼	NC	28 - 123
Acenaphthene	ND		1.01	1.16		mg/Kg	☼	115	33 - 120
Acenaphthylene	ND		1.01	1.10		mg/Kg	☼	109	39 - 120
Acetophenone	ND		1.01	1.06	J	mg/Kg	☼	105	11 - 120
Anthracene	0.44	J	1.01	1.24		mg/Kg	☼	79	30 - 127
Atrazine	ND		2.02	2.12	J	mg/Kg	☼	105	52 - 126
Benzaldehyde	ND		2.02	0.978	J	mg/Kg	☼	49	13 - 120
Benzo[a]anthracene	1.8		1.01	2.12		mg/Kg	☼	33	24 - 137
Benzo[a]pyrene	1.4		1.01	1.76		mg/Kg	☼	40	28 - 136
Benzo[b]fluoranthene	2.2	F1	1.01	2.21	F1	mg/Kg	☼	3	21 - 142
Benzo[g,h,i]perylene	0.61		1.01	0.848		mg/Kg	☼	24	10 - 144
Benzo[k]fluoranthene	0.83		1.01	1.52		mg/Kg	☼	69	36 - 135
Bis(2-chloroethoxy)methane	ND		1.01	0.928	J	mg/Kg	☼	92	25 - 120
Bis(2-chloroethyl)ether	ND		1.01	0.710	J	mg/Kg	☼	70	16 - 120
Bis(2-ethylhexyl) phthalate	ND		1.01	2.13		mg/Kg	☼	NC	37 - 143
Butyl benzyl phthalate	ND		1.01	1.12	J	mg/Kg	☼	111	49 - 130
Caprolactam	ND		2.02	ND		mg/Kg	☼	NC	37 - 127
Carbazole	ND		1.01	1.15	J	mg/Kg	☼	114	33 - 132
Chrysene	2.4	F1	1.01	2.43	F1	mg/Kg	☼	1	28 - 129
Dibenz(a,h)anthracene	ND		1.01	0.756		mg/Kg	☼	75	10 - 132
Dibenzofuran	0.53	J F1	1.01	1.90	F1	mg/Kg	☼	135	33 - 120
Diethyl phthalate	ND	F1	1.01	ND	F1	mg/Kg	☼	0	48 - 120
Dimethyl phthalate	ND		1.01	0.965	J	mg/Kg	☼	96	45 - 120
Di-n-butyl phthalate	ND		1.01	ND		mg/Kg	☼	NC	40 - 137
Di-n-octyl phthalate	ND		1.01	1.24	J	mg/Kg	☼	123	34 - 152
Fluoranthene	4.4		1.01	2.82	4	mg/Kg	☼	-159	31 - 140
Fluorene	0.12	J	1.01	1.13		mg/Kg	☼	99	43 - 120
Hexachlorobenzene	ND		1.01	0.854		mg/Kg	☼	85	44 - 120
Hexachlorobutadiene	ND		1.01	0.762	J	mg/Kg	☼	76	13 - 120
Hexachlorocyclopentadiene	ND		1.01	ND		mg/Kg	☼	NC	10 - 120
Hexachloroethane	ND		1.01	0.564	J	mg/Kg	☼	56	10 - 120
Indeno[1,2,3-cd]pyrene	0.55		1.01	0.947		mg/Kg	☼	40	10 - 139
Isophorone	ND		1.01	0.914	J	mg/Kg	☼	91	27 - 120
N-Nitrosodi-n-propylamine	ND		1.01	0.916	J	mg/Kg	☼	91	23 - 120
N-Nitrosodiphenylamine	ND		1.01	1.12	J	mg/Kg	☼	111	30 - 128
Naphthalene	0.75	F1 F2	1.01	2.72	F1	mg/Kg	☼	195	10 - 120
Nitrobenzene	ND		1.01	0.812	J	mg/Kg	☼	81	19 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180684-13 MS

Matrix: Solid

Analysis Batch: 563419

Client Sample ID: WC-SB2650-N. DITCH

Prep Type: Total/NA

Prep Batch: 563130

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Pentachlorophenol	ND	F1	2.02	ND	F1	mg/Kg	☼	0		10 - 120
Phenanthrene	3.4	F1	1.01	2.58	F1	mg/Kg	☼	-79		36 - 120
Phenol	ND		1.01	0.967	J	mg/Kg	☼	96		10 - 120
Pyrene	4.1		1.01	2.77	4	mg/Kg	☼	-131		31 - 134
3 & 4 Methylphenol	ND		1.01	1.04	J	mg/Kg	☼	103		10 - 122
MS MS										
Surrogate	%Recovery	Qualifier	Limits							
Terphenyl-d14 (Surr)	114		46 - 137							
Phenol-d5 (Surr)	111		26 - 120							
Nitrobenzene-d5 (Surr)	85		25 - 120							
2-Fluorophenol (Surr)	76		20 - 120							
2-Fluorobiphenyl (Surr)	109		34 - 120							
2,4,6-Tribromophenol (Surr)	134	S1+	10 - 120							

Lab Sample ID: 240-180684-13 MSD

Matrix: Solid

Analysis Batch: 563419

Client Sample ID: WC-SB2650-N. DITCH

Prep Type: Total/NA

Prep Batch: 563130

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
1,1'-Biphenyl	ND		0.999	1.05	J	mg/Kg	☼	105		29 - 120	13	45
bis (2-chloroisopropyl) ether	ND	F1	0.999	1.94	J F1	mg/Kg	☼	194		10 - 120	9	45
2,4,5-Trichlorophenol	ND		0.999	ND		mg/Kg	☼	NC		35 - 120	NC	39
2,4,6-Trichlorophenol	ND		0.999	ND		mg/Kg	☼	NC		18 - 120	NC	45
2,4-Dichlorophenol	ND		0.999	ND		mg/Kg	☼	NC		21 - 120	NC	44
2,4-Dimethylphenol	ND		0.999	ND		mg/Kg	☼	NC		10 - 120	NC	45
2,4-Dinitrophenol	ND		2.00	ND		mg/Kg	☼	NC		10 - 126	NC	45
2,4-Dinitrotoluene	ND		0.999	ND		mg/Kg	☼	NC		46 - 120	NC	45
2,6-Dinitrotoluene	ND		0.999	ND		mg/Kg	☼	NC		44 - 120	NC	45
2-Chloronaphthalene	ND		0.999	0.895	J	mg/Kg	☼	90		33 - 120	11	45
2-Chlorophenol	ND		0.999	0.879	J	mg/Kg	☼	88		19 - 120	5	45
2-Methylnaphthalene	1.2	F1 F2	0.999	2.06	F2	mg/Kg	☼	87		13 - 122	58	45
2-Methylphenol	ND		0.999	1.04	J	mg/Kg	☼	104		12 - 120	1	45
2-Nitroaniline	ND		0.999	ND		mg/Kg	☼	NC		36 - 122	NC	42
2-Nitrophenol	ND		0.999	0.906	J	mg/Kg	☼	91		28 - 120	0	45
3,3'-Dichlorobenzidine	ND	F1	2.00	ND	F1	mg/Kg	☼	0		10 - 179	NC	45
3-Nitroaniline	ND		0.999	ND		mg/Kg	☼	NC		10 - 123	NC	45
4,6-Dinitro-2-methylphenol	ND		2.00	ND		mg/Kg	☼	NC		11 - 120	NC	40
4-Bromophenyl phenyl ether	ND		0.999	0.902	J	mg/Kg	☼	90		49 - 120	7	42
4-Chloro-3-methylphenol	ND		0.999	ND		mg/Kg	☼	NC		35 - 120	NC	42
4-Chloroaniline	ND	F1	0.999	ND	F1	mg/Kg	☼	0		10 - 120	NC	45
4-Chlorophenyl phenyl ether	ND		0.999	0.944	J	mg/Kg	☼	95		45 - 120	7	44
4-Nitroaniline	ND		0.999	ND		mg/Kg	☼	NC		13 - 129	NC	38
4-Nitrophenol	ND		2.00	ND		mg/Kg	☼	NC		28 - 123	NC	45
Acenaphthene	ND		0.999	1.05		mg/Kg	☼	106		33 - 120	10	45
Acenaphthylene	ND		0.999	1.03		mg/Kg	☼	103		39 - 120	7	45
Acetophenone	ND		0.999	0.962	J	mg/Kg	☼	96		11 - 120	9	45
Anthracene	0.44	J	0.999	1.13		mg/Kg	☼	69		30 - 127	10	45
Atrazine	ND		2.00	1.88	J	mg/Kg	☼	94		52 - 126	12	34

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180684-13 MSD

Matrix: Solid

Analysis Batch: 563419

Client Sample ID: WC-SB2650-N. DITCH

Prep Type: Total/NA

Prep Batch: 563130

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Benzaldehyde	ND		2.00	1.04	J	mg/Kg	*	52	13 - 120	6	45
Benzo[a]anthracene	1.8		0.999	2.46		mg/Kg	*	67	24 - 137	15	42
Benzo[a]pyrene	1.4		0.999	1.80		mg/Kg	*	45	28 - 136	2	41
Benzo[b]fluoranthene	2.2	F1	0.999	2.46		mg/Kg	*	29	21 - 142	11	42
Benzo[g,h,i]perylene	0.61		0.999	0.796		mg/Kg	*	19	10 - 144	6	40
Benzo[k]fluoranthene	0.83		0.999	1.75		mg/Kg	*	92	36 - 135	14	44
Bis(2-chloroethoxy)methane	ND		0.999	0.911	J	mg/Kg	*	91	25 - 120	2	45
Bis(2-chloroethyl)ether	ND		0.999	0.675	J	mg/Kg	*	68	16 - 120	5	45
Bis(2-ethylhexyl) phthalate	ND		0.999	2.14		mg/Kg	*	NC	37 - 143	1	38
Butyl benzyl phthalate	ND		0.999	1.04	J	mg/Kg	*	104	49 - 130	7	41
Caprolactam	ND		2.00	ND		mg/Kg	*	NC	37 - 127	NC	45
Carbazole	ND		0.999	1.09	J	mg/Kg	*	109	33 - 132	6	45
Chrysene	2.4	F1	0.999	2.93		mg/Kg	*	51	28 - 129	19	42
Dibenz(a,h)anthracene	ND		0.999	0.643		mg/Kg	*	64	10 - 132	16	37
Dibenzofuran	0.53	J F1	0.999	1.46	J	mg/Kg	*	93	33 - 120	26	43
Diethyl phthalate	ND	F1	0.999	ND	F1	mg/Kg	*	0	48 - 120	NC	38
Dimethyl phthalate	ND		0.999	0.811	J	mg/Kg	*	81	45 - 120	17	43
Di-n-butyl phthalate	ND		0.999	ND		mg/Kg	*	NC	40 - 137	NC	42
Di-n-octyl phthalate	ND		0.999	1.17	J	mg/Kg	*	117	34 - 152	6	39
Fluoranthene	4.4		0.999	4.39	4	mg/Kg	*	-4	31 - 140	44	45
Fluorene	0.12	J	0.999	1.05		mg/Kg	*	93	43 - 120	7	39
Hexachlorobenzene	ND		0.999	0.776		mg/Kg	*	78	44 - 120	10	39
Hexachlorobutadiene	ND		0.999	0.760	J	mg/Kg	*	76	13 - 120	0	45
Hexachlorocyclopentadiene	ND		0.999	ND		mg/Kg	*	NC	10 - 120	NC	45
Hexachloroethane	ND		0.999	0.564	J	mg/Kg	*	56	10 - 120	0	45
Indeno[1,2,3-cd]pyrene	0.55		0.999	0.917		mg/Kg	*	37	10 - 139	3	41
Isophorone	ND		0.999	0.881	J	mg/Kg	*	88	27 - 120	4	45
N-Nitrosodi-n-propylamine	ND		0.999	0.929	J	mg/Kg	*	93	23 - 120	1	45
N-Nitrosodiphenylamine	ND		0.999	0.908	J	mg/Kg	*	91	30 - 128	21	44
Naphthalene	0.75	F1 F2	0.999	1.66	F2	mg/Kg	*	91	10 - 120	49	45
Nitrobenzene	ND		0.999	0.885	J	mg/Kg	*	89	19 - 120	9	45
Pentachlorophenol	ND	F1	2.00	ND	F1	mg/Kg	*	0	10 - 120	NC	45
Phenanthrene	3.4	F1	0.999	2.22	F1	mg/Kg	*	-116	36 - 120	15	41
Phenol	ND		0.999	0.949	J	mg/Kg	*	95	10 - 120	2	45
Pyrene	4.1		0.999	3.78	4	mg/Kg	*	-31	31 - 134	31	43
3 & 4 Methylphenol	ND		0.999	0.978	J	mg/Kg	*	98	10 - 122	6	45

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	103		46 - 137
Phenol-d5 (Surr)	101		26 - 120
Nitrobenzene-d5 (Surr)	85		25 - 120
2-Fluorophenol (Surr)	88		20 - 120
2-Fluorobiphenyl (Surr)	96		34 - 120
2,4,6-Tribromophenol (Surr)	127	S1+	10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563202/13-A
Matrix: Solid
Analysis Batch: 563273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563202

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/23/23 12:44	02/24/23 12:04	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/23/23 12:44	02/24/23 12:04	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/23/23 12:44	02/24/23 12:04	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/23/23 12:44	02/24/23 12:04	1
Pyridine	ND		0.0040	0.00036	mg/L		02/23/23 12:44	02/24/23 12:04	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/23/23 12:44	02/24/23 12:04	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/23/23 12:44	02/24/23 12:04	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/23/23 12:44	02/24/23 12:04	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/23/23 12:44	02/24/23 12:04	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/23/23 12:44	02/24/23 12:04	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/23/23 12:44	02/24/23 12:04	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/23/23 12:44	02/24/23 12:04	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	111		46 - 137	02/23/23 12:44	02/24/23 12:04	1
Phenol-d5 (Surr)	59		26 - 120	02/23/23 12:44	02/24/23 12:04	1
Nitrobenzene-d5 (Surr)	73		24 - 120	02/23/23 12:44	02/24/23 12:04	1
2-Fluorophenol (Surr)	69		19 - 120	02/23/23 12:44	02/24/23 12:04	1
2-Fluorobiphenyl (Surr)	94		33 - 120	02/23/23 12:44	02/24/23 12:04	1
2,4,6-Tribromophenol (Surr)	99		10 - 120	02/23/23 12:44	02/24/23 12:04	1

Lab Sample ID: LCS 240-563202/14-A
Matrix: Solid
Analysis Batch: 563273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563202

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
1,4-Dichlorobenzene	0.0800	0.0607		mg/L		76	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0837		mg/L		105	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0829		mg/L		104	51 - 120
2,4-Dinitrotoluene	0.0800	0.0740		mg/L		92	58 - 125
Pyridine	0.160	0.0536		mg/L		33	10 - 120
2-Methylphenol	0.0800	0.0681		mg/L		85	45 - 120
Hexachlorobenzene	0.0800	0.0764		mg/L		96	55 - 120
Hexachlorobutadiene	0.0800	0.0652		mg/L		81	41 - 120
Hexachloroethane	0.0800	0.0577		mg/L		72	39 - 120
Nitrobenzene	0.0800	0.0561		mg/L		70	47 - 120
Pentachlorophenol	0.160	0.124		mg/L		78	19 - 132
3 & 4 Methylphenol	0.0800	0.0612		mg/L		76	40 - 120

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	119		46 - 137
Phenol-d5 (Surr)	64		26 - 120
Nitrobenzene-d5 (Surr)	74		24 - 120
2-Fluorophenol (Surr)	73		19 - 120
2-Fluorobiphenyl (Surr)	98		33 - 120
2,4,6-Tribromophenol (Surr)	108		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563436/22-A
Matrix: Solid
Analysis Batch: 563684

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563436

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Atrazine	ND		0.20	0.036	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Carbazole	ND		0.050	0.019	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/25/23 15:12	02/28/23 10:22	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563436/22-A
Matrix: Solid
Analysis Batch: 563684

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563436

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Isophorone	ND		0.050	0.012	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Phenol	ND		0.050	0.0080	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
Pyrene	ND		0.015	0.0021	mg/Kg		02/25/23 15:12	02/28/23 10:22	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/25/23 15:12	02/28/23 10:22	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	100		46 - 137	02/25/23 15:12	02/28/23 10:22	1
Phenol-d5 (Surr)	58		26 - 120	02/25/23 15:12	02/28/23 10:22	1
Nitrobenzene-d5 (Surr)	52		25 - 120	02/25/23 15:12	02/28/23 10:22	1
2-Fluorophenol (Surr)	52		20 - 120	02/25/23 15:12	02/28/23 10:22	1
2-Fluorobiphenyl (Surr)	71		34 - 120	02/25/23 15:12	02/28/23 10:22	1
2,4,6-Tribromophenol (Surr)	48		10 - 120	02/25/23 15:12	02/28/23 10:22	1

Lab Sample ID: LCS 240-563436/23-A
Matrix: Solid
Analysis Batch: 563684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
bis (2-chloroisopropyl) ether	0.667	0.336		mg/Kg		50	38 - 120
2,4,5-Trichlorophenol	0.667	0.600		mg/Kg		90	50 - 120
2,4,6-Trichlorophenol	0.667	0.607		mg/Kg		91	50 - 120
2,4-Dichlorophenol	0.667	0.550		mg/Kg		83	50 - 120
2,4-Dimethylphenol	0.667	0.417		mg/Kg		63	24 - 120
2,4-Dinitrophenol	1.33	0.952		mg/Kg		71	19 - 132
2,4-Dinitrotoluene	0.667	0.593		mg/Kg		89	64 - 120
2,6-Dinitrotoluene	0.667	0.641		mg/Kg		96	62 - 120
2-Chloronaphthalene	0.667	0.484		mg/Kg		73	51 - 120
2-Chlorophenol	0.667	0.453		mg/Kg		68	47 - 120
2-Methylnaphthalene	0.667	0.462		mg/Kg		69	38 - 120
2-Methylphenol	0.667	0.479		mg/Kg		72	45 - 120
2-Nitroaniline	0.667	0.496		mg/Kg		74	57 - 120
2-Nitrophenol	0.667	0.566		mg/Kg		85	51 - 120
3,3'-Dichlorobenzidine	1.33	1.15		mg/Kg		86	27 - 199
3-Nitroaniline	0.667	0.495		mg/Kg		74	41 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563436/23-A
Matrix: Solid
Analysis Batch: 563684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,6-Dinitro-2-methylphenol	1.33	1.02		mg/Kg		77	46 - 126
4-Bromophenyl phenyl ether	0.667	0.637		mg/Kg		96	65 - 120
4-Chloro-3-methylphenol	0.667	0.548		mg/Kg		82	51 - 120
4-Chloroaniline	0.667	0.404		mg/Kg		61	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.562		mg/Kg		84	59 - 120
4-Nitroaniline	0.667	0.579		mg/Kg		87	48 - 128
4-Nitrophenol	1.33	1.02		mg/Kg		76	43 - 120
Acenaphthene	0.667	0.529		mg/Kg		79	52 - 120
Acenaphthylene	0.667	0.569		mg/Kg		85	52 - 120
Acetophenone	0.667	0.403		mg/Kg		61	47 - 120
Anthracene	0.667	0.611		mg/Kg		92	64 - 120
Atrazine	1.33	1.51		mg/Kg		114	71 - 125
Benzaldehyde	1.33	0.762		mg/Kg		57	42 - 120
Benzo[a]anthracene	0.667	0.680		mg/Kg		102	70 - 120
Benzo[a]pyrene	0.667	0.605		mg/Kg		91	63 - 125
Benzo[b]fluoranthene	0.667	0.600		mg/Kg		90	64 - 121
Benzo[g,h,i]perylene	0.667	0.607		mg/Kg		91	62 - 120
Benzo[k]fluoranthene	0.667	0.591		mg/Kg		89	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.412		mg/Kg		62	50 - 120
Bis(2-chloroethyl)ether	0.667	0.348		mg/Kg		52	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.630		mg/Kg		94	63 - 133
Butyl benzyl phthalate	0.667	0.617		mg/Kg		93	66 - 127
Caprolactam	1.33	1.22		mg/Kg		92	67 - 120
Carbazole	0.667	0.589		mg/Kg		88	61 - 129
Chrysene	0.667	0.644		mg/Kg		97	67 - 120
Dibenz(a,h)anthracene	0.667	0.617		mg/Kg		93	62 - 120
Dibenzofuran	0.667	0.523		mg/Kg		78	55 - 120
Diethyl phthalate	0.667	0.564		mg/Kg		85	61 - 120
Dimethyl phthalate	0.667	0.567		mg/Kg		85	64 - 120
Di-n-butyl phthalate	0.667	0.637		mg/Kg		96	70 - 129
Di-n-octyl phthalate	0.667	0.516		mg/Kg		77	64 - 129
Fluoranthene	0.667	0.632		mg/Kg		95	71 - 124
Fluorene	0.667	0.561		mg/Kg		84	58 - 120
Hexachlorobenzene	0.667	0.604		mg/Kg		91	59 - 120
Hexachlorobutadiene	0.667	0.475		mg/Kg		71	45 - 120
Hexachlorocyclopentadiene	0.667	0.402		mg/Kg		60	10 - 120
Hexachloroethane	0.667	0.393		mg/Kg		59	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.638		mg/Kg		96	65 - 122
Isophorone	0.667	0.420		mg/Kg		63	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.377		mg/Kg		57	48 - 120
N-Nitrosodiphenylamine	0.667	0.578		mg/Kg		87	64 - 120
Naphthalene	0.667	0.439		mg/Kg		66	34 - 120
Nitrobenzene	0.667	0.398		mg/Kg		60	48 - 120
Pentachlorophenol	1.33	0.620		mg/Kg		46	10 - 120
Phenanthrene	0.667	0.572		mg/Kg		86	60 - 120
Phenol	0.667	0.392		mg/Kg		59	48 - 120
Pyrene	0.667	0.685		mg/Kg		103	67 - 120
3 & 4 Methylphenol	0.667	0.448		mg/Kg		67	49 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563436/23-A
Matrix: Solid
Analysis Batch: 563684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	115		46 - 137
Phenol-d5 (Surr)	67		26 - 120
Nitrobenzene-d5 (Surr)	60		25 - 120
2-Fluorophenol (Surr)	68		20 - 120
2-Fluorobiphenyl (Surr)	83		34 - 120
2,4,6-Tribromophenol (Surr)	103		10 - 120

Lab Sample ID: LCS 240-563436/24-A
Matrix: Solid
Analysis Batch: 563684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563436

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	104		46 - 137
Phenol-d5 (Surr)	38		26 - 120
Nitrobenzene-d5 (Surr)	33		25 - 120
2-Fluorophenol (Surr)	36		20 - 120
2-Fluorobiphenyl (Surr)	46		34 - 120
2,4,6-Tribromophenol (Surr)	31		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-563205/10-A
Matrix: Solid
Analysis Batch: 563280

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563205

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/23/23 12:51	02/24/23 10:39	1
Endrin	ND		0.00050	0.0000065	mg/L		02/23/23 12:51	02/24/23 10:39	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/23/23 12:51	02/24/23 10:39	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/23/23 12:51	02/24/23 10:39	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/23/23 12:51	02/24/23 10:39	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/23/23 12:51	02/24/23 10:39	1
Toxaphene	ND		0.020	0.000058	mg/L		02/23/23 12:51	02/24/23 10:39	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	86		10 - 145	02/23/23 12:51	02/24/23 10:39	1
DCB Decachlorobiphenyl	88		10 - 145	02/23/23 12:51	02/24/23 10:39	1
Tetrachloro-m-xylene	76		10 - 123	02/23/23 12:51	02/24/23 10:39	1
Tetrachloro-m-xylene	94		10 - 123	02/23/23 12:51	02/24/23 10:39	1

Lab Sample ID: LCS 240-563205/11-A
Matrix: Solid
Analysis Batch: 563280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563205

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Endrin	0.00100	0.000943		mg/L		94	36 - 120
Heptachlor	0.00100	0.000860		mg/L		86	29 - 120
Heptachlor epoxide	0.00100	0.000891		mg/L		89	36 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 240-563205/11-A
Matrix: Solid
Analysis Batch: 563280

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563205

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
gamma-BHC (Lindane)	0.00100	0.000881		mg/L		88	23 - 120
Methoxychlor	0.00100	0.00111		mg/L		111	23 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	84		10 - 145
DCB Decachlorobiphenyl	82		10 - 145
Tetrachloro-m-xylene	69		10 - 123
Tetrachloro-m-xylene	84		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-562981/1-A
Matrix: Solid
Analysis Batch: 563104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 562981

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		50	25	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1221	ND		50	30	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1232	ND		50	21	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1242	ND		50	19	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1248	ND		50	17	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1254	ND		50	21	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1260	ND		50	21	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1262	ND		50	22	ug/Kg		02/22/23 08:41	02/23/23 13:36	1
Aroclor-1268	ND		50	16	ug/Kg		02/22/23 08:41	02/23/23 13:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	79		10 - 149	02/22/23 08:41	02/23/23 13:36	1
DCB Decachlorobiphenyl	70		10 - 174	02/22/23 08:41	02/23/23 13:36	1

Lab Sample ID: LCS 240-562981/2-A
Matrix: Solid
Analysis Batch: 563104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 562981

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	919		ug/Kg		92	28 - 140
Aroclor-1260	1000	968		ug/Kg		97	39 - 153

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	109		10 - 149
DCB Decachlorobiphenyl	102		10 - 174

Lab Sample ID: 240-180684-6 MS
Matrix: Solid
Analysis Batch: 563104

Client Sample ID: WC-WS-NORTH-COMP (1-5)
Prep Type: Total/NA
Prep Batch: 562981

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	ND		1250	914		ug/Kg	☼	73	10 - 146

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 240-180684-6 MS

Matrix: Solid

Analysis Batch: 563104

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Prep Type: Total/NA

Prep Batch: 562981

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1260	ND		1250	962		ug/Kg	☼	77	10 - 158
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
Tetrachloro-m-xylene	88		10 - 149						
DCB Decachlorobiphenyl	96	p	10 - 174						

Lab Sample ID: 240-180684-6 MSD

Matrix: Solid

Analysis Batch: 563104

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Prep Type: Total/NA

Prep Batch: 562981

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Aroclor-1016	ND		1300	970		ug/Kg	☼	75	10 - 146	6	40
Aroclor-1260	ND		1300	1030		ug/Kg	☼	79	10 - 158	7	40
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
Tetrachloro-m-xylene	88		10 - 149								
DCB Decachlorobiphenyl	103	p	10 - 174								

Lab Sample ID: MB 240-563290/1-A

Matrix: Solid

Analysis Batch: 563246

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 563290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		50	25	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1221	ND		50	30	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1232	ND		50	21	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1242	ND		50	19	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1248	ND		50	17	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1254	ND		50	21	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1260	ND		50	21	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1262	ND		50	22	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1268	ND		50	16	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
Tetrachloro-m-xylene	113		10 - 149	02/24/23 09:04	02/24/23 17:11	1			
DCB Decachlorobiphenyl	146		10 - 174	02/24/23 09:04	02/24/23 17:11	1			

Lab Sample ID: LCS 240-563290/2-A

Matrix: Solid

Analysis Batch: 563246

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 563290

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	928		ug/Kg		93	28 - 140
Aroclor-1260	1000	1010		ug/Kg		101	39 - 153
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
Tetrachloro-m-xylene	111		10 - 149				

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-563290/2-A
Matrix: Solid
Analysis Batch: 563246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563290

Surrogate	LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	121		10 - 174

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-347942/1-A
Matrix: Solid
Analysis Batch: 348043

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 347942

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/24/23 19:47	02/27/23 04:51	1
2,4-D	ND		0.050	0.016	mg/L		02/24/23 19:47	02/27/23 04:51	1

Surrogate	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	02/24/23 19:47	02/27/23 04:51	1

Lab Sample ID: LCS 410-347942/2-A
Matrix: Solid
Analysis Batch: 348043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 347942

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Silvex (2,4,5-TP)	0.00500	0.00412	J	mg/L		82	58 - 148
2,4-D	0.0502	0.0394	J	mg/L		78	42 - 147

Surrogate	LCS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid (Surr)	73		26 - 136

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-347896/1-B
Matrix: Solid
Analysis Batch: 348165

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 347896

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		02/24/23 17:55	02/27/23 11:39	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		02/24/23 17:55	02/27/23 11:39	1

Isotope Dilution	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 PFOA	85		26 - 159	02/24/23 17:55	02/27/23 11:39	1
13C8 PFOS	91		41 - 154	02/24/23 17:55	02/27/23 11:39	1

Lab Sample ID: LCS 410-347896/2-B
Matrix: Solid
Analysis Batch: 348165

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 347896

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Perfluorooctanoic acid	25.0	24.8		ng/g		99	59 - 131
Perfluorooctanesulfonic acid	23.1	21.7		ng/g		94	61 - 126

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C8 PFOA	78		26 - 159
13C8 PFOS	87		41 - 154

Lab Sample ID: 240-180684-B-12-E MS
Matrix: Solid
Analysis Batch: 348165

Client Sample ID: 240-180684-B-12-E MS
Prep Type: Total/NA
Prep Batch: 347896

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Perfluorooctanoic acid	ND		29.7	29.5		ng/g	☼	99	59 - 131
Perfluorooctanesulfonic acid	0.25	J	27.5	27.3		ng/g	☼	98	61 - 126

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C8 PFOA	74		26 - 159
13C8 PFOS	84		41 - 154

Lab Sample ID: 240-180684-B-12-F MSD
Matrix: Solid
Analysis Batch: 348165

Client Sample ID: 240-180684-B-12-F MSD
Prep Type: Total/NA
Prep Batch: 347896

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Perfluorooctanoic acid	ND		32.1	34.0		ng/g	☼	106	59 - 131	14	30
Perfluorooctanesulfonic acid	0.25	J	29.7	29.2		ng/g	☼	98	61 - 126	7	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C8 PFOA	69		26 - 159
13C8 PFOS	76		41 - 154

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-563029/2-A
Matrix: Solid
Analysis Batch: 563244

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563029

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 11:11	1
Barium	ND		0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 11:11	1
Cadmium	ND		0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 11:11	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 11:11	1
Lead	ND		0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 11:11	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 11:11	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 11:11	1

Lab Sample ID: LCS 240-563029/3-A
Matrix: Solid
Analysis Batch: 563244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563029

Analyte	Spike	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Arsenic	2.00	2.06		mg/L		103	50 - 150
Barium	2.00	1.90		mg/L		95	50 - 150
Cadmium	1.00	0.986		mg/L		99	50 - 150
Chromium	1.00	0.954		mg/L		95	50 - 150
Lead	1.00	0.930		mg/L		93	50 - 150
Selenium	2.00	2.09		mg/L		105	50 - 150

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 240-563029/3-A
Matrix: Solid
Analysis Batch: 563244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563029

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silver	0.100	0.102		mg/L		102	50 - 150

Lab Sample ID: MB 240-563166/2-A
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 14:40	1
Barium	ND		0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 14:40	1
Cadmium	0.000473	J	0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 14:40	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 14:40	1
Lead	ND		0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 14:40	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 14:40	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 14:40	1

Lab Sample ID: LCS 240-563166/3-A
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.10		mg/L		105	50 - 150
Barium	2.00	1.94		mg/L		97	50 - 150
Cadmium	1.00	1.01		mg/L		101	50 - 150
Chromium	1.00	0.980		mg/L		98	50 - 150
Lead	1.00	0.928		mg/L		93	50 - 150
Selenium	2.00	2.10		mg/L		105	50 - 150
Silver	0.100	0.106		mg/L		106	50 - 150

Lab Sample ID: MB 240-563181/2-A
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 10:29	1
Barium	ND		0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 10:29	1
Cadmium	ND		0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 10:29	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 10:29	1
Lead	ND		0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 10:29	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 10:29	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 10:29	1

Lab Sample ID: LCS 240-563181/3-A
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.10		mg/L		105	50 - 150
Barium	2.00	1.95		mg/L		98	50 - 150
Cadmium	1.00	1.01		mg/L		101	50 - 150
Chromium	1.00	0.990		mg/L		99	50 - 150

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 240-563181/3-A
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	1.00	0.927		mg/L		93	50 - 150
Selenium	2.00	2.10		mg/L		105	50 - 150
Silver	0.100	0.107		mg/L		107	50 - 150

Lab Sample ID: LB 240-562925/1-B
Matrix: Solid
Analysis Batch: 563244

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563029

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00492	J	0.050	0.0041	mg/L		02/22/23 12:00	02/23/23 11:06	1
Barium	0.00213	J	0.50	0.0013	mg/L		02/22/23 12:00	02/23/23 11:06	1
Cadmium	ND		0.050	0.00020	mg/L		02/22/23 12:00	02/23/23 11:06	1
Chromium	ND		0.050	0.0040	mg/L		02/22/23 12:00	02/23/23 11:06	1
Lead	ND		0.050	0.0028	mg/L		02/22/23 12:00	02/23/23 11:06	1
Selenium	ND		0.050	0.0060	mg/L		02/22/23 12:00	02/23/23 11:06	1
Silver	ND		0.050	0.00062	mg/L		02/22/23 12:00	02/23/23 11:06	1

Lab Sample ID: LB 240-563077/1-B
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563166

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 14:35	1
Barium	ND		0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 14:35	1
Cadmium	ND		0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 14:35	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 14:35	1
Lead	ND		0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 14:35	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 14:35	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 14:35	1

Lab Sample ID: LB 240-563080/1-B
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563181

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/23/23 14:00	02/24/23 10:25	1
Barium	0.00303	J	0.50	0.0013	mg/L		02/23/23 14:00	02/24/23 10:25	1
Cadmium	ND		0.050	0.00020	mg/L		02/23/23 14:00	02/24/23 10:25	1
Chromium	ND		0.050	0.0040	mg/L		02/23/23 14:00	02/24/23 10:25	1
Lead	ND		0.050	0.0028	mg/L		02/23/23 14:00	02/24/23 10:25	1
Selenium	ND		0.050	0.0060	mg/L		02/23/23 14:00	02/24/23 10:25	1
Silver	ND		0.050	0.00062	mg/L		02/23/23 14:00	02/24/23 10:25	1

Lab Sample ID: 240-180684-13 MS
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: WC-SB2650-N. DITCH
Prep Type: TCLP
Prep Batch: 563181

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	ND		5.00	5.09		mg/L		102	75 - 125
Barium	0.62	J B	50.0	49.7		mg/L		98	75 - 125

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-180684-13 MS
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: WC-SB2650-N. DITCH
Prep Type: TCLP
Prep Batch: 563181

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	0.0047	J	1.00	1.02		mg/L		102	75 - 125
Chromium	ND		5.00	4.96		mg/L		99	75 - 125
Lead	ND		5.00	4.78		mg/L		96	75 - 125
Selenium	ND		1.00	1.04		mg/L		104	75 - 125
Silver	ND		1.00	1.03		mg/L		103	75 - 125

Lab Sample ID: 240-180684-13 MSD
Matrix: Solid
Analysis Batch: 563358

Client Sample ID: WC-SB2650-N. DITCH
Prep Type: TCLP
Prep Batch: 563181

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	ND		5.00	5.12		mg/L		102	75 - 125	1	20
Barium	0.62	J B	50.0	49.4		mg/L		98	75 - 125	1	20
Cadmium	0.0047	J	1.00	1.02		mg/L		102	75 - 125	0	20
Chromium	ND		5.00	4.93		mg/L		99	75 - 125	1	20
Lead	ND		5.00	4.79		mg/L		96	75 - 125	0	20
Selenium	ND		1.00	0.998		mg/L		100	75 - 125	4	20
Silver	ND		1.00	1.02		mg/L		102	75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-563030/2-A
Matrix: Solid
Analysis Batch: 563217

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563030

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 15:07	1

Lab Sample ID: LCS 240-563030/3-A
Matrix: Solid
Analysis Batch: 563217

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563030

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00503		mg/L		101	80 - 120

Lab Sample ID: MB 240-563167/2-A
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563167

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:30	1

Lab Sample ID: LCS 240-563167/3-A
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00518		mg/L		104	80 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: MB 240-563182/2-A
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563182

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 09:37	1

Lab Sample ID: LCS 240-563182/3-A
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563182

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00524		mg/L		105	80 - 120

Lab Sample ID: LB 240-562925/1-C
Matrix: Solid
Analysis Batch: 563217

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563030

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/22/23 12:00	02/23/23 14:17	1

Lab Sample ID: LB 240-563077/1-C
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563167

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 10:28	1

Lab Sample ID: LB 240-563080/1-C
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563182

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/23/23 12:00	02/24/23 09:35	1

Lab Sample ID: 240-180684-13 MS
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: WC-SB2650-N. DITCH
Prep Type: TCLP
Prep Batch: 563182

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00541		mg/L		108	80 - 120

Lab Sample ID: 240-180684-13 MSD
Matrix: Solid
Analysis Batch: 563338

Client Sample ID: WC-SB2650-N. DITCH
Prep Type: TCLP
Prep Batch: 563182

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00530		mg/L		106	80 - 120	2	20

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-180684-D-14 DU
Matrix: Solid
Analysis Batch: 562900

Client Sample ID: 240-180684-D-14 DU
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids			63.3		%			
Percent Moisture			36.7		%			

Lab Sample ID: 240-180684-19 DU
Matrix: Solid
Analysis Batch: 563043

Client Sample ID: WC-SB2621-N. DITCH
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	47.4		44.5		%			20
Percent Moisture	52.6		55.5		%			20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC/MS VOA

Composite Batch: 562901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	Composite	
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	Composite	

Prep Batch: 562918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	Total/NA	Solid	5035	
MB 240-562918/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	5035	

Prep Batch: 562940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-2	WC-WS-NORTH-02 (6-7)	Total/NA	Solid	5035	
240-180684-3	WC-WS-NORTH-03 (7-8)	Total/NA	Solid	5035	
240-180684-4	WC-WS-NORTH-04 (4-5)	Total/NA	Solid	5035	
240-180684-5	WC-WS-NORTH-05 (5-6)	Total/NA	Solid	5035	
240-180684-7	WC-WS-NORTH-06 (5-6)	Total/NA	Solid	5035	
240-180684-8	WC-WS-NORTH-07 (3-4)	Total/NA	Solid	5035	
240-180684-9	WC-WS-NORTH-08 (3-4)	Total/NA	Solid	5035	
240-180684-10	WC-WS-NORTH-09 (3-4)	Total/NA	Solid	5035	
240-180684-11	WC-WS-NORTH-10 (2-3)	Total/NA	Solid	5035	
240-180684-13	WC-SB2650-N. DITCH	Total/NA	Solid	5035	
240-180684-14	WC-SB1692-N. DITCH	Total/NA	Solid	5035	
240-180684-15	WC-SB2598-N. DITCH	Total/NA	Solid	5035	
240-180684-16	WC-SB1852-N. DITCH	Total/NA	Solid	5035	
MB 240-562940/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-562940/2-A	Lab Control Sample	Total/NA	Solid	5035	

Composite Batch: 563056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	Composite	
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	Composite	

Analysis Batch: 563073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-563078/1-A	Method Blank	Total/NA	Solid	8260D	563078
LCS 240-563078/2-A	Lab Control Sample	Total/NA	Solid	8260D	563078

Prep Batch: 563078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	5035	
240-180684-19	WC-SB2621-N. DITCH	Total/NA	Solid	5035	
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	5035	
240-180684-21	WC-SB2624-N. DITCH	Total/NA	Solid	5035	
240-180684-22	WC-SB2474-N. DITCH	Total/NA	Solid	5035	
240-180684-23	WC-SB2405-N. DITCH	Total/NA	Solid	5035	
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	5035	
MB 240-563078/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-563078/2-A	Lab Control Sample	Total/NA	Solid	5035	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC/MS VOA

Leach Batch: 563082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	1311	562901
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	1311	562901
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	1311	563056
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	1311	563056
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	1311	
LB 240-563082/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 563142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	8260D	563082
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	8260D	563082
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	8260D	563082
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	8260D	563082
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	8260D	563082
LB 240-563082/1-A MB	Method Blank	TCLP	Solid	8260D	563082
LCS 240-563142/10	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 563220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	Total/NA	Solid	8260D	562918
240-180684-2	WC-WS-NORTH-02 (6-7)	Total/NA	Solid	8260D	562940
240-180684-3	WC-WS-NORTH-03 (7-8)	Total/NA	Solid	8260D	562940
240-180684-4	WC-WS-NORTH-04 (4-5)	Total/NA	Solid	8260D	562940
240-180684-7	WC-WS-NORTH-06 (5-6)	Total/NA	Solid	8260D	562940
240-180684-8	WC-WS-NORTH-07 (3-4)	Total/NA	Solid	8260D	562940
240-180684-9	WC-WS-NORTH-08 (3-4)	Total/NA	Solid	8260D	562940
240-180684-10	WC-WS-NORTH-09 (3-4)	Total/NA	Solid	8260D	562940
240-180684-11	WC-WS-NORTH-10 (2-3)	Total/NA	Solid	8260D	562940
240-180684-13	WC-SB2650-N. DITCH	Total/NA	Solid	8260D	562940
240-180684-14	WC-SB1692-N. DITCH	Total/NA	Solid	8260D	562940
240-180684-15	WC-SB2598-N. DITCH	Total/NA	Solid	8260D	562940
240-180684-16	WC-SB1852-N. DITCH	Total/NA	Solid	8260D	562940
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-19	WC-SB2621-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-21	WC-SB2624-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-22	WC-SB2474-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-23	WC-SB2405-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	8260D	563078
MB 240-562918/1-A	Method Blank	Total/NA	Solid	8260D	562918
MB 240-562940/1-A	Method Blank	Total/NA	Solid	8260D	562940
LCS 240-562918/2-A	Lab Control Sample	Total/NA	Solid	8260D	562918
LCS 240-562940/2-A	Lab Control Sample	Total/NA	Solid	8260D	562940

Analysis Batch: 563308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	Total/NA	Solid	8260D	562918
240-180684-5	WC-WS-NORTH-05 (5-6)	Total/NA	Solid	8260D	562940
240-180684-8	WC-WS-NORTH-07 (3-4)	Total/NA	Solid	8260D	562940
240-180684-9	WC-WS-NORTH-08 (3-4)	Total/NA	Solid	8260D	562940
240-180684-10	WC-WS-NORTH-09 (3-4)	Total/NA	Solid	8260D	562940

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC/MS VOA (Continued)

Analysis Batch: 563308 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-11	WC-WS-NORTH-10 (2-3)	Total/NA	Solid	8260D	562940
240-180684-13	WC-SB2650-N. DITCH	Total/NA	Solid	8260D	562940
240-180684-14	WC-SB1692-N. DITCH	Total/NA	Solid	8260D	562940
240-180684-19	WC-SB2621-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-21	WC-SB2624-N. DITCH	Total/NA	Solid	8260D	563078
240-180684-22	WC-SB2474-N. DITCH	Total/NA	Solid	8260D	563078

Analysis Batch: 563382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	8260D	563391
MB 240-563391/1-A	Method Blank	Total/NA	Solid	8260D	563391
LCS 240-563382/4	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 563391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	5035	
MB 240-563391/1-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 563434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	5035	
MB 240-563434/1-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 563457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-563457/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 563458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	8260D	563434
MB 240-563434/1-A	Method Blank	Total/NA	Solid	8260D	563434
MB 240-563457/1-A	Method Blank	Total/NA	Solid	8260D	563457
LCS 240-563458/4	Lab Control Sample	Total/NA	Solid	8260D	

GC/MS Semi VOA

Composite Batch: 562901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	Composite	
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	Composite	

Prep Batch: 563018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	Total/NA	Solid	3540C	
240-180684-2	WC-WS-NORTH-02 (6-7)	Total/NA	Solid	3540C	
240-180684-3	WC-WS-NORTH-03 (7-8)	Total/NA	Solid	3540C	
240-180684-4	WC-WS-NORTH-04 (4-5)	Total/NA	Solid	3540C	
240-180684-5	WC-WS-NORTH-05 (5-6)	Total/NA	Solid	3540C	
240-180684-9	WC-WS-NORTH-08 (3-4)	Total/NA	Solid	3540C	
240-180684-10	WC-WS-NORTH-09 (3-4)	Total/NA	Solid	3540C	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC/MS Semi VOA (Continued)

Prep Batch: 563018 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-563018/23-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-563018/24-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-563018/25-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-563018/26-A	Lab Control Sample	Total/NA	Solid	3540C	

Composite Batch: 563056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	Composite	
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	Composite	

Leach Batch: 563077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	1311	562901
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	1311	562901
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	1311	563056
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	1311	563056
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	1311	

Prep Batch: 563130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	Total/NA	Solid	3540C	
240-180684-14	WC-SB1692-N. DITCH	Total/NA	Solid	3540C	
240-180684-15	WC-SB2598-N. DITCH	Total/NA	Solid	3540C	
240-180684-16	WC-SB1852-N. DITCH	Total/NA	Solid	3540C	
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	3540C	
240-180684-19 - RA	WC-SB2621-N. DITCH	Total/NA	Solid	3540C	
240-180684-19	WC-SB2621-N. DITCH	Total/NA	Solid	3540C	
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	3540C	
240-180684-21	WC-SB2624-N. DITCH	Total/NA	Solid	3540C	
240-180684-21 - RA	WC-SB2624-N. DITCH	Total/NA	Solid	3540C	
240-180684-22	WC-SB2474-N. DITCH	Total/NA	Solid	3540C	
240-180684-23	WC-SB2405-N. DITCH	Total/NA	Solid	3540C	
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	3540C	
MB 240-563130/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-563130/2-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-563130/3-A	Lab Control Sample	Total/NA	Solid	3540C	
240-180684-13 MS	WC-SB2650-N. DITCH	Total/NA	Solid	3540C	
240-180684-13 MSD	WC-SB2650-N. DITCH	Total/NA	Solid	3540C	

Prep Batch: 563202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	3510C	563077
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	3510C	563077
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	3510C	563077
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	3510C	563077
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	3510C	563077
MB 240-563202/13-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-563202/14-A	Lab Control Sample	Total/NA	Solid	3510C	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC/MS Semi VOA

Analysis Batch: 563266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	Total/NA	Solid	8270E	563018
240-180684-3	WC-WS-NORTH-03 (7-8)	Total/NA	Solid	8270E	563018
240-180684-4	WC-WS-NORTH-04 (4-5)	Total/NA	Solid	8270E	563018
240-180684-5	WC-WS-NORTH-05 (5-6)	Total/NA	Solid	8270E	563018
240-180684-9	WC-WS-NORTH-08 (3-4)	Total/NA	Solid	8270E	563018
240-180684-10	WC-WS-NORTH-09 (3-4)	Total/NA	Solid	8270E	563018
MB 240-563018/23-A	Method Blank	Total/NA	Solid	8270E	563018
LCS 240-563018/24-A	Lab Control Sample	Total/NA	Solid	8270E	563018
LCS 240-563018/25-A	Lab Control Sample	Total/NA	Solid	8270E	563018
LCS 240-563018/26-A	Lab Control Sample	Total/NA	Solid	8270E	563018

Analysis Batch: 563273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	8270E	563202
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	8270E	563202
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	8270E	563202
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	8270E	563202
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	8270E	563202
MB 240-563202/13-A	Method Blank	Total/NA	Solid	8270E	563202
LCS 240-563202/14-A	Lab Control Sample	Total/NA	Solid	8270E	563202

Analysis Batch: 563419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-14	WC-SB1692-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-15	WC-SB2598-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-16	WC-SB1852-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-19	WC-SB2621-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-19 - RA	WC-SB2621-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-21	WC-SB2624-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-21 - RA	WC-SB2624-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-22	WC-SB2474-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-23	WC-SB2405-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	8270E	563130
MB 240-563130/1-A	Method Blank	Total/NA	Solid	8270E	563130
LCS 240-563130/2-A	Lab Control Sample	Total/NA	Solid	8270E	563130
LCS 240-563130/3-A	Lab Control Sample	Total/NA	Solid	8270E	563130
240-180684-13 MS	WC-SB2650-N. DITCH	Total/NA	Solid	8270E	563130
240-180684-13 MSD	WC-SB2650-N. DITCH	Total/NA	Solid	8270E	563130

Analysis Batch: 563427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-2	WC-WS-NORTH-02 (6-7)	Total/NA	Solid	8270E	563018

Prep Batch: 563436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-7	WC-WS-NORTH-06 (5-6)	Total/NA	Solid	3540C	
240-180684-8	WC-WS-NORTH-07 (3-4)	Total/NA	Solid	3540C	
240-180684-11	WC-WS-NORTH-10 (2-3)	Total/NA	Solid	3540C	

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC/MS Semi VOA (Continued)

Prep Batch: 563436 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-563436/22-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-563436/23-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-563436/24-A	Lab Control Sample	Total/NA	Solid	3540C	

Analysis Batch: 563684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-7	WC-WS-NORTH-06 (5-6)	Total/NA	Solid	8270E	563436
240-180684-8	WC-WS-NORTH-07 (3-4)	Total/NA	Solid	8270E	563436
240-180684-11	WC-WS-NORTH-10 (2-3)	Total/NA	Solid	8270E	563436
MB 240-563436/22-A	Method Blank	Total/NA	Solid	8270E	563436
LCS 240-563436/23-A	Lab Control Sample	Total/NA	Solid	8270E	563436
LCS 240-563436/24-A	Lab Control Sample	Total/NA	Solid	8270E	563436

GC Semi VOA

Leach Batch: 347765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	1311	
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	1311	
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	1311	
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	1311	
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	1311	

Prep Batch: 347942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	8151A	347765
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	8151A	347765
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	8151A	347765
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	8151A	347765
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	8151A	347765
MB 410-347942/1-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-347942/2-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 348043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	8151A	347942
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	8151A	347942
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	8151A	347942
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	8151A	347942
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	8151A	347942
MB 410-347942/1-A	Method Blank	Total/NA	Solid	8151A	347942
LCS 410-347942/2-A	Lab Control Sample	Total/NA	Solid	8151A	347942

Composite Batch: 562901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	Composite	
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	Composite	

Composite Batch: 562902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	Composite	

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC Semi VOA (Continued)

Composite Batch: 562902 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	Composite	
240-180684-6 MS	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	Composite	
240-180684-6 MSD	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	Composite	

Prep Batch: 562981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	3546	562902
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	3546	562902
MB 240-562981/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-562981/2-A	Lab Control Sample	Total/NA	Solid	3546	
240-180684-6 MS	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	3546	562902
240-180684-6 MSD	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	3546	562902

Composite Batch: 563056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	Composite	
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	Composite	

Composite Batch: 563057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	Composite	
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	Composite	

Leach Batch: 563077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	1311	562901
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	1311	562901
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	1311	563056
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	1311	563056
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	1311	

Analysis Batch: 563104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	8082A	562981
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	8082A	562981
MB 240-562981/1-A	Method Blank	Total/NA	Solid	8082A	562981
LCS 240-562981/2-A	Lab Control Sample	Total/NA	Solid	8082A	562981
240-180684-6 MS	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	8082A	562981
240-180684-6 MSD	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	8082A	562981

Prep Batch: 563205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	3510C	563077
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	3510C	563077
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	3510C	563077
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	3510C	563077
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	3510C	563077
MB 240-563205/10-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-563205/11-A	Lab Control Sample	Total/NA	Solid	3510C	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

GC Semi VOA

Analysis Batch: 563246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	8082A	563290
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	8082A	563290
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	8082A	563290
MB 240-563290/1-A	Method Blank	Total/NA	Solid	8082A	563290
LCS 240-563290/2-A	Lab Control Sample	Total/NA	Solid	8082A	563290

Analysis Batch: 563280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	TCLP	Solid	8081B	563205
240-180684-12	WC-WS-NORTH-COMP (6-10)	TCLP	Solid	8081B	563205
240-180684-18	WC-COMP1-N. DITCH	TCLP	Solid	8081B	563205
240-180684-24	WC-COMP2-N. DITCH	TCLP	Solid	8081B	563205
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	8081B	563205
MB 240-563205/10-A	Method Blank	Total/NA	Solid	8081B	563205
LCS 240-563205/11-A	Lab Control Sample	Total/NA	Solid	8081B	563205

Prep Batch: 563290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	3546	563057
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	3546	563057
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	3546	
MB 240-563290/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-563290/2-A	Lab Control Sample	Total/NA	Solid	3546	

LCMS

Prep Batch: 347896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	537 (mod)	
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	537 (mod)	
240-180684-18 - RA	WC-COMP1-N. DITCH	Total/NA	Solid	537 (mod)	
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	537 (mod)	
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	537 (mod)	
MB 410-347896/1-B	Method Blank	Total/NA	Solid	537 (mod)	
LCS 410-347896/2-B	Lab Control Sample	Total/NA	Solid	537 (mod)	
240-180684-B-12-E MS	240-180684-B-12-E MS	Total/NA	Solid	537 (mod)	
240-180684-B-12-F MSD	240-180684-B-12-F MSD	Total/NA	Solid	537 (mod)	

Cleanup Batch: 347899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	Extract Aliquot	347896
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	Extract Aliquot	347896
240-180684-18 - RA	WC-COMP1-N. DITCH	Total/NA	Solid	Extract Aliquot	347896
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	Extract Aliquot	347896
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	Extract Aliquot	347896
MB 410-347896/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	347896
LCS 410-347896/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	347896
240-180684-B-12-E MS	240-180684-B-12-E MS	Total/NA	Solid	Extract Aliquot	347896
240-180684-B-12-F MSD	240-180684-B-12-F MSD	Total/NA	Solid	Extract Aliquot	347896

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

LCMS

Analysis Batch: 348165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	537 IDA	347899
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	537 IDA	347899
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	537 IDA	347899
240-180684-18 - RA	WC-COMP1-N. DITCH	Total/NA	Solid	537 IDA	347899
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	537 IDA	347899
MB 410-347896/1-B	Method Blank	Total/NA	Solid	537 IDA	347899
LCS 410-347896/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	347899
240-180684-B-12-E MS	240-180684-B-12-E MS	Total/NA	Solid	537 IDA	347899
240-180684-B-12-F MSD	240-180684-B-12-F MSD	Total/NA	Solid	537 IDA	347899

Metals

Leach Batch: 562925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	TCLP	Solid	1311	
240-180684-2	WC-WS-NORTH-02 (6-7)	TCLP	Solid	1311	
240-180684-3	WC-WS-NORTH-03 (7-8)	TCLP	Solid	1311	
240-180684-4	WC-WS-NORTH-04 (4-5)	TCLP	Solid	1311	
240-180684-5	WC-WS-NORTH-05 (5-6)	TCLP	Solid	1311	
240-180684-7	WC-WS-NORTH-06 (5-6)	TCLP	Solid	1311	
240-180684-8	WC-WS-NORTH-07 (3-4)	TCLP	Solid	1311	
240-180684-9	WC-WS-NORTH-08 (3-4)	TCLP	Solid	1311	
240-180684-10	WC-WS-NORTH-09 (3-4)	TCLP	Solid	1311	
240-180684-11	WC-WS-NORTH-10 (2-3)	TCLP	Solid	1311	
LB 240-562925/1-B	Method Blank	TCLP	Solid	1311	
LB 240-562925/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 563029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	TCLP	Solid	3010A	562925
240-180684-2	WC-WS-NORTH-02 (6-7)	TCLP	Solid	3010A	562925
240-180684-3	WC-WS-NORTH-03 (7-8)	TCLP	Solid	3010A	562925
240-180684-4	WC-WS-NORTH-04 (4-5)	TCLP	Solid	3010A	562925
240-180684-5	WC-WS-NORTH-05 (5-6)	TCLP	Solid	3010A	562925
240-180684-7	WC-WS-NORTH-06 (5-6)	TCLP	Solid	3010A	562925
240-180684-8	WC-WS-NORTH-07 (3-4)	TCLP	Solid	3010A	562925
240-180684-9	WC-WS-NORTH-08 (3-4)	TCLP	Solid	3010A	562925
240-180684-10	WC-WS-NORTH-09 (3-4)	TCLP	Solid	3010A	562925
240-180684-11	WC-WS-NORTH-10 (2-3)	TCLP	Solid	3010A	562925
LB 240-562925/1-B	Method Blank	TCLP	Solid	3010A	562925
MB 240-563029/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-563029/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 563030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	TCLP	Solid	7470A	562925
240-180684-2	WC-WS-NORTH-02 (6-7)	TCLP	Solid	7470A	562925
240-180684-3	WC-WS-NORTH-03 (7-8)	TCLP	Solid	7470A	562925
240-180684-4	WC-WS-NORTH-04 (4-5)	TCLP	Solid	7470A	562925
240-180684-5	WC-WS-NORTH-05 (5-6)	TCLP	Solid	7470A	562925
240-180684-7	WC-WS-NORTH-06 (5-6)	TCLP	Solid	7470A	562925

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Metals (Continued)

Prep Batch: 563030 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-8	WC-WS-NORTH-07 (3-4)	TCLP	Solid	7470A	562925
240-180684-9	WC-WS-NORTH-08 (3-4)	TCLP	Solid	7470A	562925
240-180684-10	WC-WS-NORTH-09 (3-4)	TCLP	Solid	7470A	562925
240-180684-11	WC-WS-NORTH-10 (2-3)	TCLP	Solid	7470A	562925
LB 240-562925/1-C	Method Blank	TCLP	Solid	7470A	562925
MB 240-563030/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-563030/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Leach Batch: 563077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	1311	
LB 240-563077/1-B	Method Blank	TCLP	Solid	1311	
LB 240-563077/1-C	Method Blank	TCLP	Solid	1311	

Leach Batch: 563080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	TCLP	Solid	1311	
240-180684-14	WC-SB1692-N. DITCH	TCLP	Solid	1311	
240-180684-15	WC-SB2598-N. DITCH	TCLP	Solid	1311	
240-180684-16	WC-SB1852-N. DITCH	TCLP	Solid	1311	
240-180684-17	WC-SB1865-N. DITCH	TCLP	Solid	1311	
240-180684-19	WC-SB2621-N. DITCH	TCLP	Solid	1311	
240-180684-20	WC-SB1634-N. DITCH	TCLP	Solid	1311	
240-180684-21	WC-SB2624-N. DITCH	TCLP	Solid	1311	
240-180684-22	WC-SB2474-N. DITCH	TCLP	Solid	1311	
240-180684-23	WC-SB2405-N. DITCH	TCLP	Solid	1311	
LB 240-563080/1-B	Method Blank	TCLP	Solid	1311	
LB 240-563080/1-C	Method Blank	TCLP	Solid	1311	
240-180684-13 MS	WC-SB2650-N. DITCH	TCLP	Solid	1311	
240-180684-13 MSD	WC-SB2650-N. DITCH	TCLP	Solid	1311	

Prep Batch: 563166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	3010A	563077
LB 240-563077/1-B	Method Blank	TCLP	Solid	3010A	563077
MB 240-563166/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-563166/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 563167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	7470A	563077
LB 240-563077/1-C	Method Blank	TCLP	Solid	7470A	563077
MB 240-563167/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-563167/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Prep Batch: 563181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	TCLP	Solid	3010A	563080
240-180684-14	WC-SB1692-N. DITCH	TCLP	Solid	3010A	563080
240-180684-15	WC-SB2598-N. DITCH	TCLP	Solid	3010A	563080
240-180684-16	WC-SB1852-N. DITCH	TCLP	Solid	3010A	563080

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Metals (Continued)

Prep Batch: 563181 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-17	WC-SB1865-N. DITCH	TCLP	Solid	3010A	563080
240-180684-19	WC-SB2621-N. DITCH	TCLP	Solid	3010A	563080
240-180684-20	WC-SB1634-N. DITCH	TCLP	Solid	3010A	563080
240-180684-21	WC-SB2624-N. DITCH	TCLP	Solid	3010A	563080
240-180684-22	WC-SB2474-N. DITCH	TCLP	Solid	3010A	563080
240-180684-23	WC-SB2405-N. DITCH	TCLP	Solid	3010A	563080
LB 240-563080/1-B	Method Blank	TCLP	Solid	3010A	563080
MB 240-563181/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-563181/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180684-13 MS	WC-SB2650-N. DITCH	TCLP	Solid	3010A	563080
240-180684-13 MSD	WC-SB2650-N. DITCH	TCLP	Solid	3010A	563080

Prep Batch: 563182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	TCLP	Solid	7470A	563080
240-180684-14	WC-SB1692-N. DITCH	TCLP	Solid	7470A	563080
240-180684-15	WC-SB2598-N. DITCH	TCLP	Solid	7470A	563080
240-180684-16	WC-SB1852-N. DITCH	TCLP	Solid	7470A	563080
240-180684-17	WC-SB1865-N. DITCH	TCLP	Solid	7470A	563080
240-180684-19	WC-SB2621-N. DITCH	TCLP	Solid	7470A	563080
240-180684-20	WC-SB1634-N. DITCH	TCLP	Solid	7470A	563080
240-180684-21	WC-SB2624-N. DITCH	TCLP	Solid	7470A	563080
240-180684-22	WC-SB2474-N. DITCH	TCLP	Solid	7470A	563080
240-180684-23	WC-SB2405-N. DITCH	TCLP	Solid	7470A	563080
LB 240-563080/1-C	Method Blank	TCLP	Solid	7470A	563080
MB 240-563182/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-563182/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180684-13 MS	WC-SB2650-N. DITCH	TCLP	Solid	7470A	563080
240-180684-13 MSD	WC-SB2650-N. DITCH	TCLP	Solid	7470A	563080

Analysis Batch: 563217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	TCLP	Solid	7470A	563030
240-180684-2	WC-WS-NORTH-02 (6-7)	TCLP	Solid	7470A	563030
240-180684-3	WC-WS-NORTH-03 (7-8)	TCLP	Solid	7470A	563030
240-180684-4	WC-WS-NORTH-04 (4-5)	TCLP	Solid	7470A	563030
240-180684-5	WC-WS-NORTH-05 (5-6)	TCLP	Solid	7470A	563030
240-180684-7	WC-WS-NORTH-06 (5-6)	TCLP	Solid	7470A	563030
240-180684-8	WC-WS-NORTH-07 (3-4)	TCLP	Solid	7470A	563030
240-180684-9	WC-WS-NORTH-08 (3-4)	TCLP	Solid	7470A	563030
240-180684-10	WC-WS-NORTH-09 (3-4)	TCLP	Solid	7470A	563030
240-180684-11	WC-WS-NORTH-10 (2-3)	TCLP	Solid	7470A	563030
LB 240-562925/1-C	Method Blank	TCLP	Solid	7470A	563030
MB 240-563030/2-A	Method Blank	Total/NA	Solid	7470A	563030
LCS 240-563030/3-A	Lab Control Sample	Total/NA	Solid	7470A	563030

Analysis Batch: 563244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	TCLP	Solid	6010D	563029
240-180684-2	WC-WS-NORTH-02 (6-7)	TCLP	Solid	6010D	563029
240-180684-3	WC-WS-NORTH-03 (7-8)	TCLP	Solid	6010D	563029

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Metals (Continued)

Analysis Batch: 563244 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-4	WC-WS-NORTH-04 (4-5)	TCLP	Solid	6010D	563029
240-180684-5	WC-WS-NORTH-05 (5-6)	TCLP	Solid	6010D	563029
240-180684-7	WC-WS-NORTH-06 (5-6)	TCLP	Solid	6010D	563029
240-180684-8	WC-WS-NORTH-07 (3-4)	TCLP	Solid	6010D	563029
240-180684-9	WC-WS-NORTH-08 (3-4)	TCLP	Solid	6010D	563029
240-180684-10	WC-WS-NORTH-09 (3-4)	TCLP	Solid	6010D	563029
240-180684-11	WC-WS-NORTH-10 (2-3)	TCLP	Solid	6010D	563029
LB 240-562925/1-B	Method Blank	TCLP	Solid	6010D	563029
MB 240-563029/2-A	Method Blank	Total/NA	Solid	6010D	563029
LCS 240-563029/3-A	Lab Control Sample	Total/NA	Solid	6010D	563029

Analysis Batch: 563338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	TCLP	Solid	7470A	563182
240-180684-14	WC-SB1692-N. DITCH	TCLP	Solid	7470A	563182
240-180684-15	WC-SB2598-N. DITCH	TCLP	Solid	7470A	563182
240-180684-16	WC-SB1852-N. DITCH	TCLP	Solid	7470A	563182
240-180684-17	WC-SB1865-N. DITCH	TCLP	Solid	7470A	563182
240-180684-19	WC-SB2621-N. DITCH	TCLP	Solid	7470A	563182
240-180684-20	WC-SB1634-N. DITCH	TCLP	Solid	7470A	563182
240-180684-21	WC-SB2624-N. DITCH	TCLP	Solid	7470A	563182
240-180684-22	WC-SB2474-N. DITCH	TCLP	Solid	7470A	563182
240-180684-23	WC-SB2405-N. DITCH	TCLP	Solid	7470A	563182
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	7470A	563167
LB 240-563077/1-C	Method Blank	TCLP	Solid	7470A	563167
LB 240-563080/1-C	Method Blank	TCLP	Solid	7470A	563182
MB 240-563167/2-A	Method Blank	Total/NA	Solid	7470A	563167
MB 240-563182/2-A	Method Blank	Total/NA	Solid	7470A	563182
LCS 240-563167/3-A	Lab Control Sample	Total/NA	Solid	7470A	563167
LCS 240-563182/3-A	Lab Control Sample	Total/NA	Solid	7470A	563182
240-180684-13 MS	WC-SB2650-N. DITCH	TCLP	Solid	7470A	563182
240-180684-13 MSD	WC-SB2650-N. DITCH	TCLP	Solid	7470A	563182

Analysis Batch: 563358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	TCLP	Solid	6010D	563181
240-180684-14	WC-SB1692-N. DITCH	TCLP	Solid	6010D	563181
240-180684-15	WC-SB2598-N. DITCH	TCLP	Solid	6010D	563181
240-180684-16	WC-SB1852-N. DITCH	TCLP	Solid	6010D	563181
240-180684-17	WC-SB1865-N. DITCH	TCLP	Solid	6010D	563181
240-180684-19	WC-SB2621-N. DITCH	TCLP	Solid	6010D	563181
240-180684-20	WC-SB1634-N. DITCH	TCLP	Solid	6010D	563181
240-180684-21	WC-SB2624-N. DITCH	TCLP	Solid	6010D	563181
240-180684-22	WC-SB2474-N. DITCH	TCLP	Solid	6010D	563181
240-180684-23	WC-SB2405-N. DITCH	TCLP	Solid	6010D	563181
240-180684-25	WC-RT1538A-ST. SWEEPINGS	TCLP	Solid	6010D	563166
LB 240-563077/1-B	Method Blank	TCLP	Solid	6010D	563166
LB 240-563080/1-B	Method Blank	TCLP	Solid	6010D	563181
MB 240-563166/2-A	Method Blank	Total/NA	Solid	6010D	563166
MB 240-563181/2-A	Method Blank	Total/NA	Solid	6010D	563181
LCS 240-563166/3-A	Lab Control Sample	Total/NA	Solid	6010D	563166

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Metals (Continued)

Analysis Batch: 563358 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-563181/3-A	Lab Control Sample	Total/NA	Solid	6010D	563181
240-180684-13 MS	WC-SB2650-N. DITCH	TCLP	Solid	6010D	563181
240-180684-13 MSD	WC-SB2650-N. DITCH	TCLP	Solid	6010D	563181

General Chemistry

Analysis Batch: 562900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-1	WC-WS-NORTH-01 (4-5)	Total/NA	Solid	Moisture	
240-180684-2	WC-WS-NORTH-02 (6-7)	Total/NA	Solid	Moisture	
240-180684-4	WC-WS-NORTH-04 (4-5)	Total/NA	Solid	Moisture	
240-180684-5	WC-WS-NORTH-05 (5-6)	Total/NA	Solid	Moisture	
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	Moisture	562902
240-180684-7	WC-WS-NORTH-06 (5-6)	Total/NA	Solid	Moisture	
240-180684-8	WC-WS-NORTH-07 (3-4)	Total/NA	Solid	Moisture	
240-180684-9	WC-WS-NORTH-08 (3-4)	Total/NA	Solid	Moisture	
240-180684-10	WC-WS-NORTH-09 (3-4)	Total/NA	Solid	Moisture	
240-180684-11	WC-WS-NORTH-10 (2-3)	Total/NA	Solid	Moisture	
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	Moisture	562902
240-180684-D-14 DU	240-180684-D-14 DU	Total/NA	Solid	Moisture	

Composite Batch: 562902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	Composite	
240-180684-12	WC-WS-NORTH-COMP (6-10)	Total/NA	Solid	Composite	

Analysis Batch: 563043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-3	WC-WS-NORTH-03 (7-8)	Total/NA	Solid	Moisture	
240-180684-17	WC-SB1865-N. DITCH	Total/NA	Solid	Moisture	
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	Moisture	563057
240-180684-19	WC-SB2621-N. DITCH	Total/NA	Solid	Moisture	
240-180684-20	WC-SB1634-N. DITCH	Total/NA	Solid	Moisture	
240-180684-21	WC-SB2624-N. DITCH	Total/NA	Solid	Moisture	
240-180684-22	WC-SB2474-N. DITCH	Total/NA	Solid	Moisture	
240-180684-23	WC-SB2405-N. DITCH	Total/NA	Solid	Moisture	
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	Moisture	563057
240-180684-25	WC-RT1538A-ST. SWEEPINGS	Total/NA	Solid	Moisture	
240-180684-19 DU	WC-SB2621-N. DITCH	Total/NA	Solid	Moisture	

Composite Batch: 563057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-18	WC-COMP1-N. DITCH	Total/NA	Solid	Composite	
240-180684-24	WC-COMP2-N. DITCH	Total/NA	Solid	Composite	

Analysis Batch: 563185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-13	WC-SB2650-N. DITCH	Total/NA	Solid	Moisture	
240-180684-14	WC-SB1692-N. DITCH	Total/NA	Solid	Moisture	
240-180684-15	WC-SB2598-N. DITCH	Total/NA	Solid	Moisture	
240-180684-16	WC-SB1852-N. DITCH	Total/NA	Solid	Moisture	

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Date Collected: 02/20/23 10:20

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:19
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:38
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-01 (4-5)

Lab Sample ID: 240-180684-1

Date Collected: 02/20/23 10:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 18:28
Total/NA	Prep	5035			562918	LAM	EET CAN	02/21/23 13:30
Total/NA	Analysis	8260D		5	563308	CS	EET CAN	02/24/23 14:32
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		10	563266	JMG	EET CAN	02/24/23 15:47

Client Sample ID: WC-WS-NORTH-02 (6-7)

Lab Sample ID: 240-180684-2

Date Collected: 02/20/23 10:35

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:23
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:41
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-02 (6-7)

Lab Sample ID: 240-180684-2

Date Collected: 02/20/23 10:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 76.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 19:43
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		2	563427	JMG	EET CAN	02/25/23 16:59

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-03 (7-8)

Lab Sample ID: 240-180684-3

Date Collected: 02/20/23 10:50

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:27
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:43
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 11:26

Client Sample ID: WC-WS-NORTH-03 (7-8)

Lab Sample ID: 240-180684-3

Date Collected: 02/20/23 10:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 20:08
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		1	563266	JMG	EET CAN	02/24/23 13:22

Client Sample ID: WC-WS-NORTH-04 (4-5)

Lab Sample ID: 240-180684-4

Date Collected: 02/20/23 11:00

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:32
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:45
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-04 (4-5)

Lab Sample ID: 240-180684-4

Date Collected: 02/20/23 11:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 98.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 20:34
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		4	563266	JMG	EET CAN	02/24/23 15:23

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-05 (5-6)

Lab Sample ID: 240-180684-5

Date Collected: 02/20/23 11:05

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:36
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:47
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-05 (5-6)

Lab Sample ID: 240-180684-5

Date Collected: 02/20/23 11:05

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 72.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		40	563308	CS	EET CAN	02/24/23 14:57
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		20	563266	JMG	EET CAN	02/24/23 16:11

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562901	DRJ	EET CAN	02/21/23 12:12
TCLP	Leach	1311			563082	DRJ	EET CAN	02/22/23 16:00 - 02/23/23 08:55 ¹
TCLP	Analysis	8260D		1	563142	TJL1	EET CAN	02/23/23 17:23
TCLP	Composite	Composite			562901	DRJ	EET CAN	02/21/23 12:12
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563202	SDE	EET CAN	02/23/23 12:44
TCLP	Analysis	8270E		1	563273	JMG	EET CAN	02/24/23 18:09
TCLP	Composite	Composite			562901	DRJ	EET CAN	02/21/23 12:12
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563205	SDE	EET CAN	02/23/23 12:51
TCLP	Analysis	8081B		1	563280	BPM	EET CAN	02/24/23 11:13
TCLP	Leach	1311			347765	UNWS	ELLE	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	8151A			347942	UKL2	ELLE	02/24/23 19:47
TCLP	Analysis	8151A		1	348043	UAMZ	ELLE	02/27/23 05:47
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 11:57
Total/NA	Composite	Composite			562902	DRJ	EET CAN	02/21/23 12:13

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 81.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562902	DRJ	EET CAN	02/21/23 12:13
Total/NA	Prep	3546			562981	AJ	EET CAN	02/22/23 08:41
Total/NA	Analysis	8082A		1	563104	LSH	EET CAN	02/23/23 09:51
Total/NA	Prep	537 (mod)			347896	K9VR	ELLE	02/24/23 17:55
Total/NA	Cleanup	Extract Aliquot			347899	K9VR	ELLE	02/24/23 18:22
Total/NA	Analysis	537 IDA		1	348165	VK3G	ELLE	02/27/23 12:01

Client Sample ID: WC-WS-NORTH-06 (5-6)

Lab Sample ID: 240-180684-7

Date Collected: 02/20/23 11:20

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:49
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:49
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-06 (5-6)

Lab Sample ID: 240-180684-7

Date Collected: 02/20/23 11:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 21:24
Total/NA	Prep	3540C			563436	BMB	EET CAN	02/25/23 15:12
Total/NA	Analysis	8270E		4	563684	JMG	EET CAN	02/28/23 13:08

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Date Collected: 02/20/23 11:46

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:53
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:51
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-07 (3-4)

Lab Sample ID: 240-180684-8

Date Collected: 02/20/23 11:46

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 21:49
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		4	563308	CS	EET CAN	02/24/23 15:48
Total/NA	Prep	3540C			563436	BMB	EET CAN	02/25/23 15:12
Total/NA	Analysis	8270E		4	563684	JMG	EET CAN	02/28/23 12:20

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Date Collected: 02/20/23 11:55

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 12:57
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:53
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-08 (3-4)

Lab Sample ID: 240-180684-9

Date Collected: 02/20/23 11:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 73.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1.6666	563220	CS	EET CAN	02/23/23 22:14
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563308	CS	EET CAN	02/24/23 15:23
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		4	563266	JMG	EET CAN	02/24/23 14:59

Client Sample ID: WC-WS-NORTH-09 (3-4)

Lab Sample ID: 240-180684-10

Date Collected: 02/20/23 12:05

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 13:02
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 16:30 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 15:55
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-09 (3-4)

Date Collected: 02/20/23 12:05

Date Received: 02/20/23 21:50

Lab Sample ID: 240-180684-10

Matrix: Solid

Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 22:40
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563308	CS	EET CAN	02/24/23 16:13
Total/NA	Prep	3540C			563018	BMB	EET CAN	02/22/23 09:34
Total/NA	Analysis	8270E		1	563266	JMG	EET CAN	02/24/23 14:11

Client Sample ID: WC-WS-NORTH-10 (2-3)

Date Collected: 02/20/23 12:20

Date Received: 02/20/23 21:50

Lab Sample ID: 240-180684-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 15:32 - 02/22/23 09:05 ¹
TCLP	Prep	3010A			563029	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	6010D		1	563244	RKT	EET CAN	02/23/23 13:06
TCLP	Leach	1311			562925	DRJ	EET CAN	02/21/23 15:32 - 02/22/23 09:05 ¹
TCLP	Prep	7470A			563030	AJC	EET CAN	02/22/23 12:00
TCLP	Analysis	7470A		1	563217	DSH	EET CAN	02/23/23 16:42
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 14:25

Client Sample ID: WC-WS-NORTH-10 (2-3)

Date Collected: 02/20/23 12:20

Date Received: 02/20/23 21:50

Lab Sample ID: 240-180684-11

Matrix: Solid

Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		10	563220	CS	EET CAN	02/23/23 23:05
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563308	CS	EET CAN	02/24/23 16:39
Total/NA	Prep	3540C			563436	BMB	EET CAN	02/25/23 15:12
Total/NA	Analysis	8270E		4	563684	JMG	EET CAN	02/28/23 12:44

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Date Collected: 02/20/23 00:00

Date Received: 02/20/23 21:50

Lab Sample ID: 240-180684-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562901	DRJ	EET CAN	02/21/23 12:12
TCLP	Leach	1311			563082	DRJ	EET CAN	02/22/23 16:00 - 02/23/23 08:55 ¹
TCLP	Analysis	8260D		1	563142	TJL1	EET CAN	02/23/23 17:46
TCLP	Composite	Composite			562901	DRJ	EET CAN	02/21/23 12:12
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563202	SDE	EET CAN	02/23/23 12:44
TCLP	Analysis	8270E		1	563273	JMG	EET CAN	02/24/23 18:34

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Lab Sample ID: 240-180684-12

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			562901	DRJ	EET CAN	02/21/23 12:12
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563205	SDE	EET CAN	02/23/23 12:51
TCLP	Analysis	8081B		1	563280	BPM	EET CAN	02/24/23 11:30
TCLP	Leach	1311			347765	UNWS	ELLE	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	8151A			347942	UKL2	ELLE	02/24/23 19:47
TCLP	Analysis	8151A		1	348043	UAMZ	ELLE	02/27/23 06:15
Total/NA	Analysis	Moisture		1	562900	MS	EET CAN	02/21/23 11:57
Total/NA	Composite	Composite			562902	DRJ	EET CAN	02/21/23 12:13

Client Sample ID: WC-WS-NORTH-COMP (6-10)

Lab Sample ID: 240-180684-12

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			562902	DRJ	EET CAN	02/21/23 12:13
Total/NA	Prep	3546			562981	AJ	EET CAN	02/22/23 08:41
Total/NA	Analysis	8082A		1	563104	LSH	EET CAN	02/23/23 10:43
Total/NA	Prep	537 (mod)			347896	K9VR	ELLE	02/24/23 17:55
Total/NA	Cleanup	Extract Aliquot			347899	K9VR	ELLE	02/24/23 18:22
Total/NA	Analysis	537 IDA		1	348165	VK3G	ELLE	02/27/23 12:12

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Date Collected: 02/20/23 17:40

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		5	563358	KLC	EET CAN	02/24/23 10:50
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 09:45
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-SB2650-N. DITCH

Lab Sample ID: 240-180684-13

Date Collected: 02/20/23 17:40

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 66.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 23:30
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563308	CS	EET CAN	02/24/23 17:04
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		20	563419	MRU	EET CAN	02/25/23 13:54

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Date Collected: 02/20/23 17:55

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 11:16
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 09:56
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-SB1692-N. DITCH

Lab Sample ID: 240-180684-14

Date Collected: 02/20/23 17:55

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 63.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/23/23 23:55
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563308	CS	EET CAN	02/24/23 17:29
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		20	563419	MRU	EET CAN	02/25/23 15:37

Client Sample ID: WC-SB2598-N. DITCH

Lab Sample ID: 240-180684-15

Date Collected: 02/20/23 18:10

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 11:21
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 09:58
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-SB2598-N. DITCH

Lab Sample ID: 240-180684-15

Date Collected: 02/20/23 18:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 64.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 00:21
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		5	563419	MRU	EET CAN	02/25/23 17:47

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB1852-N. DITCH

Lab Sample ID: 240-180684-16

Date Collected: 02/20/23 18:20

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 11:25
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:00
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-SB1852-N. DITCH

Lab Sample ID: 240-180684-16

Date Collected: 02/20/23 18:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 69.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			562940	LAM	EET CAN	02/21/23 19:38
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 00:46
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		20	563419	MRU	EET CAN	02/25/23 16:03

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Date Collected: 02/21/23 13:15

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		2	563358	KLC	EET CAN	02/24/23 12:54
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:02
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-SB1865-N. DITCH

Lab Sample ID: 240-180684-17

Date Collected: 02/21/23 13:15

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 55.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563434	LAM	EET CAN	02/22/23 11:38
Total/NA	Analysis	8260D		1	563458	CS	EET CAN	02/26/23 19:07
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		66.6666	563220	CS	EET CAN	02/24/23 01:11
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		20	563419	MRU	EET CAN	02/25/23 16:29

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-180684-18

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			563056	DRJ	EET CAN	02/22/23 12:00
TCLP	Leach	1311			563082	DRJ	EET CAN	02/22/23 16:00 - 02/23/23 08:55 ¹
TCLP	Analysis	8260D		1	563142	TJL1	EET CAN	02/23/23 18:09
TCLP	Composite	Composite			563056	DRJ	EET CAN	02/22/23 12:00
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563202	SDE	EET CAN	02/23/23 12:44
TCLP	Analysis	8270E		1	563273	JMG	EET CAN	02/24/23 18:58
TCLP	Composite	Composite			563056	DRJ	EET CAN	02/22/23 12:00
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563205	SDE	EET CAN	02/23/23 12:51
TCLP	Analysis	8081B		1	563280	BPM	EET CAN	02/24/23 11:47
TCLP	Leach	1311			347765	UNWS	ELLE	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	8151A			347942	UKL2	ELLE	02/24/23 19:47
TCLP	Analysis	8151A		1	348043	UAMZ	ELLE	02/27/23 06:43
Total/NA	Composite	Composite			563057	DRJ	EET CAN	02/22/23 12:00
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-180684-18

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 61.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			563057	DRJ	EET CAN	02/22/23 12:00
Total/NA	Prep	3546			563290	AJ	EET CAN	02/24/23 09:04
Total/NA	Analysis	8082A		1	563246	LSH	EET CAN	02/24/23 12:52
Total/NA	Prep	537 (mod)			347896	K9VR	ELLE	02/24/23 17:55
Total/NA	Cleanup	Extract Aliquot			347899	K9VR	ELLE	02/24/23 18:22
Total/NA	Analysis	537 IDA		1	348165	VK3G	ELLE	02/27/23 12:45
Total/NA	Prep	537 (mod)	RA		347896	K9VR	ELLE	02/24/23 17:55
Total/NA	Cleanup	Extract Aliquot	RA		347899	K9VR	ELLE	02/24/23 18:22
Total/NA	Analysis	537 IDA	RA	1	348165	VK3G	ELLE	02/27/23 14:58

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Date Collected: 02/21/23 13:35

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 11:42
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:04
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2621-N. DITCH

Lab Sample ID: 240-180684-19

Date Collected: 02/21/23 13:35

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 47.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 01:36
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		2.857	563308	CS	EET CAN	02/24/23 17:55
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		25	563419	MRU	EET CAN	02/25/23 12:36
Total/NA	Prep	3540C	RA		563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E	RA	50	563419	MRU	EET CAN	02/25/23 18:12

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Date Collected: 02/21/23 13:50

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 11:46
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:10
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-SB1634-N. DITCH

Lab Sample ID: 240-180684-20

Date Collected: 02/21/23 13:50

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 40.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563391	CS	EET CAN	02/22/23 11:38
Total/NA	Analysis	8260D		1	563382	CS	EET CAN	02/25/23 02:06
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 02:02
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563308	CS	EET CAN	02/24/23 18:20
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		20	563419	MRU	EET CAN	02/25/23 13:28

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		2	563358	KLC	EET CAN	02/24/23 12:59

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:12
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-SB2624-N. DITCH

Lab Sample ID: 240-180684-21

Date Collected: 02/21/23 14:10

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 59.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 02:27
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		2	563308	CS	EET CAN	02/24/23 18:45
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		50	563419	MRU	EET CAN	02/25/23 12:10
Total/NA	Prep	3540C	RA		563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E	RA	100	563419	MRU	EET CAN	02/25/23 15:11

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Date Collected: 02/21/23 14:20

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 11:55
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:15
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-SB2474-N. DITCH

Lab Sample ID: 240-180684-22

Date Collected: 02/21/23 14:20

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 02:52
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		4	563308	CS	EET CAN	02/24/23 19:10
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		6.667	563419	MRU	EET CAN	02/25/23 17:21

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-SB2405-N. DITCH

Lab Sample ID: 240-180684-23

Date Collected: 02/21/23 14:30

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563181	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 12:00
TCLP	Leach	1311			563080	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563182	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:17
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-SB2405-N. DITCH

Lab Sample ID: 240-180684-23

Date Collected: 02/21/23 14:30

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 65.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 03:18
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		10	563419	MRU	EET CAN	02/25/23 16:55

Client Sample ID: WC-COMP2-N. DITCH

Lab Sample ID: 240-180684-24

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			563056	DRJ	EET CAN	02/22/23 12:00
TCLP	Leach	1311			563082	DRJ	EET CAN	02/22/23 16:00 - 02/23/23 08:55 ¹
TCLP	Analysis	8260D		1	563142	TJL1	EET CAN	02/23/23 18:32
TCLP	Composite	Composite			563056	DRJ	EET CAN	02/22/23 12:00
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563202	SDE	EET CAN	02/23/23 12:44
TCLP	Analysis	8270E		1	563273	JMG	EET CAN	02/24/23 19:22
TCLP	Composite	Composite			563056	DRJ	EET CAN	02/22/23 12:00
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563205	SDE	EET CAN	02/23/23 12:51
TCLP	Analysis	8081B		1	563280	BPM	EET CAN	02/24/23 12:04
TCLP	Leach	1311			347765	UNWS	ELLE	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	8151A			347942	UKL2	ELLE	02/24/23 19:47
TCLP	Analysis	8151A		1	348043	UAMZ	ELLE	02/27/23 07:11
Total/NA	Composite	Composite			563057	DRJ	EET CAN	02/22/23 12:00
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Client Sample ID: WC-COMP2-N. DITCH

Lab Sample ID: 240-180684-24

Date Collected: 02/21/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 74.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			563057	DRJ	EET CAN	02/22/23 12:00
Total/NA	Prep	3546			563290	AJ	EET CAN	02/24/23 09:04
Total/NA	Analysis	8082A		1	563246	LSH	EET CAN	02/24/23 13:10
Total/NA	Prep	537 (mod)			347896	K9VR	ELLE	02/24/23 17:55
Total/NA	Cleanup	Extract Aliquot			347899	K9VR	ELLE	02/24/23 18:22
Total/NA	Analysis	537 IDA		1	348165	VK3G	ELLE	02/27/23 15:10

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563082	DRJ	EET CAN	02/22/23 16:00 - 02/23/23 08:55 ¹
TCLP	Analysis	8260D		1	563142	TJL1	EET CAN	02/23/23 18:56
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563202	SDE	EET CAN	02/23/23 12:44
TCLP	Analysis	8270E		1	563273	JMG	EET CAN	02/24/23 19:47
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3510C			563205	SDE	EET CAN	02/23/23 12:51
TCLP	Analysis	8081B		1	563280	BPM	EET CAN	02/24/23 12:21
TCLP	Leach	1311			347765	UNWS	ELLE	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	8151A			347942	UKL2	ELLE	02/24/23 19:47
TCLP	Analysis	8151A		1	348043	UAMZ	ELLE	02/27/23 07:38
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	3010A			563166	MRL	EET CAN	02/23/23 14:00
TCLP	Analysis	6010D		1	563358	KLC	EET CAN	02/24/23 12:45
TCLP	Leach	1311			563077	DRJ	EET CAN	02/22/23 16:40 - 02/23/23 08:55 ¹
TCLP	Prep	7470A			563167	MRL	EET CAN	02/23/23 12:00
TCLP	Analysis	7470A		1	563338	MRL	EET CAN	02/24/23 10:49
Total/NA	Analysis	Moisture		1	563043	BLW	EET CAN	02/22/23 13:18

Client Sample ID: WC-RT1538A-ST. SWEEPINGS

Lab Sample ID: 240-180684-25

Date Collected: 02/21/23 14:45

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 95.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563078	CS	EET CAN	02/22/23 19:09
Total/NA	Analysis	8260D		1	563220	CS	EET CAN	02/24/23 03:43
Total/NA	Prep	3540C			563130	AJ	EET CAN	02/23/23 08:32
Total/NA	Analysis	8270E		20	563419	MRU	EET CAN	02/25/23 13:02
Total/NA	Prep	3546			563290	AJ	EET CAN	02/24/23 09:04
Total/NA	Analysis	8082A		1	563246	LSH	EET CAN	02/24/23 13:27

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-27-23 *
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-23 *
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Chain of Custody Record

Zooker



1 of 1
 Environment Testing

Client Information		Lab Pkt: DeIMonico, Michael		Carrier Tracking No(s): 240-105064-37646.2																													
Client Contact: Grace Gegick		E-Mail: Michael.DeIMonico@eurofins.com		Page: Page 2 of 4																													
Company: ARCADIS U.S., Inc.		PWSID:		Job #:																													
Address: 284 Cramer Creek Court		Due Date Requested:		Preservation Codes:																													
City: Dublin		TAT Requested (days):		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Actione V - MCAA W - pH 4-5 Y - Trzms Z - other (specify)																													
State, Zip: OH, 43017		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Other:																													
Phone:		Purchase Order not required																															
Email: Grace.Gegick@arcadis.com		WO #:																															
Project Name: Norfolk Southern - ER		Project #:																															
Site:		SSOW#:																															
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil, I=issue, A=air)	Field Filtered Sample (Yes or No)	8260D - Total VOCs	8260A - 2770E Total SVOC	8260D - Total VOCs	8260E - Total SVOCs	8260F - Total SVOCs	8260G - Total SVOCs	8260H - Total SVOCs	8260I - Total SVOCs	8260J - Total SVOCs	8260K - Total SVOCs	8260L - Total SVOCs	8260M - Total SVOCs	8260N - Total SVOCs	8260O - Total SVOCs	8260P - Total SVOCs	8260Q - Total SVOCs	8260R - Total SVOCs	8260S - Total SVOCs	8260T - Total SVOCs	8260U - Total SVOCs	8260V - Total SVOCs	8260W - Total SVOCs	8260X - Total SVOCs	8260Y - Total SVOCs	8260Z - Total SVOCs	Analysis Requested	Special Instructions/Note:	
WC-SB1865 - N.Ditch	2/21/23	1315	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	BBB Polychlorinated Biphenyls	<p>240-180684 Chain of Custody</p> <p>Includes SB 24501, SB 1692, SB 2998, SB 1852, SB 1865, SB 24501, SB 1692, SB 2998, SB 1852, SB 1865</p>
WC-SB2621 - N.Ditch	2/21/23	1335	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
WC-SB1634 - N.Ditch	2/21/23	1350	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
WC-SB2624 - N.Ditch	2/21/23	1410	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
WC-SB2974 - N.Ditch	2/21/23	1420	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
WC-SB2405 - N.Ditch	2/21/23	1435	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
WC-SB COMP - N.Ditch	2/20-21/23	-	C	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Submitted 2/22/23	
WC-COMP 2 - N.Ditch	2/21/23	-	C	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
WC-RT1588A - St. Sweeping	2/21/23	1445	G	Solid	N	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Possible Hazard Identification		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																													
Deliverable Requested: I, II, III, IV, Other (specify)		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements:																													
Empty Kit Relinquished by:		Date:		Time:																													
Relinquished by: <i>M. Steve</i>		Date/Time: 2/21/23		Received by: <i>Malissa Loop</i>																													
Relinquished by: <i>Malissa Loop</i>		Date/Time: 2/21/23		Received by: <i>Malissa Loop</i>																													
Relinquished by:		Date/Time:		Received by:																													
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Footer Temperature(s) °C and Other Remarks:																													



Barberton Facility

Client Arcadis

Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-21-23

Opened on 2-22-23

QuP

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt See Multiple Cooler Form
 - IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea Yes No
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
- 3. Shippers' packing slip attached to the cooler(s)? Yes No
- 4. Did custody papers accompany the sample(s)? Yes No
- 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- 7. Did all bottles arrive in good condition (Unbroken)? Yes No
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N) and sample type of grab/comp (Y/N)?
- 10. Were correct bottle(s) used for the test(s) indicated? Yes No
- 11. Sufficient quantity received to perform indicated analyses? Yes No
- 12. Are these work share samples and all listed on the COC? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

- If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA
- 14. Were VOAs on the COC? Yes No NA
- 15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
- 17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 180684

Eurofins - Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC Client Box Other	IR-13 IR-16 IR-17	1.9	1.8	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17	3.2	3.1	Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC Client Box Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:		Lab PM:		Camer Tracking No(s):		COC No:																																															
Client Contact: Shipping/Receiving		Phone:		DelMonico, Michael		E-Mail: Michael.DelMonico@et.eurofinsus.com		240-164237.1																																															
Company: Eurofins Lancaster Laboratories Environm		Accreditations Required (See note):		State of Origin: Ohio		Page: Page 1 of 1		Job #: 240-180684-1																																															
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601		Due Date Requested: 2/27/2023		<table border="1"> <tr> <th colspan="12">Analysis Requested</th> </tr> <tr> <th>Field Filtered Sample (Yes or No)</th> <th>Perform MS/MSD (Yes or No)</th> <th>PFC_IDAS/ Shake_SonicBath PFOA, PFOS</th> <th>8151A/1311_T TCLP Analyte List</th> <th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>		Analysis Requested												Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDAS/ Shake_SonicBath PFOA, PFOS	8151A/1311_T TCLP Analyte List																																	Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
Analysis Requested																																																							
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDAS/ Shake_SonicBath PFOA, PFOS	8151A/1311_T TCLP Analyte List																																																				
Project Name: NS East Palestine		Project #: 24030745		PO #:		WO #:		Other:																																															
Site:		SSOW#:																																																					
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)							Total Number of containers	Special Instructions/Note:																																										
WC-WS-NORTH-COMP (1-5) (240-180684-6)		2/20/23	Eastern		Solid		X	X				1	Composite sample using plastic jars only																																										
WC-WS-NORTH-COMP (6-10) (240-180684-12)		2/20/23	Eastern		Solid		X	X				1	Composite sample using plastic jars only																																										
WC-COMP1-N. DITCH (240-180684-18)		2/21/23	Eastern		Solid		X	X				1	Composite sample using plastic jars only																																										
WC-COMP2-N. DITCH (240-180684-24)		2/21/23	Eastern		Solid		X	X				1	Composite sample using plastic jars only																																										
WC-RT1538A-ST. SWEEPINGS (240-180684-25)		2/21/23	14:45 Eastern		Solid			X				1																																											
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>																																																							
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																																																		
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																																																		
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2		Special Instructions/QC Requirements:																																																		
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:																																																	
Relinquished by: <i>Rachelle</i>		Date/Time: 2/23/23 1415		Company: ESTNC		Received by:		Date/Time:		Company:																																													
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:																																													
Relinquished by:		Date/Time:		Company:		Received by: <i>mt</i>		Date/Time: 2/21/23 0936		Company: <i>mt</i>																																													
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 0.5																																																			
△ Yes △ No																																																							



Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180684-1

Login Number: 180684

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/24/23 10:52 AM

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		C8PFOA (26-159)	C8PFOS (41-154)
240-180684-6	WC-WS-NORTH-COMP (1-5)	78	84
240-180684-12	WC-WS-NORTH-COMP (6-10)	74	83
240-180684-18 - RA	WC-COMP1-N. DITCH	70	79
240-180684-18	WC-COMP1-N. DITCH	72	79
240-180684-24	WC-COMP2-N. DITCH	76	80
240-180684-B-12-E MS	240-180684-B-12-E MS	74	84
240-180684-B-12-F MSD	240-180684-B-12-F MSD	69	76
LCS 410-347896/2-B	Lab Control Sample	78	87
MB 410-347896/1-B	Method Blank	85	91

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/10/2023 9:33:03 AM Revision 1

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180684-2

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396

Generated
3/10/2023 9:33:03 AM
Revision 1



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Job ID: 240-180684-2

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-180684-2**

Receipt

The samples were received on 2/20/2023 9:50 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 0.2°C, 0.5°C, 1.8°C, 2.1°C and 3.1°C

Report revised on 3/10/2023 to report Total Dioxins calculations.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Method	Method Description	Protocol	Laboratory
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180684-6	WC-WS-NORTH-COMP (1-5)	Solid	02/20/23 00:00	02/20/23 21:50

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Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-2

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	220		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	61		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	5.6	J	6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	18		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	8.3		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	13		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	16		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	5.5	J	6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	11		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	11		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	5.2	J	6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	16		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	25		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	0.98	J I	1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	4.7		1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
OCDD	1300		12	2.5	ng/Kg	1	✳	8290A	Total/NA
OCDF	84		12	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	110		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	180		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	410		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	130		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	63	I	6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	250		6.1	2.5	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	37	I	1.2	0.25	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	160		1.2	0.25	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 81.2

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	220		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,4,6,7,8-HpCDF	61		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,4,7,8-HxCDD	5.6	J	6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,4,7,8-HxCDF	18		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,4,7,8,9-HpCDF	8.3		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,6,7,8-HxCDD	13		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,6,7,8-HxCDF	16		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,7,8-PeCDD	5.5	J	6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,7,8-PeCDF	11		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,7,8,9-HxCDD	11		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
1,2,3,7,8,9-HxCDF	5.2	J	6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
2,3,4,6,7,8-HxCDF	16		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
2,3,4,7,8-PeCDF	25		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
2,3,7,8-TCDD	0.98	J I	1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
2,3,7,8-TCDF	4.7		1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
OCDD	1300		12	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
OCDF	84		12	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total HxCDD	110		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total HxCDF	180		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total HpCDD	410		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total HpCDF	130		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total PeCDD	63	I	6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total PeCDF	250		6.1	2.5	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total TCDD	37	I	1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1
Total TCDF	160		1.2	0.25	ng/Kg	✳	03/06/23 12:43	03/07/23 23:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	82		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-OCDD	83		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-2,3,7,8-TCDF	76		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-2,3,7,8-TCDD	73		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-2,3,4,7,8-PeCDF	73		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-2,3,4,6,7,8-HxCDF	78		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,7,8,9-HxCDF	80		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,7,8,9-HxCDD	80		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,7,8-PeCDF	71		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,7,8-PeCDD	67		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,6,7,8-HxCDF	82		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,6,7,8-HxCDD	79		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,4,7,8,9-HpCDF	80		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,4,7,8-HxCDF	78		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,4,7,8-HxCDD	77		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,4,6,7,8-HpCDF	80		40 - 135	03/06/23 12:43	03/07/23 23:28	1
13C-1,2,3,4,6,7,8-HpCDD	79		40 - 135	03/06/23 12:43	03/07/23 23:28	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-350542/1-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,6,7,8-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDD	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDF	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	89		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-OCDD	88		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDD	68		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,7,8-PeCDF	76		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,6,7,8-HxCDF	81		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDF	82		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDD	83		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDD	69		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDF	84		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDD	80		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8,9-HpCDF	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDF	85		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDD	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-350542/2-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3,4,6,7,8-HpCDD	100	93.6		ng/Kg		94	77 - 127
1,2,3,4,6,7,8-HpCDF	100	94.3		ng/Kg		94	77 - 127
1,2,3,4,7,8-HxCDD	100	98.7		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDF	100	97.8		ng/Kg		98	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.8		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	103		ng/Kg		103	76 - 127
1,2,3,6,7,8-HxCDF	100	97.3		ng/Kg		97	77 - 129
1,2,3,7,8-PeCDD	100	105		ng/Kg		105	77 - 127
1,2,3,7,8-PeCDF	100	101		ng/Kg		101	75 - 129
1,2,3,7,8,9-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,7,8,9-HxCDF	100	97.4		ng/Kg		97	76 - 126
2,3,4,6,7,8-HxCDF	100	94.2		ng/Kg		94	78 - 128
2,3,4,7,8-PeCDF	100	104		ng/Kg		104	75 - 131
2,3,7,8-TCDD	20.0	19.9		ng/Kg		99	68 - 142
2,3,7,8-TCDF	20.0	17.7		ng/Kg		88	70 - 133
OCDD	200	202		ng/Kg		101	77 - 125
OCDF	200	199		ng/Kg		99	75 - 128

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-OCDF	91		40 - 135
13C-OCDD	92		40 - 135
13C-2,3,7,8-TCDF	75		40 - 135
13C-2,3,7,8-TCDD	72		40 - 135
13C-2,3,4,7,8-PeCDF	77		40 - 135
13C-2,3,4,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDD	89		40 - 135
13C-1,2,3,7,8-PeCDF	76		40 - 135
13C-1,2,3,7,8-PeCDD	70		40 - 135
13C-1,2,3,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,6,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	92		40 - 135
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,4,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	91		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	90		40 - 135

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Specialty Organics

Prep Batch: 350542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-350542/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 350921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-350542/1-A	Method Blank	Total/NA	Solid	8290A	350542
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	8290A	350542

Analysis Batch: 351132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180684-6	WC-WS-NORTH-COMP (1-5)	Total/NA	Solid	8290A	350542

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Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Client Sample ID: WC-WS-NORTH-COMP (1-5)

Lab Sample ID: 240-180684-6

Date Collected: 02/20/23 00:00

Matrix: Solid

Date Received: 02/20/23 21:50

Percent Solids: 81.2

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	HRMS-Soxtherm			350542	RGA5	ELLE	03/06/23 12:43
Total/NA	Analysis	8290A		1	351132	DZ6A	ELLE	03/07/23 23:28

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180684-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	03-08-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	0001.01	11-30-24

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Chain of Custody Record

Zooker



1 of 1
 Environment Testing

Client Information		Lab Pkt: DeIMonico, Michael		Carrier Tracking No(s): 240-105064-37646.2				
Client Contact: Grace Gegick		E-Mail: Michael.DeIMonico@eurofins.com		Page: Page 2 of 4				
Company: ARCADIS U.S., Inc.		PWSID:		Job #:				
Address: 284 Cramer Creek Court		Due Date Requested:		Preservation Codes:				
City: Dublin		TAT Requested (days):		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:				
State, Zip: OH, 43017		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Actione V - MCAA W - pH 4-5 Y - Trzms Z - other (specify)				
Phone:		PO #:		Total Number of Containers				
Purchase Order not required		WO #:		Special Instructions/Note:				
Email: Grace.Gegick@arcadis.com		Project #:		 240-180684 Chain of Custody Includes SB 24501, SB 1692, SB 2996, SB 1852, SB 1865, SB 1000, SB 2021, SB 16934, SB 2424, SB 2414, SB 2508				
Norfolk Southern - ER		SSOW#:						
Sample Identification		Field Filtered Sample (Yes or No)				Analysis Requested		
WC-SB1865 - N.Ditch	Sample Date: 2/21/23	Sample Time: 1315	Sample Type (C=comp, G=grab)			Matrix (W=water, S=solid, O=soil, P=pesticide, M=metal, T=tissue, A=air)	8260 - Total VOCs	X
WC-SB2021 - N.Ditch	2/21/23	1335	G			Solid	8260 - Total VOCs	X
WC-SB1634 - N.Ditch	2/21/23	1350	G			Solid	8260 - Total VOCs	X
WC-SB2024 - N.Ditch	2/21/23	1410	G			Solid	8260 - Total VOCs	X
WC-SB2974 - N.Ditch	2/21/23	1420	G			Solid	8260 - Total VOCs	X
WC-SB2405 - N.Ditch	2/21/23	1435	G			Solid	8260 - Total VOCs	X
WC-SB COMP - N.Ditch	2/20-21/23	-	C			Solid	8260 - Total VOCs	X
WC-COMP 2 - N.Ditch	2/21/23	-	C	Solid	8260 - Total VOCs	X		
WC-RT1588A - St. Sweeping	2/21/23	1445	G	Solid	8260 - Total VOCs	X		
Possible Hazard Identification		Preservation Code:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Matrix		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)		Sample		Special Instructions/QC Requirements:				
Empty Kit Relinquished by:		Time:		Method of Shipment:				
Relinquished by: <i>M. Stee</i>		Date: 2/21/23		Received by: <i>Malissa Loop</i>				
Relinquished by: <i>Malissa Loop</i>		Date: 2/21/23		Date/Time: 2-21-23 6:11				
Relinquished by:		Date: 2/21/23		Date/Time: 2-21-23 20:30				
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Company: <i>EU</i>				

Barberton Facility

Client Arcadis

Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-21-23

Opened on 2-22-23

QuE

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____


COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt See Multiple Cooler Form
 - IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea Yes No
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
- 3. Shippers' packing slip attached to the cooler(s)? Yes No
- 4. Did custody papers accompany the sample(s)? Yes No
- 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- 7. Did all bottles arrive in good condition (Unbroken)? Yes No
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N) and sample type of grab/comp (Y/N)?
- 10. Were correct bottle(s) used for the test(s) indicated? Yes No
- 11. Sufficient quantity received to perform indicated analyses? Yes No
- 12. Are these work share samples and all listed on the COC? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

- If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
- 14. Were VOAs on the COC? Yes No
- 15. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
- 17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 180684

Eurofins - Canton Sample Receipt Multiple Cooler Form							
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC	Client	Box	Other	IR-13 (IR-16) IR-17	1.9	1.8	(Wet Ice) Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 (IR-16) IR-17	3.2	3.1	(Wet Ice) Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR-13 IR-16 IR-17			Wet Ice Blue Ice Dry Ice Water None

See Temperature Excursion Form

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180684-2

Login Number: 180684

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/24/23 10:52 AM

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180684-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-180684-6	WC-WS-NORTH-COMP (1-5)	82	83	76	73	73	78	80	80
LCS 410-350542/2-A	Lab Control Sample	91	92	75	72	77	87	87	89
MB 410-350542/1-A	Method Blank	89	88	72	68	76	81	82	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-180684-6	WC-WS-NORTH-COMP (1-5)	71	67	82	79	80	78	77	80
LCS 410-350542/2-A	Lab Control Sample	76	70	87	84	92	83	84	91
MB 410-350542/1-A	Method Blank	72	69	84	80	86	79	78	85

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-180684-6	WC-WS-NORTH-COMP (1-5)	79
LCS 410-350542/2-A	Lab Control Sample	90
MB 410-350542/1-A	Method Blank	86

Surrogate Legend

OCDF = 13C-OCDF
 OCDD = 13C-OCDD
 TCDF = 13C-2,3,7,8-TCDF
 TCDD = 13C-2,3,7,8-TCDD
 PeCF = 13C-2,3,4,7,8-PeCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/1/2023 3:23:15 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180789-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*3	ISTD response or retention time outside acceptable limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
⌘	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Job ID: 240-180789-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180789-1

Receipt

The samples were received on 2/23/2023 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563460 was outside the method criteria for the following analytes: Chloromethane and Dichlorodifluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes is considered estimated.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-563460 recovered above the upper control limit for 1,1,2-Trichloro-1,2,2-trifluoroethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-V279404-PLASTIC PELLETS (240-180789-1), WC-VB1264-PLASTIC PELLETS (240-180789-2), WC-VB1184-PLASTIC PELLETS (240-180789-3), WC-VB1319-PLASTIC PELLETS (240-180789-4) and WC-VB280784-PLASTIC PELLETS (240-180789-5).

Method 8260D: The laboratory control sample (LCS) for preparation batch 240-563232 and analytical batch 240-563460 recovered outside control limits for the following analyte: 1,2-Dibromo-3-Chloropropane. 1,2-Dibromo-3-Chloropropane have been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

Method 8260D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-563434 and 240-563434 and analytical batch 240-563640.

Method 8260D: Internal standard (ISTD) response for the following samples was outside control limits: WC-V279404-PLASTIC PELLETS (240-180789-1), WC-VB1264-PLASTIC PELLETS (240-180789-2), WC-VB1184-PLASTIC PELLETS (240-180789-3), WC-VB1319-PLASTIC PELLETS (240-180789-4) and WC-VB280784-PLASTIC PELLETS (240-180789-5). The sample were re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 8260D: Surrogate recovery for the following samples was outside control limits: WC-V279404-PLASTIC PELLETS (240-180789-1), WC-VB1264-PLASTIC PELLETS (240-180789-2), WC-VB1184-PLASTIC PELLETS (240-180789-3), WC-VB1319-PLASTIC PELLETS (240-180789-4) and WC-VB280784-PLASTIC PELLETS (240-180789-5). Re-extraction and/or re-analysis was performed and surrogate recovery was outside control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: (LCS 240-563290/2-A) and (MB 240-563290/1-A).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Job ID: 240-180789-1 (Continued)

Laboratory: Eurofins Canton (Continued)

PFAS

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
537 (mod)	EPA 537 Isotope Dilution	EPA	ELLE
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180789-1	WC-V279404-PLASTIC PELLETS	Solid	02/22/23 08:35	02/23/23 08:00
240-180789-2	WC-VB1264-PLASTIC PELLETS	Solid	02/22/23 09:00	02/23/23 08:00
240-180789-3	WC-VB1184-PLASTIC PELLETS	Solid	02/22/23 09:15	02/23/23 08:00
240-180789-4	WC-VB1319-PLASTIC PELLETS	Solid	02/22/23 09:50	02/23/23 08:00
240-180789-5	WC-VB280784-PLASTIC PELLETS	Solid	02/22/23 10:20	02/23/23 08:00
240-180789-6	WC-COMP1-PLASTIC PELLETS	Solid	02/22/23 00:00	02/23/23 08:00

- 1
- 2
- 3
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- 9
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- 11
- 12
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- 14
- 15
- 16

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-V279404-PLASTIC PELLETS

Lab Sample ID: 240-180789-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0085	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.16	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Selenium	0.010	J	0.050	0.0060	mg/L	1		6010D	TCLP

Client Sample ID: WC-VB1264-PLASTIC PELLETS

Lab Sample ID: 240-180789-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0081	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.024	J B	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-VB1184-PLASTIC PELLETS

Lab Sample ID: 240-180789-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.016	J B	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-VB1319-PLASTIC PELLETS

Lab Sample ID: 240-180789-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0061	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.0097	J B	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-VB280784-PLASTIC PELLETS

Lab Sample ID: 240-180789-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0062	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.035	J B	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-COMP1-PLASTIC PELLETS

Lab Sample ID: 240-180789-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.19	J	0.25	0.0012	mg/L	1		8260D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-V279404-PLASTIC PELLETS

Lab Sample ID: 240-180789-1

Date Collected: 02/22/23 08:35

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.62	0.19	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,1,2,2-Tetrachloroethane	ND		0.62	0.37	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.62	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,1,2-Trichloroethane	ND		0.62	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,1-Dichloroethane	ND		0.62	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,1-Dichloroethene	ND		0.62	0.20	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,2,4-Trichlorobenzene	ND		0.62	0.33	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,2-Dibromo-3-Chloropropane	ND	*-	1.2	0.55	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Ethylene Dibromide	ND		0.62	0.19	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,2-Dichlorobenzene	ND		0.62	0.30	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,2-Dichloroethane	ND		0.62	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,2-Dichloropropane	ND		0.62	0.091	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,3-Dichlorobenzene	ND		0.62	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
1,4-Dichlorobenzene	ND		0.62	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
2-Butanone (MEK)	ND		2.5	0.39	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
2-Hexanone	ND		2.5	0.65	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
4-Methyl-2-pentanone (MIBK)	ND		2.5	0.59	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Acetone	ND		2.5	0.60	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Benzene	ND		0.62	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Dichlorobromomethane	ND		0.62	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Bromoform	ND		0.62	0.56	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Bromomethane	ND		0.62	0.41	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Carbon disulfide	ND		0.62	0.27	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Carbon tetrachloride	ND		0.62	0.25	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Chlorobenzene	ND		0.62	0.086	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Chloroethane	ND		0.62	0.37	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Chloroform	ND		0.62	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Chloromethane	ND		0.62	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
cis-1,2-Dichloroethene	ND		0.62	0.099	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
cis-1,3-Dichloropropene	ND		0.62	0.31	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Cyclohexane	ND		1.2	0.40	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Chlorodibromomethane	ND		0.62	0.29	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Dichlorodifluoromethane	ND		0.62	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Ethylbenzene	ND		0.62	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Isopropylbenzene	ND		0.62	0.094	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Methyl acetate	ND		3.1	0.41	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Methyl tert-butyl ether	ND		0.62	0.091	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Methylcyclohexane	ND		1.2	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Methylene Chloride	ND		1.2	0.94	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Styrene	ND		0.62	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Tetrachloroethene	ND		0.62	0.24	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Toluene	ND		0.62	0.59	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
trans-1,2-Dichloroethene	ND		0.62	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
trans-1,3-Dichloropropene	ND		0.62	0.26	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Trichloroethene	ND		0.62	0.35	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Trichlorofluoromethane	ND		0.62	0.34	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1
Vinyl chloride	ND		0.013	0.0045	mg/Kg	✱	02/23/23 14:15	02/27/23 20:46	1
Xylenes, Total	ND		1.2	0.22	mg/Kg	✱	02/23/23 19:57	02/26/23 20:31	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-V279404-PLASTIC PELLETS

Lab Sample ID: 240-180789-1

Date Collected: 02/22/23 08:35

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125	02/23/23 19:57	02/26/23 20:31	1
Toluene-d8 (Surr)	115		56 - 125	02/23/23 14:15	02/27/23 20:46	1
Dibromofluoromethane (Surr)	75		41 - 138	02/23/23 19:57	02/26/23 20:31	1
Dibromofluoromethane (Surr)	103		41 - 138	02/23/23 14:15	02/27/23 20:46	1
4-Bromofluorobenzene (Surr)	71		41 - 143	02/23/23 19:57	02/26/23 20:31	1
4-Bromofluorobenzene (Surr)	177	S1+ *3	41 - 143	02/23/23 14:15	02/27/23 20:46	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125	02/23/23 19:57	02/26/23 20:31	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125	02/23/23 14:15	02/27/23 20:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:22	02/28/23 16:51	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:22	02/28/23 16:51	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:22	02/28/23 16:51	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:22	02/28/23 16:51	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:22	02/28/23 16:51	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:22	02/28/23 16:51	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:22	02/28/23 16:51	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:22	02/28/23 16:51	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:22	02/28/23 16:51	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:22	02/28/23 16:51	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:22	02/28/23 16:51	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:22	02/28/23 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	92		46 - 137	02/28/23 07:22	02/28/23 16:51	1
Phenol-d5 (Surr)	57		26 - 120	02/28/23 07:22	02/28/23 16:51	1
Nitrobenzene-d5 (Surr)	71		24 - 120	02/28/23 07:22	02/28/23 16:51	1
2-Fluorophenol (Surr)	65		19 - 120	02/28/23 07:22	02/28/23 16:51	1
2-Fluorobiphenyl (Surr)	82		33 - 120	02/28/23 07:22	02/28/23 16:51	1
2,4,6-Tribromophenol (Surr)	62		10 - 120	02/28/23 07:22	02/28/23 16:51	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0085	J	0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 10:42	1
Barium	0.16	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 10:42	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 10:42	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 10:42	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 10:42	1
Selenium	0.010	J	0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 10:42	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 10:42	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.7		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	0.3		0.1	0.1	%			02/23/23 10:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1264-PLASTIC PELLETS

Lab Sample ID: 240-180789-2

Date Collected: 02/22/23 09:00

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.63	0.20	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,1,2,2-Tetrachloroethane	ND		0.63	0.38	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.63	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,1,2-Trichloroethane	ND		0.63	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,1-Dichloroethane	ND		0.63	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,1-Dichloroethene	ND		0.63	0.21	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,2,4-Trichlorobenzene	ND		0.63	0.33	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,2-Dibromo-3-Chloropropane	ND	*-	1.3	0.56	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Ethylene Dibromide	ND		0.63	0.20	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,2-Dichlorobenzene	ND		0.63	0.30	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,2-Dichloroethane	ND		0.63	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,2-Dichloropropane	ND		0.63	0.093	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,3-Dichlorobenzene	ND		0.63	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
1,4-Dichlorobenzene	ND		0.63	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
2-Butanone (MEK)	ND		2.5	0.39	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
2-Hexanone	ND		2.5	0.66	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
4-Methyl-2-pentanone (MIBK)	ND		2.5	0.60	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Acetone	ND		2.5	0.61	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Benzene	ND		0.63	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Dichlorobromomethane	ND		0.63	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Bromoform	ND		0.63	0.57	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Bromomethane	ND		0.63	0.42	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Carbon disulfide	ND		0.63	0.27	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Carbon tetrachloride	ND		0.63	0.26	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Chlorobenzene	ND		0.63	0.088	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Chloroethane	ND		0.63	0.38	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Chloroform	ND		0.63	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Chloromethane	ND		0.63	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
cis-1,2-Dichloroethene	ND		0.63	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
cis-1,3-Dichloropropene	ND		0.63	0.31	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Cyclohexane	ND		1.3	0.41	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Chlorodibromomethane	ND		0.63	0.29	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Dichlorodifluoromethane	ND		0.63	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Ethylbenzene	ND		0.63	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Isopropylbenzene	ND		0.63	0.095	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Methyl acetate	ND		3.1	0.42	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Methyl tert-butyl ether	ND		0.63	0.093	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Methylcyclohexane	ND		1.3	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Methylene Chloride	ND		1.3	0.96	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Styrene	ND		0.63	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Tetrachloroethene	ND		0.63	0.24	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Toluene	ND		0.63	0.60	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
trans-1,2-Dichloroethene	ND		0.63	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
trans-1,3-Dichloropropene	ND		0.63	0.26	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Trichloroethene	ND		0.63	0.36	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Trichlorofluoromethane	ND		0.63	0.34	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1
Vinyl chloride	ND		0.012	0.0044	mg/Kg	✱	02/23/23 12:10	02/27/23 21:34	1
Xylenes, Total	ND		1.3	0.23	mg/Kg	✱	02/23/23 19:57	02/26/23 20:52	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1264-PLASTIC PELLETS

Lab Sample ID: 240-180789-2

Date Collected: 02/22/23 09:00

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125	02/23/23 19:57	02/26/23 20:52	1
Toluene-d8 (Surr)	125		56 - 125	02/23/23 12:10	02/27/23 21:34	1
Dibromofluoromethane (Surr)	81		41 - 138	02/23/23 19:57	02/26/23 20:52	1
Dibromofluoromethane (Surr)	104		41 - 138	02/23/23 12:10	02/27/23 21:34	1
4-Bromofluorobenzene (Surr)	71		41 - 143	02/23/23 19:57	02/26/23 20:52	1
4-Bromofluorobenzene (Surr)	182	S1+ *3	41 - 143	02/23/23 12:10	02/27/23 21:34	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125	02/23/23 19:57	02/26/23 20:52	1
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	02/23/23 12:10	02/27/23 21:34	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:22	02/28/23 15:20	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:22	02/28/23 15:20	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:22	02/28/23 15:20	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:22	02/28/23 15:20	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:22	02/28/23 15:20	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:22	02/28/23 15:20	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:22	02/28/23 15:20	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:22	02/28/23 15:20	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:22	02/28/23 15:20	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:22	02/28/23 15:20	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:22	02/28/23 15:20	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:22	02/28/23 15:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		46 - 137	02/28/23 07:22	02/28/23 15:20	1
Phenol-d5 (Surr)	56		26 - 120	02/28/23 07:22	02/28/23 15:20	1
Nitrobenzene-d5 (Surr)	71		24 - 120	02/28/23 07:22	02/28/23 15:20	1
2-Fluorophenol (Surr)	64		19 - 120	02/28/23 07:22	02/28/23 15:20	1
2-Fluorobiphenyl (Surr)	79		33 - 120	02/28/23 07:22	02/28/23 15:20	1
2,4,6-Tribromophenol (Surr)	64		10 - 120	02/28/23 07:22	02/28/23 15:20	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0081	J	0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 11:03	1
Barium	0.024	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:03	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:03	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:03	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:03	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:03	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:03	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.7		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	0.3		0.1	0.1	%			02/23/23 10:54	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1184-PLASTIC PELLETS

Lab Sample ID: 240-180789-3

Date Collected: 02/22/23 09:15

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.66	0.21	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,1,2,2-Tetrachloroethane	ND		0.66	0.40	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.66	0.18	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,1,2-Trichloroethane	ND		0.66	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,1-Dichloroethane	ND		0.66	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,1-Dichloroethene	ND		0.66	0.22	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,2,4-Trichlorobenzene	ND		0.66	0.35	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,2-Dibromo-3-Chloropropane	ND	*	1.3	0.58	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Ethylene Dibromide	ND		0.66	0.21	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,2-Dichlorobenzene	ND		0.66	0.32	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,2-Dichloroethane	ND		0.66	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,2-Dichloropropane	ND		0.66	0.098	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,3-Dichlorobenzene	ND		0.66	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
1,4-Dichlorobenzene	ND		0.66	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
2-Butanone (MEK)	ND		2.6	0.41	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
2-Hexanone	ND		2.6	0.69	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
4-Methyl-2-pentanone (MIBK)	ND		2.6	0.63	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Acetone	ND		2.6	0.64	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Benzene	ND		0.66	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Dichlorobromomethane	ND		0.66	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Bromoform	ND		0.66	0.60	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Bromomethane	ND		0.66	0.44	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Carbon disulfide	ND		0.66	0.29	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Carbon tetrachloride	ND		0.66	0.27	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Chlorobenzene	ND		0.66	0.092	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Chloroethane	ND		0.66	0.40	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Chloroform	ND		0.66	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Chloromethane	ND		0.66	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
cis-1,2-Dichloroethene	ND		0.66	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
cis-1,3-Dichloropropene	ND		0.66	0.33	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Cyclohexane	ND		1.3	0.43	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Chlorodibromomethane	ND		0.66	0.31	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Dichlorodifluoromethane	ND		0.66	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Ethylbenzene	ND		0.66	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Isopropylbenzene	ND		0.66	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Methyl acetate	ND		3.3	0.44	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Methyl tert-butyl ether	ND		0.66	0.098	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Methylcyclohexane	ND		1.3	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Methylene Chloride	ND		1.3	1.0	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Styrene	ND		0.66	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Tetrachloroethene	ND		0.66	0.26	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Toluene	ND		0.66	0.63	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
trans-1,2-Dichloroethene	ND		0.66	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
trans-1,3-Dichloropropene	ND		0.66	0.28	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Trichloroethene	ND		0.66	0.38	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Trichlorofluoromethane	ND		0.66	0.36	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1
Vinyl chloride	ND		0.013	0.0045	mg/Kg	✱	02/23/23 12:10	02/27/23 22:23	1
Xylenes, Total	ND		1.3	0.24	mg/Kg	✱	02/23/23 19:57	02/26/23 21:13	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1184-PLASTIC PELLETS

Lab Sample ID: 240-180789-3

Date Collected: 02/22/23 09:15

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.8

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125	02/23/23 19:57	02/26/23 21:13	1
Toluene-d8 (Surr)	114		56 - 125	02/23/23 12:10	02/27/23 22:23	1
Dibromofluoromethane (Surr)	76		41 - 138	02/23/23 19:57	02/26/23 21:13	1
Dibromofluoromethane (Surr)	99		41 - 138	02/23/23 12:10	02/27/23 22:23	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/23/23 19:57	02/26/23 21:13	1
4-Bromofluorobenzene (Surr)	172	S1+ *3	41 - 143	02/23/23 12:10	02/27/23 22:23	1
1,2-Dichloroethane-d4 (Surr)	74		58 - 125	02/23/23 19:57	02/26/23 21:13	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125	02/23/23 12:10	02/27/23 22:23	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:22	02/28/23 15:42	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:22	02/28/23 15:42	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:22	02/28/23 15:42	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:22	02/28/23 15:42	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:22	02/28/23 15:42	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:22	02/28/23 15:42	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:22	02/28/23 15:42	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:22	02/28/23 15:42	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:22	02/28/23 15:42	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:22	02/28/23 15:42	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:22	02/28/23 15:42	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:22	02/28/23 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	92		46 - 137	02/28/23 07:22	02/28/23 15:42	1
Phenol-d5 (Surr)	56		26 - 120	02/28/23 07:22	02/28/23 15:42	1
Nitrobenzene-d5 (Surr)	71		24 - 120	02/28/23 07:22	02/28/23 15:42	1
2-Fluorophenol (Surr)	63		19 - 120	02/28/23 07:22	02/28/23 15:42	1
2-Fluorobiphenyl (Surr)	80		33 - 120	02/28/23 07:22	02/28/23 15:42	1
2,4,6-Tribromophenol (Surr)	63		10 - 120	02/28/23 07:22	02/28/23 15:42	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 11:07	1
Barium	0.016	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:07	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:07	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:07	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:07	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:07	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:07	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.8		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	0.2		0.1	0.1	%			02/23/23 10:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1319-PLASTIC PELLETS

Lab Sample ID: 240-180789-4

Date Collected: 02/22/23 09:50

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.69	0.21	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,1,2,2-Tetrachloroethane	ND		0.69	0.41	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.69	0.18	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,1,2-Trichloroethane	ND		0.69	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,1-Dichloroethane	ND		0.69	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,1-Dichloroethene	ND		0.69	0.22	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,2,4-Trichlorobenzene	ND		0.69	0.36	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,2-Dibromo-3-Chloropropane	ND	*	1.4	0.61	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Ethylene Dibromide	ND		0.69	0.22	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,2-Dichlorobenzene	ND		0.69	0.33	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,2-Dichloroethane	ND		0.69	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,2-Dichloropropane	ND		0.69	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,3-Dichlorobenzene	ND		0.69	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
1,4-Dichlorobenzene	ND		0.69	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
2-Butanone (MEK)	ND		2.7	0.43	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
2-Hexanone	ND		2.7	0.72	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
4-Methyl-2-pentanone (MIBK)	ND		2.7	0.65	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Acetone	ND		2.7	0.67	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Benzene	ND		0.69	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Dichlorobromomethane	ND		0.69	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Bromoform	ND		0.69	0.62	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Bromomethane	ND		0.69	0.45	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Carbon disulfide	ND		0.69	0.30	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Carbon tetrachloride	ND		0.69	0.28	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Chlorobenzene	ND		0.69	0.096	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Chloroethane	ND		0.69	0.41	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Chloroform	ND		0.69	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Chloromethane	ND		0.69	0.18	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
cis-1,2-Dichloroethene	ND		0.69	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
cis-1,3-Dichloropropene	ND		0.69	0.34	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Cyclohexane	ND		1.4	0.45	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Chlorodibromomethane	ND		0.69	0.32	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Dichlorodifluoromethane	ND		0.69	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Ethylbenzene	ND		0.69	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Isopropylbenzene	ND		0.69	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Methyl acetate	ND		3.4	0.46	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Methyl tert-butyl ether	ND		0.69	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Methylcyclohexane	ND		1.4	0.18	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Methylene Chloride	ND		1.4	1.0	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Styrene	ND		0.69	0.14	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Tetrachloroethene	ND		0.69	0.27	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Toluene	ND		0.69	0.66	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
trans-1,2-Dichloroethene	ND		0.69	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
trans-1,3-Dichloropropene	ND		0.69	0.29	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Trichloroethene	ND		0.69	0.39	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Trichlorofluoromethane	ND		0.69	0.38	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1
Vinyl chloride	ND		0.014	0.0049	mg/Kg	✱	02/23/23 12:10	02/27/23 23:11	1
Xylenes, Total	ND		1.4	0.25	mg/Kg	✱	02/23/23 19:57	02/26/23 21:34	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1319-PLASTIC PELLETS

Lab Sample ID: 240-180789-4

Date Collected: 02/22/23 09:50

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125	02/23/23 19:57	02/26/23 21:34	1
Toluene-d8 (Surr)	116		56 - 125	02/23/23 12:10	02/27/23 23:11	1
Dibromofluoromethane (Surr)	76		41 - 138	02/23/23 19:57	02/26/23 21:34	1
Dibromofluoromethane (Surr)	102		41 - 138	02/23/23 12:10	02/27/23 23:11	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/23/23 19:57	02/26/23 21:34	1
4-Bromofluorobenzene (Surr)	177	S1+ *3	41 - 143	02/23/23 12:10	02/27/23 23:11	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125	02/23/23 19:57	02/26/23 21:34	1
1,2-Dichloroethane-d4 (Surr)	86		58 - 125	02/23/23 12:10	02/27/23 23:11	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:22	02/28/23 16:05	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:22	02/28/23 16:05	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:22	02/28/23 16:05	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:22	02/28/23 16:05	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:22	02/28/23 16:05	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:22	02/28/23 16:05	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:22	02/28/23 16:05	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:22	02/28/23 16:05	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:22	02/28/23 16:05	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:22	02/28/23 16:05	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:22	02/28/23 16:05	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:22	02/28/23 16:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	92		46 - 137	02/28/23 07:22	02/28/23 16:05	1
Phenol-d5 (Surr)	55		26 - 120	02/28/23 07:22	02/28/23 16:05	1
Nitrobenzene-d5 (Surr)	69		24 - 120	02/28/23 07:22	02/28/23 16:05	1
2-Fluorophenol (Surr)	65		19 - 120	02/28/23 07:22	02/28/23 16:05	1
2-Fluorobiphenyl (Surr)	79		33 - 120	02/28/23 07:22	02/28/23 16:05	1
2,4,6-Tribromophenol (Surr)	63		10 - 120	02/28/23 07:22	02/28/23 16:05	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0061	J	0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 11:20	1
Barium	0.0097	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:20	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:20	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:20	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:20	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:20	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:20	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.9		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	0.1		0.1	0.1	%			02/23/23 10:54	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB280784-PLASTIC PELLETS

Lab Sample ID: 240-180789-5

Date Collected: 02/22/23 10:20

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.70	0.22	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,1,2,2-Tetrachloroethane	ND		0.70	0.42	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.70	0.19	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,1,2-Trichloroethane	ND		0.70	0.16	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,1-Dichloroethane	ND		0.70	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,1-Dichloroethene	ND		0.70	0.23	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,2,4-Trichlorobenzene	ND		0.70	0.37	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,2-Dibromo-3-Chloropropane	ND	*-	1.4	0.62	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Ethylene Dibromide	ND		0.70	0.22	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,2-Dichlorobenzene	ND		0.70	0.34	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,2-Dichloroethane	ND		0.70	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,2-Dichloropropane	ND		0.70	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,3-Dichlorobenzene	ND		0.70	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
1,4-Dichlorobenzene	ND		0.70	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
2-Butanone (MEK)	ND		2.8	0.44	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
2-Hexanone	ND		2.8	0.74	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
4-Methyl-2-pentanone (MIBK)	ND		2.8	0.67	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Acetone	ND		2.8	0.69	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Benzene	ND		0.70	0.12	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Dichlorobromomethane	ND		0.70	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Bromoform	ND		0.70	0.64	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Bromomethane	ND		0.70	0.47	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Carbon disulfide	ND		0.70	0.30	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Carbon tetrachloride	ND		0.70	0.29	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Chlorobenzene	ND		0.70	0.098	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Chloroethane	ND		0.70	0.42	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Chloroform	ND		0.70	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Chloromethane	ND		0.70	0.19	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
cis-1,2-Dichloroethene	ND		0.70	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
cis-1,3-Dichloropropene	ND		0.70	0.35	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Cyclohexane	ND		1.4	0.46	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Chlorodibromomethane	ND		0.70	0.33	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Dichlorodifluoromethane	ND		0.70	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Ethylbenzene	ND		0.70	0.13	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Isopropylbenzene	ND		0.70	0.11	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Methyl acetate	ND		3.5	0.47	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Methyl tert-butyl ether	ND		0.70	0.10	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Methylcyclohexane	ND		1.4	0.19	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Methylene Chloride	ND		1.4	1.1	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Styrene	ND		0.70	0.15	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Tetrachloroethene	ND		0.70	0.27	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Toluene	ND		0.70	0.67	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
trans-1,2-Dichloroethene	ND		0.70	0.17	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
trans-1,3-Dichloropropene	ND		0.70	0.30	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Trichloroethene	ND		0.70	0.40	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Trichlorofluoromethane	ND		0.70	0.39	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1
Vinyl chloride	ND		0.015	0.0052	mg/Kg	✱	02/23/23 12:10	02/27/23 23:59	1
Xylenes, Total	ND		1.4	0.26	mg/Kg	✱	02/23/23 19:57	02/26/23 21:56	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB280784-PLASTIC PELLETS

Lab Sample ID: 240-180789-5

Date Collected: 02/22/23 10:20

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125	02/23/23 19:57	02/26/23 21:56	1
Toluene-d8 (Surr)	113		56 - 125	02/23/23 12:10	02/27/23 23:59	1
Dibromofluoromethane (Surr)	76		41 - 138	02/23/23 19:57	02/26/23 21:56	1
Dibromofluoromethane (Surr)	99		41 - 138	02/23/23 12:10	02/27/23 23:59	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/23/23 19:57	02/26/23 21:56	1
4-Bromofluorobenzene (Surr)	168	S1+ *3	41 - 143	02/23/23 12:10	02/27/23 23:59	1
1,2-Dichloroethane-d4 (Surr)	77		58 - 125	02/23/23 19:57	02/26/23 21:56	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125	02/23/23 12:10	02/27/23 23:59	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:22	02/28/23 16:28	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:22	02/28/23 16:28	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:22	02/28/23 16:28	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:22	02/28/23 16:28	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:22	02/28/23 16:28	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:22	02/28/23 16:28	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:22	02/28/23 16:28	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:22	02/28/23 16:28	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:22	02/28/23 16:28	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:22	02/28/23 16:28	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:22	02/28/23 16:28	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:22	02/28/23 16:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		46 - 137	02/28/23 07:22	02/28/23 16:28	1
Phenol-d5 (Surr)	53		26 - 120	02/28/23 07:22	02/28/23 16:28	1
Nitrobenzene-d5 (Surr)	71		24 - 120	02/28/23 07:22	02/28/23 16:28	1
2-Fluorophenol (Surr)	63		19 - 120	02/28/23 07:22	02/28/23 16:28	1
2-Fluorobiphenyl (Surr)	82		33 - 120	02/28/23 07:22	02/28/23 16:28	1
2,4,6-Tribromophenol (Surr)	62		10 - 120	02/28/23 07:22	02/28/23 16:28	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0062	J	0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 11:25	1
Barium	0.035	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:25	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:25	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:25	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:25	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:25	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:25	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.9		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	0.1		0.1	0.1	%			02/23/23 10:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-COMP1-PLASTIC PELLETS

Lab Sample ID: 240-180789-6

Date Collected: 02/22/23 00:00

Matrix: Solid

Date Received: 02/23/23 08:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/24/23 14:12	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/24/23 14:12	1
2-Butanone (MEK)	0.19	J	0.25	0.0012	mg/L			02/24/23 14:12	1
Benzene	ND		0.025	0.00042	mg/L			02/24/23 14:12	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/24/23 14:12	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/24/23 14:12	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/24/23 14:12	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/24/23 14:12	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/24/23 14:12	1
Chloroform	ND		0.025	0.00047	mg/L			02/24/23 14:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		80 - 120		02/24/23 14:12	1
Dibromofluoromethane (Surr)	106		71 - 121		02/24/23 14:12	1
4-Bromofluorobenzene (Surr)	83		80 - 120		02/24/23 14:12	1
1,2-Dichloroethane-d4 (Surr)	102		76 - 120		02/24/23 14:12	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/24/23 12:11	02/27/23 14:33	1
Endrin	ND		0.00050	0.0000065	mg/L		02/24/23 12:11	02/27/23 14:33	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/24/23 12:11	02/27/23 14:33	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/24/23 12:11	02/27/23 14:33	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/24/23 12:11	02/27/23 14:33	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/24/23 12:11	02/27/23 14:33	1
Toxaphene	ND		0.020	0.000058	mg/L		02/24/23 12:11	02/27/23 14:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	85		10 - 145	02/24/23 12:11	02/27/23 14:33	1
DCB Decachlorobiphenyl	89		10 - 145	02/24/23 12:11	02/27/23 14:33	1
Tetrachloro-m-xylene	74		10 - 123	02/24/23 12:11	02/27/23 14:33	1
Tetrachloro-m-xylene	87		10 - 123	02/24/23 12:11	02/27/23 14:33	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/27/23 20:33	02/28/23 07:00	1
2,4-D	ND		0.050	0.016	mg/L		02/27/23 20:33	02/28/23 07:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136	02/27/23 20:33	02/28/23 07:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.9		0.1	0.1	%			02/23/23 10:54	1
Percent Moisture (EPA Moisture)	0.1		0.1	0.1	%			02/23/23 10:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-COMP1-PLASTIC PELLETS

Lab Sample ID: 240-180789-6

Date Collected: 02/22/23 00:00

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		450	220	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1221	ND		450	270	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1232	ND		450	190	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1242	ND		450	170	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1248	ND		450	150	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1254	ND		450	190	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1260	ND		450	190	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1262	ND		450	200	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1
Aroclor-1268	ND		450	140	ug/Kg	✳	02/24/23 09:04	02/24/23 15:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	106		10 - 149	02/24/23 09:04	02/24/23 15:45	1
DCB Decachlorobiphenyl	106		10 - 174	02/24/23 09:04	02/24/23 15:45	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.60	0.20	ng/g	✳	02/24/23 17:50	02/28/23 12:26	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g	✳	02/24/23 17:50	02/28/23 12:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C8 PFOA	103		26 - 159	02/24/23 17:50	02/28/23 12:26	1
¹³ C8 PFOS	98		41 - 154	02/24/23 17:50	02/28/23 12:26	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180789-1	WC-V279404-PLASTIC PELLETS	78	75	71	76
240-180789-1	WC-V279404-PLASTIC PELLETS	115	103	177 S1+ *3	89
240-180789-2	WC-VB1264-PLASTIC PELLETS	78	81	71	76
240-180789-2	WC-VB1264-PLASTIC PELLETS	125	104	182 S1+ *3	90
240-180789-3	WC-VB1184-PLASTIC PELLETS	78	76	70	74
240-180789-3	WC-VB1184-PLASTIC PELLETS	114	99	172 S1+ *3	84
240-180789-4	WC-VB1319-PLASTIC PELLETS	79	76	70	75
240-180789-4	WC-VB1319-PLASTIC PELLETS	116	102	177 S1+ *3	86
240-180789-5	WC-VB280784-PLASTIC PELLETS	79	76	70	77
240-180789-5	WC-VB280784-PLASTIC PELLETS	113	99	168 S1+ *3	84
LCS 240-563232/2-A	Lab Control Sample	82	84	72	72
LCS 240-563640/4	Lab Control Sample	99	95	108	85
MB 240-563232/1-A	Method Blank	77	78	70	74
MB 240-563434/2-A	Method Blank	98	98	111	85

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-563300/10	Lab Control Sample	103	105	95	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-180789-6	WC-COMP1-PLASTIC PELLETS	98	106	83	102
LB 240-563227/1-A MB	Method Blank	97	101	85	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Eurofins Canton

Surrogate Summary

Client: Norfolk Southern Corporation

Job ID: 240-180789-1

Project/Site: NS East Palestine

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-563667/8-A	Lab Control Sample	95	61	71	67	82	70
MB 240-563667/7-A	Method Blank	100	57	72	66	84	69

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)

PHL = Phenol-d5 (Surr)

NBZ = Nitrobenzene-d5 (Surr)

2FP = 2-Fluorophenol (Surr)

FBP = 2-Fluorobiphenyl (Surr)

TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180789-1	WC-V279404-PLASTIC PELLETS	92	57	71	65	82	62
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	93	62	74	68	80	61
240-180789-2	WC-VB1264-PLASTIC PELLETS	93	56	71	64	79	64
240-180789-3	WC-VB1184-PLASTIC PELLETS	92	56	71	63	80	63
240-180789-4	WC-VB1319-PLASTIC PELLETS	92	55	69	65	79	63
240-180789-5	WC-VB280784-PLASTIC PELLETS	93	53	71	63	82	62

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)

PHL = Phenol-d5 (Surr)

NBZ = Nitrobenzene-d5 (Surr)

2FP = 2-Fluorophenol (Surr)

FBP = 2-Fluorobiphenyl (Surr)

TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-563346/9-A	Lab Control Sample	85	86	60	72
MB 240-563346/8-A	Method Blank	85	87	70	85

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-180789-6	WC-COMP1-PLASTIC PELLETS	85	89	74	87

Surrogate Legend
 DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (10-149)	DCBP2 (10-174)
240-180789-6	WC-COMP1-PLASTIC PELLETS	106	106
LCS 240-563290/2-A	Lab Control Sample	111	121
MB 240-563290/1-A	Method Blank	113	146

Surrogate Legend
 TCX = Tetrachloro-m-xylene
 DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA2 (26-136)
LCS 410-348421/3-A	Lab Control Sample	70
MB 410-348421/1-A	Method Blank	66
MB 410-348421/2-A	Method Blank	68

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA2 (26-136)
240-180789-6	WC-COMP1-PLASTIC PELLETS	68
240-180789-6 MSD	WC-COMP1-PLASTIC PELLETS	71

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1 (26-136)
240-180789-6 MS	WC-COMP1-PLASTIC PELLETS	69

Surrogate Legend

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine
DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Job ID: 240-180789-1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-563232/1-A
Matrix: Solid
Analysis Batch: 563460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563232

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Acetone	ND		1.0	0.24	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Benzene	ND		0.25	0.042	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Bromoform	ND		0.25	0.23	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Chloroform	ND		0.25	0.054	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Styrene	ND		0.25	0.052	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Toluene	ND		0.25	0.24	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/23/23 19:57	02/26/23 19:48	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/23/23 19:57	02/26/23 19:48	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-563232/1-A
Matrix: Solid
Analysis Batch: 563460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563232

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	77		56 - 125	02/23/23 19:57	02/26/23 19:48	1
Dibromofluoromethane (Surr)	78		41 - 138	02/23/23 19:57	02/26/23 19:48	1
4-Bromofluorobenzene (Surr)	70		41 - 143	02/23/23 19:57	02/26/23 19:48	1
1,2-Dichloroethane-d4 (Surr)	74		58 - 125	02/23/23 19:57	02/26/23 19:48	1

Lab Sample ID: LCS 240-563232/2-A
Matrix: Solid
Analysis Batch: 563460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563232

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	1.25	1.19		mg/Kg		95	74 - 136
1,1,1,2-Tetrachloroethane	1.25	0.948		mg/Kg		76	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.38		mg/Kg		110	64 - 148
1,1,2-Trichloroethane	1.25	1.08		mg/Kg		86	79 - 120
1,1-Dichloroethane	1.25	1.04		mg/Kg		83	74 - 121
1,1-Dichloroethene	1.25	1.19		mg/Kg		95	68 - 141
1,2,4-Trichlorobenzene	1.25	1.09		mg/Kg		87	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.641	*-	mg/Kg		51	52 - 133
Ethylene Dibromide	1.25	1.06		mg/Kg		85	80 - 121
1,2-Dichlorobenzene	1.25	1.11		mg/Kg		88	73 - 120
1,2-Dichloroethane	1.25	1.01		mg/Kg		81	71 - 123
1,2-Dichloropropane	1.25	0.988		mg/Kg		79	76 - 126
1,3-Dichlorobenzene	1.25	1.12		mg/Kg		89	73 - 120
1,4-Dichlorobenzene	1.25	1.08		mg/Kg		87	74 - 120
2-Butanone (MEK)	2.50	2.08		mg/Kg		83	63 - 142
2-Hexanone	2.50	1.72		mg/Kg		69	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	1.70		mg/Kg		68	62 - 142
Acetone	2.50	2.38		mg/Kg		95	58 - 160
Benzene	1.25	1.16		mg/Kg		93	76 - 121
Dichlorobromomethane	1.25	1.03		mg/Kg		82	71 - 138
Bromoform	1.25	0.910		mg/Kg		73	57 - 140
Bromomethane	1.25	0.757		mg/Kg		61	10 - 171
Carbon disulfide	1.25	0.985		mg/Kg		79	43 - 152
Carbon tetrachloride	1.25	1.18		mg/Kg		94	64 - 144
Chlorobenzene	1.25	1.10		mg/Kg		88	80 - 120
Chloroethane	1.25	1.06		mg/Kg		84	11 - 164
Chloroform	1.25	1.14		mg/Kg		91	78 - 120
Chloromethane	1.25	0.882		mg/Kg		71	41 - 142
cis-1,2-Dichloroethene	1.25	1.18		mg/Kg		94	78 - 124
cis-1,3-Dichloropropene	1.25	0.941		mg/Kg		75	70 - 133
Cyclohexane	1.25	1.06		mg/Kg		85	65 - 137
Chlorodibromomethane	1.25	0.913		mg/Kg		73	68 - 131
Dichlorodifluoromethane	1.25	0.953		mg/Kg		76	21 - 150
Ethylbenzene	1.25	1.14		mg/Kg		92	80 - 120
Isopropylbenzene	1.25	1.22		mg/Kg		98	80 - 130
Methyl acetate	2.50	1.92		mg/Kg		77	60 - 133
Methyl tert-butyl ether	1.25	0.976		mg/Kg		78	70 - 130
Methylcyclohexane	1.25	1.24		mg/Kg		99	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-563232/2-A
Matrix: Solid
Analysis Batch: 563460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563232

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	1.25	0.936		mg/Kg		75	71 - 124
Styrene	1.25	1.21		mg/Kg		97	75 - 140
Tetrachloroethene	1.25	1.21		mg/Kg		97	76 - 127
Toluene	1.25	1.12		mg/Kg		90	80 - 120
trans-1,2-Dichloroethene	1.25	1.20		mg/Kg		96	76 - 130
trans-1,3-Dichloropropene	1.25	0.834		mg/Kg		67	61 - 121
Trichloroethene	1.25	1.23		mg/Kg		99	74 - 130
Trichlorofluoromethane	1.25	1.20		mg/Kg		96	50 - 154
Vinyl chloride	1.25	1.13		mg/Kg		91	49 - 146
Xylenes, Total	2.50	2.41		mg/Kg		96	80 - 122
m-Xylene & p-Xylene	1.25	1.18		mg/Kg		95	80 - 122
o-Xylene	1.25	1.23		mg/Kg		98	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	82		56 - 125
Dibromofluoromethane (Surr)	84		41 - 138
4-Bromofluorobenzene (Surr)	72		41 - 143
1,2-Dichloroethane-d4 (Surr)	72		58 - 125

Lab Sample ID: LCS 240-563300/10
Matrix: Solid
Analysis Batch: 563300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	1.27		mg/L		127	74 - 127
1,2-Dichloroethane	1.00	1.08		mg/L		108	72 - 120
2-Butanone (MEK)	2.00	2.23		mg/L		111	68 - 130
Benzene	1.00	1.15		mg/L		115	80 - 121
Carbon tetrachloride	1.00	1.06		mg/L		106	69 - 120
Chlorobenzene	1.00	1.12		mg/L		112	80 - 120
Chloroform	1.00	1.16		mg/L		116	75 - 120
Tetrachloroethene	1.00	1.15		mg/L		115	74 - 120
Trichloroethene	1.00	1.05		mg/L		105	75 - 120
Vinyl chloride	1.00	1.00		mg/L		100	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	105		71 - 121
4-Bromofluorobenzene (Surr)	95		80 - 120
1,2-Dichloroethane-d4 (Surr)	98		76 - 120

Lab Sample ID: MB 240-563434/2-A
Matrix: Solid
Analysis Batch: 563640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563434

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		02/25/23 14:15	02/27/23 19:58	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-563434/2-A
Matrix: Solid
Analysis Batch: 563640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563434

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	98		56 - 125	02/25/23 14:15	02/27/23 19:58	1
Dibromofluoromethane (Surr)	98		41 - 138	02/25/23 14:15	02/27/23 19:58	1
4-Bromofluorobenzene (Surr)	111		41 - 143	02/25/23 14:15	02/27/23 19:58	1
1,2-Dichloroethane-d4 (Surr)	85		58 - 125	02/25/23 14:15	02/27/23 19:58	1

Lab Sample ID: LCS 240-563640/4
Matrix: Solid
Analysis Batch: 563640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Vinyl chloride	0.0250	0.0255		mg/Kg		102	49 - 146

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	99		56 - 125
Dibromofluoromethane (Surr)	95		41 - 138
4-Bromofluorobenzene (Surr)	108		41 - 143
1,2-Dichloroethane-d4 (Surr)	85		58 - 125

Lab Sample ID: LB 240-563227/1-A MB
Matrix: Solid
Analysis Batch: 563300

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/24/23 13:25	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/24/23 13:25	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			02/24/23 13:25	1
Benzene	ND		0.025	0.00042	mg/L			02/24/23 13:25	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/24/23 13:25	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/24/23 13:25	1
Chloroform	ND		0.025	0.00047	mg/L			02/24/23 13:25	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/24/23 13:25	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/24/23 13:25	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/24/23 13:25	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	97		80 - 120		02/24/23 13:25	1
Dibromofluoromethane (Surr)	101		71 - 121		02/24/23 13:25	1
4-Bromofluorobenzene (Surr)	85		80 - 120		02/24/23 13:25	1
1,2-Dichloroethane-d4 (Surr)	100		76 - 120		02/24/23 13:25	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-563667/7-A
Matrix: Solid
Analysis Batch: 563705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563667

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:22	02/28/23 12:56	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563667/7-A
Matrix: Solid
Analysis Batch: 563705

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563667

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:22	02/28/23 12:56	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:22	02/28/23 12:56	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:22	02/28/23 12:56	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:22	02/28/23 12:56	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:22	02/28/23 12:56	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:22	02/28/23 12:56	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:22	02/28/23 12:56	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:22	02/28/23 12:56	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:22	02/28/23 12:56	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:22	02/28/23 12:56	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:22	02/28/23 12:56	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	100		46 - 137	02/28/23 07:22	02/28/23 12:56	1
Phenol-d5 (Surr)	57		26 - 120	02/28/23 07:22	02/28/23 12:56	1
Nitrobenzene-d5 (Surr)	72		24 - 120	02/28/23 07:22	02/28/23 12:56	1
2-Fluorophenol (Surr)	66		19 - 120	02/28/23 07:22	02/28/23 12:56	1
2-Fluorobiphenyl (Surr)	84		33 - 120	02/28/23 07:22	02/28/23 12:56	1
2,4,6-Tribromophenol (Surr)	69		10 - 120	02/28/23 07:22	02/28/23 12:56	1

Lab Sample ID: LCS 240-563667/8-A
Matrix: Solid
Analysis Batch: 563705

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563667

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4,5-Trichlorophenol	0.0800	0.0592		mg/L		74	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0592		mg/L		74	51 - 120
2,4-Dinitrotoluene	0.0800	0.0628		mg/L		79	58 - 125
Hexachlorobenzene	0.0800	0.0632		mg/L		79	55 - 120
Hexachlorobutadiene	0.0800	0.0536		mg/L		67	41 - 120
Hexachloroethane	0.0800	0.0550		mg/L		69	39 - 120
2-Methylphenol	0.0800	0.0689		mg/L		86	45 - 120
3 & 4 Methylphenol	0.0800	0.0602		mg/L		75	40 - 120
Nitrobenzene	0.0800	0.0596		mg/L		74	47 - 120
Pentachlorophenol	0.160	0.0946		mg/L		59	19 - 132
Pyridine	0.160	0.0545		mg/L		34	10 - 120

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	95		46 - 137
Phenol-d5 (Surr)	61		26 - 120
Nitrobenzene-d5 (Surr)	71		24 - 120
2-Fluorophenol (Surr)	67		19 - 120
2-Fluorobiphenyl (Surr)	82		33 - 120
2,4,6-Tribromophenol (Surr)	70		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-180789-1 MS
Matrix: Solid
Analysis Batch: 563705

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 563667

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
1,4-Dichlorobenzene	ND		0.0800	0.0543		mg/L		68	37 - 120
2,4,5-Trichlorophenol	ND		0.0800	0.0590		mg/L		74	25 - 128
2,4,6-Trichlorophenol	ND		0.0800	0.0563		mg/L		70	23 - 122
2,4-Dinitrotoluene	ND		0.0800	0.0606		mg/L		76	27 - 127
Hexachlorobenzene	ND		0.0800	0.0617		mg/L		77	18 - 123
Hexachlorobutadiene	ND		0.0800	0.0530		mg/L		66	10 - 120
Hexachloroethane	ND		0.0800	0.0509		mg/L		64	10 - 120
2-Methylphenol	ND		0.0800	0.0692		mg/L		87	22 - 120
3 & 4 Methylphenol	ND		0.0800	0.0574		mg/L		72	16 - 123
Nitrobenzene	ND		0.0800	0.0610		mg/L		76	26 - 120
Pentachlorophenol	ND		0.160	0.0751		mg/L		47	10 - 132
Pyridine	ND		0.160	0.0713		mg/L		45	10 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	93		46 - 137
Phenol-d5 (Surr)	62		26 - 120
Nitrobenzene-d5 (Surr)	74		24 - 120
2-Fluorophenol (Surr)	68		19 - 120
2-Fluorobiphenyl (Surr)	80		33 - 120
2,4,6-Tribromophenol (Surr)	61		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-563346/8-A
Matrix: Solid
Analysis Batch: 563575

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563346

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/24/23 12:11	02/27/23 14:01	1
Endrin	ND		0.00050	0.0000065	mg/L		02/24/23 12:11	02/27/23 14:01	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/24/23 12:11	02/27/23 14:01	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/24/23 12:11	02/27/23 14:01	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/24/23 12:11	02/27/23 14:01	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/24/23 12:11	02/27/23 14:01	1
Toxaphene	ND		0.020	0.0000058	mg/L		02/24/23 12:11	02/27/23 14:01	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	85		10 - 145	02/24/23 12:11	02/27/23 14:01	1
DCB Decachlorobiphenyl	87		10 - 145	02/24/23 12:11	02/27/23 14:01	1
Tetrachloro-m-xylene	70		10 - 123	02/24/23 12:11	02/27/23 14:01	1
Tetrachloro-m-xylene	85		10 - 123	02/24/23 12:11	02/27/23 14:01	1

Lab Sample ID: LCS 240-563346/9-A
Matrix: Solid
Analysis Batch: 563575

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563346

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				
Endrin	0.00100	0.000900		mg/L		90	36 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 240-563346/9-A
Matrix: Solid
Analysis Batch: 563575

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563346

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Heptachlor	0.00100	0.000759		mg/L		76	29 - 120
Heptachlor epoxide	0.00100	0.000828		mg/L		83	36 - 120
gamma-BHC (Lindane)	0.00100	0.000771		mg/L		77	23 - 120
Methoxychlor	0.00100	0.00111		mg/L		111	23 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	85		10 - 145
DCB Decachlorobiphenyl	86		10 - 145
Tetrachloro-m-xylene	60		10 - 123
Tetrachloro-m-xylene	72		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-563290/1-A
Matrix: Solid
Analysis Batch: 563246

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563290

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		50	25	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1221	ND		50	30	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1232	ND		50	21	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1242	ND		50	19	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1248	ND		50	17	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1254	ND		50	21	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1260	ND		50	21	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1262	ND		50	22	ug/Kg		02/24/23 09:04	02/24/23 17:11	1
Aroclor-1268	ND		50	16	ug/Kg		02/24/23 09:04	02/24/23 17:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	113		10 - 149	02/24/23 09:04	02/24/23 17:11	1
DCB Decachlorobiphenyl	146		10 - 174	02/24/23 09:04	02/24/23 17:11	1

Lab Sample ID: LCS 240-563290/2-A
Matrix: Solid
Analysis Batch: 563246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563290

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	928		ug/Kg		93	28 - 140
Aroclor-1260	1000	1010		ug/Kg		101	39 - 153

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	111		10 - 149
DCB Decachlorobiphenyl	121		10 - 174

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-348421/1-A
Matrix: Solid
Analysis Batch: 348438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 348421

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/27/23 20:33	02/28/23 04:40	1
2,4-D	ND		0.050	0.016	mg/L		02/27/23 20:33	02/28/23 04:40	1
		MB	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
2,4-Dichlorophenylacetic acid (Surr)	66		26 - 136			02/27/23 20:33	02/28/23 04:40	1	

Lab Sample ID: MB 410-348421/2-A
Matrix: Solid
Analysis Batch: 348438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 348421

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		02/27/23 20:33	02/28/23 05:08	1
2,4-D	ND		0.050	0.016	mg/L		02/27/23 20:33	02/28/23 05:08	1
		MB	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136			02/27/23 20:33	02/28/23 05:08	1	

Lab Sample ID: LCS 410-348421/3-A
Matrix: Solid
Analysis Batch: 348438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 348421

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Silvex (2,4,5-TP)	0.00500	0.00412	J	mg/L		82	58 - 148	
2,4-D	0.0502	0.0401	J	mg/L		80	42 - 147	
		LCS	LCS			%Rec		
Surrogate	%Recovery	Qualifier	Limits			%Rec		
2,4-Dichlorophenylacetic acid (Surr)	70		26 - 136					

Lab Sample ID: 240-180789-6 MS
Matrix: Solid
Analysis Batch: 348438

Client Sample ID: WC-COMP1-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 348421

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
	Result	Qualifier								
Silvex (2,4,5-TP)	ND		0.00500	0.00393	J	mg/L		79	58 - 148	
2,4-D	ND		0.0502	0.0403	J	mg/L		80	42 - 147	
		MS	MS			%Rec		%Rec		
Surrogate	%Recovery	Qualifier	Limits			%Rec		%Rec		
2,4-Dichlorophenylacetic acid (Surr)	69		26 - 136							

Lab Sample ID: 240-180789-6 MSD
Matrix: Solid
Analysis Batch: 348438

Client Sample ID: WC-COMP1-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 348421

Analyte	Sample	Sample	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD Limit	
	Result	Qualifier									RPD	Limit
Silvex (2,4,5-TP)	ND		0.00500	0.00416	J	mg/L		83	58 - 148	6	30	
2,4-D	ND		0.0502	0.0407	J	mg/L		81	42 - 147	1	30	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 8151A - Herbicides (GC) (Continued)

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4-Dichlorophenylacetic acid (Surr)	71		26 - 136

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-347893/1-B
Matrix: Solid
Analysis Batch: 348677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 347893

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		02/24/23 17:50	02/28/23 11:53	1
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		02/24/23 17:50	02/28/23 11:53	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 PFOA	98		26 - 159				02/24/23 17:50	02/28/23 11:53	1
13C8 PFOS	95		41 - 154				02/24/23 17:50	02/28/23 11:53	1

Lab Sample ID: LCS 410-347893/2-B
Matrix: Solid
Analysis Batch: 348677

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 347893

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanoic acid	25.0	21.7		ng/g		87	59 - 131
Perfluorooctanesulfonic acid	23.1	21.9		ng/g		95	61 - 126
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
13C8 PFOA	89		26 - 159				
13C8 PFOS	88		41 - 154				

Lab Sample ID: LCSD 410-347893/3-B
Matrix: Solid
Analysis Batch: 348677

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 347893

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanoic acid	25.0	21.5		ng/g		86	59 - 131	1	30
Perfluorooctanesulfonic acid	23.1	21.3		ng/g		92	61 - 126	3	30
Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits						
13C8 PFOA	91		26 - 159						
13C8 PFOS	91		41 - 154						

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-563342/2-A
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563342

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 10:33	1
Barium	ND		0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 10:33	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 10:33	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 10:33	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 10:33	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 240-563342/2-A
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563342

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 10:33	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 10:33	1

Lab Sample ID: LCS 240-563342/3-A
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563342

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.04		mg/L		102	50 - 150
Barium	2.00	1.88		mg/L		94	50 - 150
Cadmium	1.00	0.960		mg/L		96	50 - 150
Chromium	1.00	0.964		mg/L		96	50 - 150
Lead	1.00	0.914		mg/L		91	50 - 150
Selenium	2.00	2.07		mg/L		104	50 - 150
Silver	0.100	0.101		mg/L		101	50 - 150

Lab Sample ID: LB 240-563225/1-B
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563342

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/24/23 14:00	02/27/23 10:17	1
Barium	0.00300	J	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 10:17	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 10:17	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 10:17	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 10:17	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 10:17	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 10:17	1

Lab Sample ID: 240-180789-1 MS
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 563342

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0085	J	5.00	4.90		mg/L		98	75 - 125
Barium	0.16	J B	50.0	47.4		mg/L		94	75 - 125
Cadmium	ND		1.00	0.962		mg/L		96	75 - 125
Chromium	ND		5.00	4.83		mg/L		97	75 - 125
Lead	ND		5.00	4.71		mg/L		94	75 - 125
Selenium	0.010	J	1.00	1.02		mg/L		100	75 - 125
Silver	ND		1.00	0.952		mg/L		95	75 - 125

Lab Sample ID: 240-180789-1 MSD
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 563342

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0085	J	5.00	4.88		mg/L		97	75 - 125	0	20
Barium	0.16	J B	50.0	47.2		mg/L		94	75 - 125	0	20
Cadmium	ND		1.00	0.957		mg/L		96	75 - 125	1	20

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-180789-1 MSD
Matrix: Solid
Analysis Batch: 563567

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 563342

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits	Limit	
Chromium	ND		5.00	4.85		mg/L		97	75 - 125	1	20
Lead	ND		5.00	4.68		mg/L		94	75 - 125	1	20
Selenium	0.010	J	1.00	0.974		mg/L		96	75 - 125	4	20
Silver	ND		1.00	0.883		mg/L		88	75 - 125	7	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-563343/2-A
Matrix: Solid
Analysis Batch: 563612

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563343

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analized	Dil Fac
	Result	Qualifier		Result	mg/L			02/27/23 17:38	1
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:38	1

Lab Sample ID: LCS 240-563343/3-A
Matrix: Solid
Analysis Batch: 563612

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563343

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Mercury	0.00500	0.00530		mg/L		106	80 - 120

Lab Sample ID: LB 240-563225/1-C
Matrix: Solid
Analysis Batch: 563612

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563343

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analized	Dil Fac
	Result	Qualifier		Result	mg/L			02/27/23 17:32	1
Mercury	ND		0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:32	1

Lab Sample ID: 240-180789-1 MS
Matrix: Solid
Analysis Batch: 563612

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 563343

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				Limits
Mercury	ND		0.00500	0.00542		mg/L		108	80 - 120

Lab Sample ID: 240-180789-1 MSD
Matrix: Solid
Analysis Batch: 563612

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 563343

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier				Limits	Limit	
Mercury	ND		0.00500	0.00540		mg/L		108	80 - 120	0	20

Method: Moisture - Percent Moisture

Lab Sample ID: 240-180789-1 DU
Matrix: Solid
Analysis Batch: 563185

Client Sample ID: WC-V279404-PLASTIC PELLETS
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier		Result				Qualifier
Percent Solids	99.7		99.7		%		0	20
Percent Moisture	0.3		0.3		%		15	20

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

GC/MS VOA

Composite Batch: 563207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	Composite	

Leach Batch: 563227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	1311	563207
LB 240-563227/1-A MB	Method Blank	TCLP	Solid	1311	

Prep Batch: 563232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-2	WC-VB1264-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-3	WC-VB1184-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-4	WC-VB1319-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-5	WC-VB280784-PLASTIC PELLETS	Total/NA	Solid	5035	
MB 240-563232/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-563232/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 563300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8260D	563227
LB 240-563227/1-A MB	Method Blank	TCLP	Solid	8260D	563227
LCS 240-563300/10	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 563434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-2	WC-VB1264-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-3	WC-VB1184-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-4	WC-VB1319-PLASTIC PELLETS	Total/NA	Solid	5035	
240-180789-5	WC-VB280784-PLASTIC PELLETS	Total/NA	Solid	5035	
MB 240-563434/2-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 563460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	Total/NA	Solid	8260D	563232
240-180789-2	WC-VB1264-PLASTIC PELLETS	Total/NA	Solid	8260D	563232
240-180789-3	WC-VB1184-PLASTIC PELLETS	Total/NA	Solid	8260D	563232
240-180789-4	WC-VB1319-PLASTIC PELLETS	Total/NA	Solid	8260D	563232
240-180789-5	WC-VB280784-PLASTIC PELLETS	Total/NA	Solid	8260D	563232
MB 240-563232/1-A	Method Blank	Total/NA	Solid	8260D	563232
LCS 240-563232/2-A	Lab Control Sample	Total/NA	Solid	8260D	563232

Analysis Batch: 563640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	Total/NA	Solid	8260D	563434
240-180789-2	WC-VB1264-PLASTIC PELLETS	Total/NA	Solid	8260D	563434
240-180789-3	WC-VB1184-PLASTIC PELLETS	Total/NA	Solid	8260D	563434
240-180789-4	WC-VB1319-PLASTIC PELLETS	Total/NA	Solid	8260D	563434
240-180789-5	WC-VB280784-PLASTIC PELLETS	Total/NA	Solid	8260D	563434
MB 240-563434/2-A	Method Blank	Total/NA	Solid	8260D	563434
LCS 240-563640/4	Lab Control Sample	Total/NA	Solid	8260D	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

GC/MS Semi VOA

Leach Batch: 563430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	1311	

Prep Batch: 563667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	3510C	563430
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	3510C	563430
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	3510C	563430
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	3510C	563430
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	3510C	563430
MB 240-563667/7-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-563667/8-A	Lab Control Sample	Total/NA	Solid	3510C	
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	3510C	563430

Analysis Batch: 563705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	8270E	563667
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	8270E	563667
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	8270E	563667
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	8270E	563667
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	8270E	563667
MB 240-563667/7-A	Method Blank	Total/NA	Solid	8270E	563667
LCS 240-563667/8-A	Lab Control Sample	Total/NA	Solid	8270E	563667
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	8270E	563667

GC Semi VOA

Leach Batch: 348181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-6 MS	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-6 MSD	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	1311	

Prep Batch: 348421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8151A	348181
MB 410-348421/1-A	Method Blank	Total/NA	Solid	8151A	
MB 410-348421/2-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-348421/3-A	Lab Control Sample	Total/NA	Solid	8151A	
240-180789-6 MS	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8151A	348181
240-180789-6 MSD	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8151A	348181

Analysis Batch: 348438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8151A	348421
MB 410-348421/1-A	Method Blank	Total/NA	Solid	8151A	348421
MB 410-348421/2-A	Method Blank	Total/NA	Solid	8151A	348421

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

GC Semi VOA (Continued)

Analysis Batch: 348438 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-348421/3-A	Lab Control Sample	Total/NA	Solid	8151A	348421
240-180789-6 MS	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8151A	348421
240-180789-6 MSD	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8151A	348421

Composite Batch: 563207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	Composite	

Composite Batch: 563208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	Composite	

Leach Batch: 563222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	1311	563207

Analysis Batch: 563246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	8082A	563290
MB 240-563290/1-A	Method Blank	Total/NA	Solid	8082A	563290
LCS 240-563290/2-A	Lab Control Sample	Total/NA	Solid	8082A	563290

Prep Batch: 563290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	3546	563208
MB 240-563290/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-563290/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 563346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	3510C	563222
MB 240-563346/8-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-563346/9-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 563575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	TCLP	Solid	8081B	563346
MB 240-563346/8-A	Method Blank	Total/NA	Solid	8081B	563346
LCS 240-563346/9-A	Lab Control Sample	Total/NA	Solid	8081B	563346

LCMS

Prep Batch: 347893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	537 (mod)	
MB 410-347893/1-B	Method Blank	Total/NA	Solid	537 (mod)	
LCS 410-347893/2-B	Lab Control Sample	Total/NA	Solid	537 (mod)	
LCSD 410-347893/3-B	Lab Control Sample Dup	Total/NA	Solid	537 (mod)	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

LCMS

Cleanup Batch: 347898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	Extract Aliquot	347898
MB 410-347893/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	347898
LCS 410-347893/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	347898
LCSD 410-347893/3-B	Lab Control Sample Dup	Total/NA	Solid	Extract Aliquot	347898

Analysis Batch: 348677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	537 IDA	347898
MB 410-347893/1-B	Method Blank	Total/NA	Solid	537 IDA	347898
LCS 410-347893/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	347898
LCSD 410-347893/3-B	Lab Control Sample Dup	Total/NA	Solid	537 IDA	347898

Metals

Leach Batch: 563225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	1311	
LB 240-563225/1-B	Method Blank	TCLP	Solid	1311	
LB 240-563225/1-C	Method Blank	TCLP	Solid	1311	
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	1311	
240-180789-1 MSD	WC-V279404-PLASTIC PELLETS	TCLP	Solid	1311	

Prep Batch: 563342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	3010A	563225
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	3010A	563225
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	3010A	563225
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	3010A	563225
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	3010A	563225
LB 240-563225/1-B	Method Blank	TCLP	Solid	3010A	563225
MB 240-563342/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-563342/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	3010A	563225
240-180789-1 MSD	WC-V279404-PLASTIC PELLETS	TCLP	Solid	3010A	563225

Prep Batch: 563343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	7470A	563225
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	7470A	563225
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	7470A	563225
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	7470A	563225
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	7470A	563225
LB 240-563225/1-C	Method Blank	TCLP	Solid	7470A	563225
MB 240-563343/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-563343/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	7470A	563225
240-180789-1 MSD	WC-V279404-PLASTIC PELLETS	TCLP	Solid	7470A	563225

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Metals

Analysis Batch: 563567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	6010D	563342
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	6010D	563342
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	6010D	563342
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	6010D	563342
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	6010D	563342
LB 240-563225/1-B	Method Blank	TCLP	Solid	6010D	563342
MB 240-563342/2-A	Method Blank	Total/NA	Solid	6010D	563342
LCS 240-563342/3-A	Lab Control Sample	Total/NA	Solid	6010D	563342
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	6010D	563342
240-180789-1 MSD	WC-V279404-PLASTIC PELLETS	TCLP	Solid	6010D	563342

Analysis Batch: 563612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	TCLP	Solid	7470A	563343
240-180789-2	WC-VB1264-PLASTIC PELLETS	TCLP	Solid	7470A	563343
240-180789-3	WC-VB1184-PLASTIC PELLETS	TCLP	Solid	7470A	563343
240-180789-4	WC-VB1319-PLASTIC PELLETS	TCLP	Solid	7470A	563343
240-180789-5	WC-VB280784-PLASTIC PELLETS	TCLP	Solid	7470A	563343
LB 240-563225/1-C	Method Blank	TCLP	Solid	7470A	563343
MB 240-563343/2-A	Method Blank	Total/NA	Solid	7470A	563343
LCS 240-563343/3-A	Lab Control Sample	Total/NA	Solid	7470A	563343
240-180789-1 MS	WC-V279404-PLASTIC PELLETS	TCLP	Solid	7470A	563343
240-180789-1 MSD	WC-V279404-PLASTIC PELLETS	TCLP	Solid	7470A	563343

General Chemistry

Analysis Batch: 563185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-1	WC-V279404-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-180789-2	WC-VB1264-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-180789-3	WC-VB1184-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-180789-4	WC-VB1319-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-180789-5	WC-VB280784-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	Moisture	563208
240-180789-1 DU	WC-V279404-PLASTIC PELLETS	Total/NA	Solid	Moisture	

Composite Batch: 563208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180789-6	WC-COMP1-PLASTIC PELLETS	Total/NA	Solid	Composite	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-V279404-PLASTIC PELLETS

Lab Sample ID: 240-180789-1

Date Collected: 02/22/23 08:35

Matrix: Solid

Date Received: 02/23/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563430	DRJ	EET CAN	02/25/23 15:15 - 02/26/23 07:55 ¹
TCLP	Prep	3510C			563667	SDE	EET CAN	02/28/23 07:22
TCLP	Analysis	8270E		1	563705	MRU	EET CAN	02/28/23 16:51
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 10:42
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 17:43
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-V279404-PLASTIC PELLETS

Lab Sample ID: 240-180789-1

Date Collected: 02/22/23 08:35

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563434	LAM	EET CAN	02/23/23 14:15
Total/NA	Analysis	8260D		1	563640	CS	EET CAN	02/27/23 20:46
Total/NA	Prep	5035			563232	LAM	EET CAN	02/23/23 19:57
Total/NA	Analysis	8260D		1	563460	CS	EET CAN	02/26/23 20:31

Client Sample ID: WC-VB1264-PLASTIC PELLETS

Lab Sample ID: 240-180789-2

Date Collected: 02/22/23 09:00

Matrix: Solid

Date Received: 02/23/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563430	DRJ	EET CAN	02/25/23 15:15 - 02/26/23 07:55 ¹
TCLP	Prep	3510C			563667	SDE	EET CAN	02/28/23 07:22
TCLP	Analysis	8270E		1	563705	MRU	EET CAN	02/28/23 15:20
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:03
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 17:50
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-VB1264-PLASTIC PELLETS

Lab Sample ID: 240-180789-2

Date Collected: 02/22/23 09:00

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563434	LAM	EET CAN	02/23/23 12:10
Total/NA	Analysis	8260D		1	563640	CS	EET CAN	02/27/23 21:34
Total/NA	Prep	5035			563232	LAM	EET CAN	02/23/23 19:57
Total/NA	Analysis	8260D		1	563460	CS	EET CAN	02/26/23 20:52

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB1184-PLASTIC PELLETS

Lab Sample ID: 240-180789-3

Date Collected: 02/22/23 09:15

Matrix: Solid

Date Received: 02/23/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563430	DRJ	EET CAN	02/25/23 15:15 - 02/26/23 07:55 ¹
TCLP	Prep	3510C			563667	SDE	EET CAN	02/28/23 07:22
TCLP	Analysis	8270E		1	563705	MRU	EET CAN	02/28/23 15:42
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:07
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 17:52
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-VB1184-PLASTIC PELLETS

Lab Sample ID: 240-180789-3

Date Collected: 02/22/23 09:15

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563434	LAM	EET CAN	02/23/23 12:10
Total/NA	Analysis	8260D		1	563640	CS	EET CAN	02/27/23 22:23
Total/NA	Prep	5035			563232	LAM	EET CAN	02/23/23 19:57
Total/NA	Analysis	8260D		1	563460	CS	EET CAN	02/26/23 21:13

Client Sample ID: WC-VB1319-PLASTIC PELLETS

Lab Sample ID: 240-180789-4

Date Collected: 02/22/23 09:50

Matrix: Solid

Date Received: 02/23/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563430	DRJ	EET CAN	02/25/23 15:15 - 02/26/23 07:55 ¹
TCLP	Prep	3510C			563667	SDE	EET CAN	02/28/23 07:22
TCLP	Analysis	8270E		1	563705	MRU	EET CAN	02/28/23 16:05
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:20
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 17:54
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-VB1319-PLASTIC PELLETS

Lab Sample ID: 240-180789-4

Date Collected: 02/22/23 09:50

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563434	LAM	EET CAN	02/23/23 12:10
Total/NA	Analysis	8260D		1	563640	CS	EET CAN	02/27/23 23:11
Total/NA	Prep	5035			563232	LAM	EET CAN	02/23/23 19:57
Total/NA	Analysis	8260D		1	563460	CS	EET CAN	02/26/23 21:34

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-VB280784-PLASTIC PELLETS

Lab Sample ID: 240-180789-5

Date Collected: 02/22/23 10:20

Matrix: Solid

Date Received: 02/23/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563430	DRJ	EET CAN	02/25/23 15:15 - 02/26/23 07:55 ¹
TCLP	Prep	3510C			563667	SDE	EET CAN	02/28/23 07:22
TCLP	Analysis	8270E		1	563705	MRU	EET CAN	02/28/23 16:28
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:25
TCLP	Leach	1311			563225	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 17:56
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54

Client Sample ID: WC-VB280784-PLASTIC PELLETS

Lab Sample ID: 240-180789-5

Date Collected: 02/22/23 10:20

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563434	LAM	EET CAN	02/23/23 12:10
Total/NA	Analysis	8260D		1	563640	CS	EET CAN	02/27/23 23:59
Total/NA	Prep	5035			563232	LAM	EET CAN	02/23/23 19:57
Total/NA	Analysis	8260D		1	563460	CS	EET CAN	02/26/23 21:56

Client Sample ID: WC-COMP1-PLASTIC PELLETS

Lab Sample ID: 240-180789-6

Date Collected: 02/22/23 00:00

Matrix: Solid

Date Received: 02/23/23 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			563207	DRJ	EET CAN	02/23/23 13:00
TCLP	Leach	1311			563227	DRJ	EET CAN	02/23/23 15:55 - 02/24/23 08:00 ¹
TCLP	Analysis	8260D		1	563300	TJL1	EET CAN	02/24/23 14:12
TCLP	Composite	Composite			563207	DRJ	EET CAN	02/23/23 13:00
TCLP	Leach	1311			563222	DRJ	EET CAN	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	3510C			563346	SDE	EET CAN	02/24/23 12:11
TCLP	Analysis	8081B		1	563575	BPM	EET CAN	02/27/23 14:33
TCLP	Leach	1311			348181	UNWS	ELLE	02/23/23 15:40 - 02/24/23 07:55 ¹
TCLP	Prep	8151A			348421	UKL2	ELLE	02/27/23 20:33
TCLP	Analysis	8151A		1	348438	UAMZ	ELLE	02/28/23 07:00
Total/NA	Analysis	Moisture		1	563185	MS	EET CAN	02/23/23 10:54
Total/NA	Composite	Composite			563208	DRJ	EET CAN	02/23/23 13:24

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Client Sample ID: WC-COMP1-PLASTIC PELLETS

Lab Sample ID: 240-180789-6

Date Collected: 02/22/23 00:00

Matrix: Solid

Date Received: 02/23/23 08:00

Percent Solids: 99.9

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Composite	Composite			563208	DRJ	EET CAN	02/23/23 13:24
Total/NA	Prep	3546			563290	AJ	EET CAN	02/24/23 09:04
Total/NA	Analysis	8082A		1	563246	LSH	EET CAN	02/24/23 15:45
Total/NA	Prep	537 (mod)			347893	K9VR	ELLE	02/24/23 17:50
Total/NA	Cleanup	Extract Aliquot			347898	K9VR	ELLE	02/24/23 18:21
Total/NA	Analysis	537 IDA		1	348677	I5JH	ELLE	02/28/23 12:26

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180789-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-27-23 *
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-22 *
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180789-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-23 *
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record



Client Information Client Contact: Michelle Clayton Grace Gegick Company: ARCADIS U.S., Inc. Address: 284 Cramer Creek Court City: Dublin State, Zip: OH, 43017 Phone: Email: Grace.Gegick@arcadis.com Project Name: Ms. E. Rayshine OH Site:		Lab PM: DeiMonico, Michael E-Mail: Michael.DeiMonico@et.eurolfins.com PWSID:		Sampler: Michelle Clayton Phone: 412-614-1624		Carrier Tracking No(s): State of Origin:		COC No: 240-104750-37545.9 Page: Page 8 of 11 Job #: 1081								
Due Date Requested: TAT Requested (days): RUSH Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: Purchase Order not required WO #: Project #: 24030745 SSOW#:		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 8269D TCL-GLM03-14.2 Volatile Analyte 82705 GLM03-14.2 Semivolatile Analyte List 6810D-1470A TOTAL SVOCs 9400C-PH PPA3/PP0A 2540D Solids, Total Suspended (TS2P) TCLP VCC 5340C-TOC TCLP SVOC 8045D-DRO Diesel Range Organics (C10-C28) TOTAL PCBs 1048A Flashpoint TCLP PEST/HERBS 8269B TCL-GLM03-14.2 Volatile Analyte 8269B (MOD) TCL-GLM03-14.2 Volatile Analyte		Analysis Requested Total Number of Containers		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		Special Instructions/Note: TO BE COMPOSITED BY LAB								
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=soil/water/oil)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8269D TCL-GLM03-14.2 Volatile Analyte	82705 GLM03-14.2 Semivolatile Analyte List	6810D-1470A TOTAL SVOCs	9400C-PH PPA3/PP0A	2540D Solids, Total Suspended (TS2P) TCLP VCC	5340C-TOC TCLP SVOC	8045D-DRO Diesel Range Organics (C10-C28) TOTAL PCBs	1048A Flashpoint TCLP PEST/HERBS	8269B TCL-GLM03-14.2 Volatile Analyte	8269B (MOD) TCL-GLM03-14.2 Volatile Analyte
WC-V279404-Plastic Pellets	2/22/23	635	G	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	X	X	X	X
WC-VB1264-Plastic Pellets	2/22/23	900	G	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	X	X	X	X
WC-VB1184-Plastic Pellets	2/22/23	915	G	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	X	X	X	X
WC-VB1319-Plastic Pellets	2/22/23	950	G	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	X	X	X	X
WC-VB280784-Plastic Pellets	2/22/23	1020	G	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	X	X	X	X
WC-COMP1-Plastic Pellets	2/22/23	-	C	Solid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X	X	X	X	X	X	X	X	X	X
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)																
Empty Kit Relinquished by: Michelle Clayton Date: 2/22/23 Relinquished by: Michelle Clayton Date/Time: 2/22/23 8:00 Relinquished by: Company Date/Time: Company Relinquished by: Company Date/Time: Company																
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: Cooler Temperature(s) °C and Other Remarks:																



Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : _____

Client ARCADIS Site Name _____

Cooler unpacked by:

Cooler Received on 2/23/22 Opened on 2/23/22

M. A. J.

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Cooler Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
- IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. 1.6 °C Corrected Cooler Temp. 1.4 °C
- IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
- IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
- Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
- Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
- If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
14. Were VOAs on the COC? Yes No NA
15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: 2/23/22 @ 12:10

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler:		Lab PM: DeiMonico, Michael		Carrier Tracking No(s):		COC No: 240-164294.1															
Client Contact: Shipping/Receiving		Phone:		E-Mail: Michael.DelMonico@et.eurofinsus.com		State of Origin: Ohio		Page: Page 1 of 1															
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):				Job #: 240-180789-1															
Address: 2425 New Holland Pike,		Due Date Requested: 2/27/2023		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)													
City: Lancaster		TAT Requested (days):																					
State, Zip: PA, 17601		PO #:		Field Filtered Samples (Yes or No)		Perform MS/MSD (Yes or No)		PFC_IDA/Shake_SonicBath PFOA, PFOS		PFC_IDA/Extract_Aliquot PFOA, PFOS		8151A/1311_T TCLP Analyte List		8151A/0151A_AP TCLP Analyte List		Total Number of Containers							
Phone: 717-656-2300(Tel)		WO #:																					
Email:		Project #: 24030745		Special Instructions/Note:		Preservation Code:		X		X		X		X		1		Composite sample using plastic jars only					
Project Name: NS East Palestine		SSOW#:																					
Site:		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=Air)		Field Filtered Samples (Yes or No)		Perform MS/MSD (Yes or No)		PFC_IDA/Shake_SonicBath PFOA, PFOS		PFC_IDA/Extract_Aliquot PFOA, PFOS		8151A/1311_T TCLP Analyte List		8151A/0151A_AP TCLP Analyte List		Total Number of Containers	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=water/oil, BT=Tissue, A=Air)		Field Filtered Samples (Yes or No)		Perform MS/MSD (Yes or No)		PFC_IDA/Shake_SonicBath PFOA, PFOS		PFC_IDA/Extract_Aliquot PFOA, PFOS		8151A/1311_T TCLP Analyte List		8151A/0151A_AP TCLP Analyte List		Total Number of Containers	
WC-COMP1-PLASTIC PELLETS (240-180789-6)		2/22/23		Eastern		Solid				X		X		X		X		1					
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>																							
Possible Hazard Identification										Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)													
Unconfirmed										<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months													
Deliverable Requested: I, II, III, IV, Other (specify)										Primary Deliverable Rank: 2													
Special Instructions/QC Requirements:																							
Empty Kit Relinquished by:										Date:													
Date/Time:										Time:													
Method of Shipment:																							
Relinquished by:										Date/Time:													
Company:										Company:													
Relinquished by:										Date/Time:													
Company:										Company:													
Relinquished by:										Date/Time:													
Company:										Company:													
Custody Seals Intact: Δ Yes Δ No										Custody Seal No.:													
Cooler Temperature(s) °C and Other Remarks:										0.4 - 3.4													



Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180789-1

Login Number: 180789

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/24/23 10:52 AM

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180789-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	C8PFOA	C8PFOS
		(26-159)	(41-154)
240-180789-6	WC-COMP1-PLASTIC PELLETS	103	98
LCS 410-347893/2-B	Lab Control Sample	89	88
LCSD 410-347893/3-B	Lab Control Sample Dup	91	91
MB 410-347893/1-B	Method Blank	98	95

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS

1
2
3
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5
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7
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15
16



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/4/2023 1:54:12 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180954-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Michael DeMonico, Project Manager I
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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Job ID: 240-180954-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180954-1

Comments

No additional comments.

Receipt

The samples were received on 2/26/2023 8:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4° C.

All soil samples collected in TerraCore kits were frozen within 48hours of collection.

GC/MS VOA

Method 5035: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results: WC-SB2325-PELLETS & SOIL (240-180954-1), WC-SB2636-PELLETS & SOIL (240-180954-2), WC-SB1855-PELLETS & SOIL (240-180954-3), WC-SB1252-PELLETS & SOIL (240-180954-4), WC-SB1841-PELLETS & SOIL (240-180954-5), WC-TW-7 (2-4) (240-180954-6), WC-TW-6 (2-4) (240-180954-7), WC-TW-5 (2-4) (240-180954-8), WC-TW-1 (4-6) (240-180954-9), WC-TW-9 (8-10) (240-180954-10), WC-TW-3 (2-4) (240-180954-11), WC-TW-8 (6-8) (240-180954-12), WC-TW-2 (2-4) (240-180954-13), WC-TW-4 (2-4) (240-180954-14) and WC-TW-10 (6-8) (240-180954-15).

Method 8260D: The internal standard 1,4-Dichlorobenzene-d4 was outside acceptance limits for sample WC-SB1855-PELLETS & SOIL (240-180954-3). The target analyte Vinyl Chloride calculates from the internal standard Fluorobenzene, which was within acceptance limits. Therefore the results are reported.

Method 8260D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-563777 and analytical batch 240-563784.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-563775 recovered above the upper control limit for 1,1,2-Trichloro-1,2,2-trifluoroethane and Carbon tetrachloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-SB2325-PELLETS & SOIL (240-180954-1), WC-SB2636-PELLETS & SOIL (240-180954-2), WC-SB1855-PELLETS & SOIL (240-180954-3), WC-SB1252-PELLETS & SOIL (240-180954-4), WC-SB1841-PELLETS & SOIL (240-180954-5), WC-TW-7 (2-4) (240-180954-6), WC-TW-6 (2-4) (240-180954-7), WC-TW-5 (2-4) (240-180954-8), WC-TW-1 (4-6) (240-180954-9), WC-TW-9 (8-10) (240-180954-10), WC-TW-3 (2-4) (240-180954-11), WC-TW-8 (6-8) (240-180954-12), WC-TW-2 (2-4) (240-180954-13), WC-TW-4 (2-4) (240-180954-14), WC-TW-10 (6-8) (240-180954-15), (240-180954-A-1-B MS) and (240-180954-A-1-C MSD).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-563775 was outside the method criteria for the following analyte: Chloromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

Method 8260D: The MS/MSD for preparation batch 240-563638 and analytical batch 240-563946 is not reported because it was analyzed in another batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-TW-1 (4-6) (240-180954-9), WC-TW-9 (8-10) (240-180954-10) and WC-TW-3 (2-4) (240-180954-11). Elevated reporting limits (RLs) are provided.

Method 8270E: Surrogate recoveries for the following samples were outside control limits: WC-TW-9 (8-10) (240-180954-10) and WC-TW-3 (2-4) (240-180954-11). Evidence of matrix interference is present.

Method 8270E: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and/or one base surrogate recovery to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Job ID: 240-180954-1 (Continued)

Laboratory: Eurofins Canton (Continued)

surrogate compounds outside limits: (240-180888-A-1-M MS). These results have been reported and qualified.

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-TW-4 (2-4) (240-180954-14) and WC-TW-10 (6-8) (240-180954-15). Elevated reporting limits (RLs) are provided.

Method 8270E: Surrogate recovery for the following samples were outside control limits: WC-TW-4 (2-4) (240-180954-14) and WC-TW-10 (6-8) (240-180954-15). Evidence of matrix interference is present.

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-TW-7 (2-4) (240-180954-6), WC-TW-6 (2-4) (240-180954-7), WC-TW-5 (2-4) (240-180954-8), WC-TW-8 (6-8) (240-180954-12) and WC-TW-2 (2-4) (240-180954-13). Elevated reporting limits (RLs) are provided.

Method 8270E: Surrogate recovery for the following samples were outside control limits: WC-TW-7 (2-4) (240-180954-6), WC-TW-6 (2-4) (240-180954-7), WC-TW-5 (2-4) (240-180954-8) and WC-TW-2 (2-4) (240-180954-13). Evidence of matrix interference is present.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-TW-COMP (TW-1 THRU TW-5) (240-180954-16), WC-TW-COMP (TW-6 THRU TW-10) (240-180954-17) and WC-PELLETS & SOIL-COMP (240-180954-18).

Method 8082A: The DCB surrogate recovery for the following sample was outside acceptance limits (high biased) on the confirmation column due to matrix interference: WC-TW-COMP (TW-1 THRU TW-5) (240-180954-16). The recovery is within acceptance limits on the primary column, indicating that the extraction process was in control.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
1030	Ignitability, Solids	SW846	EET CF
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
537 (mod)	EPA 537 Isotope Dilution	EPA	ELLE
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180954-1	WC-SB2325-PELLETS & SOIL	Solid	02/25/23 16:45	02/26/23 20:20
240-180954-2	WC-SB2636-PELLETS & SOIL	Solid	02/25/23 17:30	02/26/23 20:20
240-180954-3	WC-SB1855-PELLETS & SOIL	Solid	02/25/23 17:05	02/26/23 20:20
240-180954-4	WC-SB1252-PELLETS & SOIL	Solid	02/25/23 17:10	02/26/23 20:20
240-180954-5	WC-SB1841-PELLETS & SOIL	Solid	02/25/23 17:20	02/26/23 20:20
240-180954-6	WC-TW-7 (2-4)	Solid	02/25/23 10:20	02/26/23 20:20
240-180954-7	WC-TW-6 (2-4)	Solid	02/25/23 10:15	02/26/23 20:20
240-180954-8	WC-TW-5 (2-4)	Solid	02/25/23 10:10	02/26/23 20:20
240-180954-9	WC-TW-1 (4-6)	Solid	02/25/23 09:30	02/26/23 20:20
240-180954-10	WC-TW-9 (8-10)	Solid	02/25/23 10:35	02/26/23 20:20
240-180954-11	WC-TW-3 (2-4)	Solid	02/25/23 09:55	02/26/23 20:20
240-180954-12	WC-TW-8 (6-8)	Solid	02/25/23 10:25	02/26/23 20:20
240-180954-13	WC-TW-2 (2-4)	Solid	02/25/23 09:45	02/26/23 20:20
240-180954-14	WC-TW-4 (2-4)	Solid	02/25/23 10:05	02/26/23 20:20
240-180954-15	WC-TW-10 (6-8)	Solid	02/25/23 11:10	02/26/23 20:20
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Solid	02/25/23 00:00	02/26/23 20:20
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Solid	02/25/23 00:00	02/26/23 20:20
240-180954-18	WC-PELLETS & SOIL-COMP	Solid	02/25/23 00:00	02/26/23 20:20



Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.10	J	0.54	0.090	mg/Kg	1	☼	8260D	Total/NA
Cyclohexane	0.74	J	1.1	0.35	mg/Kg	1	☼	8260D	Total/NA
Methylcyclohexane	1.6		1.1	0.14	mg/Kg	1	☼	8260D	Total/NA
Tetrachloroethene	0.25	J	0.54	0.21	mg/Kg	1	☼	8260D	Total/NA
Xylenes, Total	0.78	J	1.1	0.20	mg/Kg	1	☼	8260D	Total/NA
Butyl benzyl phthalate	8.6		2.2	0.69	mg/Kg	1	☼	8270E	Total/NA
Dimethyl phthalate	0.68	J	2.2	0.44	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.23	J	0.47	0.14	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.23	J	0.47	0.067	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.0066	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.42	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0027	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.048	J	0.050	0.0028	mg/L	1		6010D	TCLP
Selenium	0.0097	J	0.050	0.0060	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.13	J	0.55	0.092	mg/Kg	1	☼	8260D	Total/NA
Cyclohexane	1.2		1.1	0.36	mg/Kg	1	☼	8260D	Total/NA
Ethylbenzene	0.10	J	0.55	0.10	mg/Kg	1	☼	8260D	Total/NA
Isopropylbenzene	0.085	J	0.55	0.084	mg/Kg	1	☼	8260D	Total/NA
Methylcyclohexane	2.8		1.1	0.15	mg/Kg	1	☼	8260D	Total/NA
Toluene	0.54	J	0.55	0.53	mg/Kg	1	☼	8260D	Total/NA
Xylenes, Total	1.4		1.1	0.20	mg/Kg	1	☼	8260D	Total/NA
2-Ethylhexyl acrylate	5.1	J	5.5	4.1	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.95		0.49	0.064	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.22	J	0.49	0.13	mg/Kg	1	☼	8270E	Total/NA
Anthracene	1.0		0.49	0.079	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.87		0.49	0.11	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.63		0.49	0.31	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	1.3		0.49	0.21	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.38	J	0.49	0.23	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.51		0.49	0.23	mg/Kg	1	☼	8270E	Total/NA
Chrysene	1.8		0.49	0.049	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.69	J	1.6	0.43	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	2.1		0.49	0.15	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.42	J	0.49	0.090	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.40	J	0.49	0.24	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.82		0.49	0.079	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	1.8		0.49	0.073	mg/Kg	1	☼	8270E	Total/NA
Phenol	0.66	J	1.6	0.26	mg/Kg	1	☼	8270E	Total/NA
Pyrene	1.7		0.49	0.070	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.0081	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.47	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0033	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.058		0.050	0.0028	mg/L	1		6010D	TCLP
Selenium	0.0080	J	0.050	0.0060	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.63	J	1.2	0.38	mg/Kg	1	☼	8260D	Total/NA
Methylcyclohexane	0.94	J	1.2	0.16	mg/Kg	1	☼	8260D	Total/NA
Tetrachloroethene	0.35	J	0.59	0.23	mg/Kg	1	☼	8260D	Total/NA
Xylenes, Total	0.52	J	1.2	0.21	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	2.7		0.47	0.061	mg/Kg	1	☼	8270E	Total/NA
Acenaphthene	0.58		0.47	0.089	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.25	J	0.47	0.12	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.55		0.47	0.075	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.85		0.47	0.11	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.45	J	0.47	0.29	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	1.0		0.47	0.20	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.30	J	0.47	0.22	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.49		0.47	0.22	mg/Kg	1	☼	8270E	Total/NA
Chrysene	1.2		0.47	0.046	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.97	J	1.6	0.40	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	1.7		0.47	0.14	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.49		0.47	0.085	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.28	J	0.47	0.23	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	1.4		0.47	0.075	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	2.4		0.47	0.069	mg/Kg	1	☼	8270E	Total/NA
Phenol	0.89	J	1.6	0.25	mg/Kg	1	☼	8270E	Total/NA
Pyrene	1.6		0.47	0.067	mg/Kg	1	☼	8270E	Total/NA
Barium	0.57	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0024	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.057		0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.21	J	0.53	0.090	mg/Kg	1	☼	8260D	Total/NA
Cyclohexane	0.62	J	1.1	0.35	mg/Kg	1	☼	8260D	Total/NA
Methylcyclohexane	0.71	J	1.1	0.14	mg/Kg	1	☼	8260D	Total/NA
Toluene	0.60		0.53	0.51	mg/Kg	1	☼	8260D	Total/NA
Xylenes, Total	0.70	J	1.1	0.19	mg/Kg	1	☼	8260D	Total/NA
Butyl acrylate	3.4	J	5.3	2.9	mg/Kg	1	☼	8260D	Total/NA
2-Ethylhexyl acrylate	9.4		5.3	4.0	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	2.1		0.47	0.061	mg/Kg	1	☼	8270E	Total/NA
Acenaphthene	2.2		0.47	0.089	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.57		0.47	0.12	mg/Kg	1	☼	8270E	Total/NA
Anthracene	1.7		0.47	0.075	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	2.4		0.47	0.11	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	1.3		0.47	0.29	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	3.7		0.47	0.20	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.68		0.47	0.22	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	1.0		0.47	0.22	mg/Kg	1	☼	8270E	Total/NA
Chrysene	3.6		0.47	0.046	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	1.7		1.6	0.40	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	6.0		0.47	0.14	mg/Kg	1	☼	8270E	Total/NA
Fluorene	1.8		0.47	0.085	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.75		0.47	0.23	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	1.6		0.47	0.075	mg/Kg	1	☼	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1252-PELLETS & SOIL (Continued)

Lab Sample ID: 240-180954-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phenanthrene	5.2		0.47	0.069	mg/Kg	1	☒	8270E	Total/NA
Phenol	0.58	J	1.6	0.25	mg/Kg	1	☒	8270E	Total/NA
Pyrene	5.4		0.47	0.066	mg/Kg	1	☒	8270E	Total/NA
Barium	0.42	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0014	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0063	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.090	J	0.52	0.088	mg/Kg	1	☒	8260D	Total/NA
Cyclohexane	0.72	J	1.0	0.34	mg/Kg	1	☒	8260D	Total/NA
Methylcyclohexane	1.4		1.0	0.14	mg/Kg	1	☒	8260D	Total/NA
Tetrachloroethene	0.42	J	0.52	0.20	mg/Kg	1	☒	8260D	Total/NA
Xylenes, Total	0.80	J	1.0	0.19	mg/Kg	1	☒	8260D	Total/NA
2-Ethylhexyl acrylate	4.0	J	5.2	3.9	mg/Kg	1	☒	8260D	Total/NA
2-Methylnaphthalene	1.0		0.48	0.063	mg/Kg	1	☒	8270E	Total/NA
Acenaphthene	0.72		0.48	0.091	mg/Kg	1	☒	8270E	Total/NA
Acenaphthylene	0.31	J	0.48	0.13	mg/Kg	1	☒	8270E	Total/NA
Anthracene	1.8		0.48	0.077	mg/Kg	1	☒	8270E	Total/NA
Benzo[a]anthracene	1.3		0.48	0.11	mg/Kg	1	☒	8270E	Total/NA
Benzo[a]pyrene	0.71		0.48	0.30	mg/Kg	1	☒	8270E	Total/NA
Benzo[b]fluoranthene	1.6		0.48	0.21	mg/Kg	1	☒	8270E	Total/NA
Benzo[g,h,i]perylene	0.43	J	0.48	0.23	mg/Kg	1	☒	8270E	Total/NA
Benzo[k]fluoranthene	0.63		0.48	0.22	mg/Kg	1	☒	8270E	Total/NA
Chrysene	1.7		0.48	0.048	mg/Kg	1	☒	8270E	Total/NA
Dibenzofuran	0.59	J	1.6	0.41	mg/Kg	1	☒	8270E	Total/NA
Fluoranthene	3.2		0.48	0.14	mg/Kg	1	☒	8270E	Total/NA
Fluorene	0.51		0.48	0.087	mg/Kg	1	☒	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.43	J	0.48	0.23	mg/Kg	1	☒	8270E	Total/NA
Naphthalene	0.84		0.48	0.077	mg/Kg	1	☒	8270E	Total/NA
Phenanthrene	1.6		0.48	0.071	mg/Kg	1	☒	8270E	Total/NA
Phenol	1.1	J	1.6	0.26	mg/Kg	1	☒	8270E	Total/NA
Pyrene	2.7		0.48	0.068	mg/Kg	1	☒	8270E	Total/NA
Barium	0.49	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0034	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.10		0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.1	J	1.8	0.45	mg/Kg	1	☒	8260D	Total/NA
Benzene	7.2		0.46	0.078	mg/Kg	1	☒	8260D	Total/NA
Chloromethane	0.12	J	0.46	0.12	mg/Kg	1	☒	8260D	Total/NA
Methyl acetate	0.96	J	2.3	0.31	mg/Kg	1	☒	8260D	Total/NA
Butyl acrylate	16		4.6	2.5	mg/Kg	1	☒	8260D	Total/NA
2-Methylnaphthalene	0.33		0.091	0.012	mg/Kg	5	☒	8270E	Total/NA
Acetophenone	0.87		0.61	0.067	mg/Kg	5	☒	8270E	Total/NA
Anthracene	0.022	J	0.091	0.015	mg/Kg	5	☒	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.75		0.42	0.31	mg/Kg	5	☒	8270E	Total/NA
Chrysene	0.082	J	0.091	0.0090	mg/Kg	5	☒	8270E	Total/NA
Dibenzofuran	0.16	J	0.30	0.079	mg/Kg	5	☒	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-7 (2-4) (Continued)

Lab Sample ID: 240-180954-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.081	J	0.091	0.027	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.045	J	0.091	0.017	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.39		0.091	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.35		0.091	0.014	mg/Kg	5	✳	8270E	Total/NA
Phenol	0.14	J	0.30	0.048	mg/Kg	5	✳	8270E	Total/NA
Pyrene	0.069	J	0.091	0.013	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.0098	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.89	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0033	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0084	J	0.050	0.0028	mg/L	1		6010D	TCLP
Selenium	0.012	J	0.050	0.0060	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.33		0.32	0.054	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.14	J	0.65	0.085	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	4.9		3.2	1.7	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.28		0.19	0.025	mg/Kg	10	✳	8270E	Total/NA
Acetophenone	0.84	J	1.3	0.14	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.14	J	0.19	0.019	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.11	J	0.19	0.057	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.26		0.19	0.031	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.30		0.19	0.029	mg/Kg	10	✳	8270E	Total/NA
Phenol	0.22	J	0.64	0.10	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.097	J	0.19	0.028	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.0061	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.85	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0020	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0042	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.78	J	1.5	0.36	mg/Kg	1	✳	8260D	Total/NA
Benzene	12		0.37	0.063	mg/Kg	1	✳	8260D	Total/NA
Chloromethane	0.17	J	0.37	0.098	mg/Kg	1	✳	8260D	Total/NA
Cyclohexane	0.35	J	0.75	0.24	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.068	J	0.37	0.057	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.31	J	1.9	0.25	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	1.1		0.75	0.098	mg/Kg	1	✳	8260D	Total/NA
Toluene	0.36	J	0.37	0.36	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.48	J	0.75	0.14	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	9.6		3.7	2.0	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.66		0.38	0.050	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.84		0.38	0.10	mg/Kg	20	✳	8270E	Total/NA
Acetophenone	0.83	J	2.5	0.28	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.87		0.38	0.061	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	2.9		0.38	0.087	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	2.1		0.38	0.24	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	2.9		0.38	0.17	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	1.3		0.38	0.18	mg/Kg	20	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-5 (2-4) (Continued)

Lab Sample ID: 240-180954-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[k]fluoranthene	1.2		0.38	0.18	mg/Kg	20	✳	8270E	Total/NA
Chrysene	2.9		0.38	0.038	mg/Kg	20	✳	8270E	Total/NA
Dibenzofuran	0.56	J	1.3	0.33	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	7.4		0.38	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.84		0.38	0.070	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.2		0.38	0.19	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	0.68		0.38	0.061	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	6.4		0.38	0.057	mg/Kg	20	✳	8270E	Total/NA
Pyrene	5.6		0.38	0.055	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.0059	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0019	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0063	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00083	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.6		0.25	0.042	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.22	J	0.50	0.066	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.13	J	0.50	0.092	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	21		2.5	1.4	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.78		0.17	0.023	mg/Kg	10	✳	8270E	Total/NA
Acenaphthylene	0.066	J	0.17	0.047	mg/Kg	10	✳	8270E	Total/NA
Acetophenone	0.47	J	1.2	0.13	mg/Kg	10	✳	8270E	Total/NA
Anthracene	0.053	J	0.17	0.028	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.22		0.17	0.040	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	0.24		0.17	0.11	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.35		0.17	0.076	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.37		0.17	0.017	mg/Kg	10	✳	8270E	Total/NA
Dibenzofuran	0.44	J	0.58	0.15	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.49		0.17	0.052	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.078	J	0.17	0.032	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.67		0.17	0.028	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.89		0.17	0.026	mg/Kg	10	✳	8270E	Total/NA
Phenol	0.11	J	0.58	0.093	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.44		0.17	0.025	mg/Kg	10	✳	8270E	Total/NA
2-Butoxyethanol	2.8		0.82	0.76	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.0063	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00031	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0093	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Butyl acrylate	220		160	84	mg/Kg	50	✳	8260D	Total/NA
1,1'-Biphenyl	0.12	J	0.32	0.11	mg/Kg	5	✳	8270E	Total/NA
2-Methylnaphthalene	0.65		0.096	0.013	mg/Kg	5	✳	8270E	Total/NA
Acetophenone	0.26	J	0.64	0.070	mg/Kg	5	✳	8270E	Total/NA
Anthracene	0.033	J	0.096	0.015	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]anthracene	0.10		0.096	0.022	mg/Kg	5	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-9 (8-10) (Continued)

Lab Sample ID: 240-180954-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chrysene	0.17		0.096	0.0095	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	0.34		0.32	0.083	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	0.15		0.096	0.028	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.026	J	0.096	0.018	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.56		0.096	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.64		0.096	0.014	mg/Kg	5	✳	8270E	Total/NA
Pyrene	0.14		0.096	0.014	mg/Kg	5	✳	8270E	Total/NA
Barium	1.0	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00087	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0052	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.67	J	1.3	0.32	mg/Kg	1	✳	8260D	Total/NA
Benzene	9.8		0.33	0.055	mg/Kg	1	✳	8260D	Total/NA
Chloromethane	0.26	J	0.33	0.087	mg/Kg	1	✳	8260D	Total/NA
Cyclohexane	0.33	J	0.66	0.21	mg/Kg	1	✳	8260D	Total/NA
Ethylbenzene	0.074	J	0.33	0.062	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.052	J	0.33	0.050	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.65	J	1.6	0.22	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.97		0.66	0.087	mg/Kg	1	✳	8260D	Total/NA
Toluene	0.50		0.33	0.31	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.73		0.66	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	6.2		3.3	1.8	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.089	J	0.15	0.050	mg/Kg	2.5	✳	8270E	Total/NA
2-Methylnaphthalene	0.26		0.044	0.0057	mg/Kg	2.5	✳	8270E	Total/NA
Acenaphthylene	0.016	J	0.044	0.012	mg/Kg	2.5	✳	8270E	Total/NA
Acetophenone	0.89		0.29	0.032	mg/Kg	2.5	✳	8270E	Total/NA
Anthracene	0.053		0.044	0.0070	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[a]anthracene	0.048		0.044	0.0099	mg/Kg	2.5	✳	8270E	Total/NA
Chrysene	0.083		0.044	0.0043	mg/Kg	2.5	✳	8270E	Total/NA
Dibenzofuran	0.13	J	0.15	0.038	mg/Kg	2.5	✳	8270E	Total/NA
Fluoranthene	0.084		0.044	0.013	mg/Kg	2.5	✳	8270E	Total/NA
Naphthalene	0.39		0.044	0.0070	mg/Kg	2.5	✳	8270E	Total/NA
Phenanthrene	0.37		0.044	0.0065	mg/Kg	2.5	✳	8270E	Total/NA
Phenol	0.20		0.15	0.023	mg/Kg	2.5	✳	8270E	Total/NA
Pyrene	0.073		0.044	0.0062	mg/Kg	2.5	✳	8270E	Total/NA
Arsenic	0.0052	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.98	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0035	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0076	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00083	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.1	J	12	2.9	mg/Kg	10	✳	8260D	Total/NA
Benzene	0.94	J	3.0	0.51	mg/Kg	10	✳	8260D	Total/NA
Ethylbenzene	0.68	J	3.0	0.57	mg/Kg	10	✳	8260D	Total/NA
Isopropylbenzene	0.80	J	3.0	0.46	mg/Kg	10	✳	8260D	Total/NA
Xylenes, Total	22		6.0	1.1	mg/Kg	10	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-8 (6-8) (Continued)

Lab Sample ID: 240-180954-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Butyl acrylate	60		30	16	mg/Kg	10	✳	8260D	Total/NA
2-Methylnaphthalene	1.2		0.20	0.026	mg/Kg	10	✳	8270E	Total/NA
Acenaphthylene	0.055	J	0.20	0.053	mg/Kg	10	✳	8270E	Total/NA
Acetophenone	0.37	J	1.3	0.15	mg/Kg	10	✳	8270E	Total/NA
Anthracene	0.058	J	0.20	0.032	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.22		0.20	0.045	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	0.20		0.20	0.12	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.29		0.20	0.086	mg/Kg	10	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.17	J	0.20	0.094	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.33		0.20	0.020	mg/Kg	10	✳	8270E	Total/NA
Dibenzofuran	0.64	J	0.66	0.17	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.37		0.20	0.059	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	1.1		0.20	0.032	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	1.2		0.20	0.030	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.38		0.20	0.028	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.0060	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.6	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0048	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.044	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0011	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.1	J	2.7	0.45	mg/Kg	10	✳	8260D	Total/NA
Butyl acrylate	49		27	14	mg/Kg	10	✳	8260D	Total/NA
1,1'-Biphenyl	0.083	J	0.12	0.040	mg/Kg	2	✳	8270E	Total/NA
2-Methylnaphthalene	0.28		0.035	0.0046	mg/Kg	2	✳	8270E	Total/NA
Acetophenone	0.70		0.24	0.026	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.020	J	0.035	0.0057	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.035		0.035	0.0080	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.046		0.035	0.015	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.064		0.035	0.0035	mg/Kg	2	✳	8270E	Total/NA
Dibenzofuran	0.15		0.12	0.031	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	0.070		0.035	0.010	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.026	J	0.035	0.0064	mg/Kg	2	✳	8270E	Total/NA
Naphthalene	0.31		0.035	0.0057	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	0.26		0.035	0.0052	mg/Kg	2	✳	8270E	Total/NA
Phenol	0.18		0.12	0.019	mg/Kg	2	✳	8270E	Total/NA
Pyrene	0.056		0.035	0.0050	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.0054	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0014	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0076	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00085	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.66	J	1.5	0.36	mg/Kg	1	✳	8260D	Total/NA
Benzene	3.6		0.37	0.062	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.64		0.37	0.056	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-4 (2-4) (Continued)

Lab Sample ID: 240-180954-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl acetate	2.1		1.8	0.25	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.22	J	0.74	0.097	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.19	J	0.74	0.13	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	2.0	J	3.7	2.0	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.18		0.098	0.013	mg/Kg	5	✳	8270E	Total/NA
Acetophenone	0.38	J	0.65	0.072	mg/Kg	5	✳	8270E	Total/NA
Anthracene	0.049	J	0.098	0.016	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]anthracene	0.075	J	0.098	0.022	mg/Kg	5	✳	8270E	Total/NA
Chrysene	0.10		0.098	0.0097	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	0.11	J	0.33	0.085	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	0.14		0.098	0.029	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.042	J	0.098	0.018	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.17		0.098	0.016	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.26		0.098	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenol	0.096	J	0.33	0.052	mg/Kg	5	✳	8270E	Total/NA
Pyrene	0.12		0.098	0.014	mg/Kg	5	✳	8270E	Total/NA
2-Butoxyethanol	0.44	J	0.46	0.43	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.0041	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.68	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.010	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0043	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.016	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0014	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.59	J	1.5	0.35	mg/Kg	1	✳	8260D	Total/NA
Benzene	7.9		0.36	0.061	mg/Kg	1	✳	8260D	Total/NA
Chloromethane	0.31	J	0.36	0.096	mg/Kg	1	✳	8260D	Total/NA
Cyclohexane	0.41	J	0.73	0.24	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.37	J	1.8	0.24	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	1.2		0.73	0.096	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.59	J	0.73	0.13	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	3.5	J	3.6	2.0	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.27		0.094	0.012	mg/Kg	5	✳	8270E	Total/NA
Acetophenone	0.50	J	0.63	0.069	mg/Kg	5	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.059	J	0.094	0.041	mg/Kg	5	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	1.2		0.44	0.32	mg/Kg	5	✳	8270E	Total/NA
Chrysene	0.080	J	0.094	0.0093	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	0.14	J	0.31	0.081	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	0.087	J	0.094	0.028	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.035	J	0.094	0.017	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.30		0.094	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.28		0.094	0.014	mg/Kg	5	✳	8270E	Total/NA
Phenol	0.11	J	0.31	0.050	mg/Kg	5	✳	8270E	Total/NA
Pyrene	0.080	J	0.094	0.013	mg/Kg	5	✳	8270E	Total/NA
2-Butoxyethanol	0.44		0.44	0.41	mg/Kg	5	✳	8270E	Total/NA
Barium	1.0	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0051	J B	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.012	J	0.050	0.0028	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-10 (6-8) (Continued)

Lab Sample ID: 240-180954-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Silver	0.00087	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)

Lab Sample ID: 240-180954-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.023	J B	0.25	0.0012	mg/L	1		8260D	TCLP
Benzene	0.096		0.025	0.00042	mg/L	1		8260D	TCLP
Aroclor-1268	410		69	22	ug/Kg	1	⊛	8082A	Total/NA
Ignitability Screen	Negative				NONE	1		1030	Total/NA

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.016	J B	0.25	0.0012	mg/L	1		8260D	TCLP
Benzene	0.057		0.025	0.00042	mg/L	1		8260D	TCLP
Aroclor-1268	280		67	22	ug/Kg	1	⊛	8082A	Total/NA
Ignitability Screen	Negative				NONE	1		1030	Total/NA

Client Sample ID: WC-PELLETS & SOIL-COMP

Lab Sample ID: 240-180954-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.029	J B	0.25	0.0012	mg/L	1		8260D	TCLP
2-Methylphenol	0.00087	J	0.0040	0.00021	mg/L	1		8270E	TCLP
3 & 4 Methylphenol	0.0013	J	0.0040	0.00019	mg/L	1		8270E	TCLP
Ignitability Screen	Negative				NONE	1		1030	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Date Collected: 02/25/23 16:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 95.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.54	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,1,2,2-Tetrachloroethane	ND		0.54	0.32	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.54	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,1,2-Trichloroethane	ND		0.54	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,1-Dichloroethane	ND		0.54	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,1-Dichloroethene	ND		0.54	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,2,4-Trichlorobenzene	ND		0.54	0.29	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,2-Dibromo-3-Chloropropane	ND		1.1	0.48	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Ethylene Dibromide	ND		0.54	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,2-Dichlorobenzene	ND		0.54	0.26	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,2-Dichloroethane	ND		0.54	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,2-Dichloropropane	ND		0.54	0.080	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,3-Dichlorobenzene	ND		0.54	0.099	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
1,4-Dichlorobenzene	ND		0.54	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
2-Butanone (MEK)	ND		2.1	0.34	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
2-Hexanone	ND		2.1	0.57	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
4-Methyl-2-pentanone (MIBK)	ND		2.1	0.51	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Acetone	ND		2.1	0.52	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Benzene	0.10	J	0.54	0.090	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Dichlorobromomethane	ND		0.54	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Bromoform	ND		0.54	0.49	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Bromomethane	ND		0.54	0.36	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Carbon disulfide	ND		0.54	0.23	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Carbon tetrachloride	ND		0.54	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Chlorobenzene	ND		0.54	0.075	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Chloroethane	ND		0.54	0.32	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Chloroform	ND		0.54	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Chloromethane	ND		0.54	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
cis-1,2-Dichloroethene	ND		0.54	0.086	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
cis-1,3-Dichloropropene	ND		0.54	0.27	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Cyclohexane	0.74	J	1.1	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Chlorodibromomethane	ND		0.54	0.25	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Dichlorodifluoromethane	ND		0.54	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Ethylbenzene	ND		0.54	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Isopropylbenzene	ND		0.54	0.082	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Methyl acetate	ND		2.7	0.36	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Methyl tert-butyl ether	ND		0.54	0.080	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Methylcyclohexane	1.6		1.1	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Methylene Chloride	ND		1.1	0.82	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Styrene	ND		0.54	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Tetrachloroethene	0.25	J	0.54	0.21	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Toluene	ND		0.54	0.52	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
trans-1,2-Dichloroethene	ND		0.54	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
trans-1,3-Dichloropropene	ND		0.54	0.23	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Trichloroethene	ND		0.54	0.31	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Trichlorofluoromethane	ND		0.54	0.29	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Vinyl chloride	ND		0.54	0.26	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Xylenes, Total	0.78	J	1.1	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1
Butyl acrylate	ND		5.4	2.9	mg/Kg	✳	02/27/23 17:21	02/28/23 16:55	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Date Collected: 02/25/23 16:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 95.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		1.1	0.25	mg/Kg	☼	02/27/23 17:21	02/28/23 16:55	1
2-Ethylhexyl acrylate	ND		5.4	4.0	mg/Kg	☼	02/27/23 17:21	02/28/23 16:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125				02/27/23 17:21	02/28/23 16:55	1
Dibromofluoromethane (Surr)	77		41 - 138				02/27/23 17:21	02/28/23 16:55	1
4-Bromofluorobenzene (Surr)	71		41 - 143				02/27/23 17:21	02/28/23 16:55	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125				02/27/23 17:21	02/28/23 16:55	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.53	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
bis (2-chloroisopropyl) ether	ND		3.1	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,4,5-Trichlorophenol	ND		4.7	2.2	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,4,6-Trichlorophenol	ND		4.7	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,4-Dichlorophenol	ND		4.7	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,4-Dimethylphenol	ND		4.7	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,4-Dinitrophenol	ND		10	4.4	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,4-Dinitrotoluene	ND		6.3	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2,6-Dinitrotoluene	ND		6.3	1.8	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2-Chloronaphthalene	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2-Chlorophenol	ND		1.6	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2-Methylnaphthalene	ND		0.47	0.061	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2-Methylphenol	ND		6.3	0.97	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2-Nitroaniline	ND		6.3	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
2-Nitrophenol	ND		1.6	0.41	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
3,3'-Dichlorobenzidine	ND		3.1	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
3-Nitroaniline	ND		6.3	1.5	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4-Bromophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4-Chloro-3-methylphenol	ND		4.7	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4-Chloroaniline	ND		4.7	0.94	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4-Chlorophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4-Nitroaniline	ND		6.3	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
4-Nitrophenol	ND		10	2.9	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Acenaphthene	ND		0.47	0.089	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Acenaphthylene	ND		0.47	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Acetophenone	ND		3.1	0.34	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Anthracene	ND		0.47	0.075	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Atrazine	ND		6.3	1.1	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Benzaldehyde	ND		3.1	0.72	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Benzo[a]anthracene	ND		0.47	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Benzo[a]pyrene	ND		0.47	0.29	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Benzo[b]fluoranthene	ND		0.47	0.20	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Benzo[g,h,i]perylene	ND		0.47	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Benzo[k]fluoranthene	ND		0.47	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Bis(2-chloroethoxy)methane	ND		3.1	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Bis(2-chloroethyl)ether	ND		3.1	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1
Butyl benzyl phthalate	8.6		2.2	0.69	mg/Kg	☼	02/27/23 11:53	03/01/23 16:11	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Date Collected: 02/25/23 16:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 95.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.3	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Carbazole	ND		1.6	0.59	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Chrysene	ND		0.47	0.047	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Dibenz(a,h)anthracene	ND		0.47	0.22	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Dibenzofuran	ND		1.6	0.41	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Diethyl phthalate	ND		2.2	0.97	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Dimethyl phthalate	0.68	J	2.2	0.44	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Di-n-octyl phthalate	ND		2.2	0.88	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Fluoranthene	0.23	J	0.47	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Fluorene	ND		0.47	0.086	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Hexachlorobenzene	ND		0.47	0.089	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Hexachlorobutadiene	ND		1.6	0.38	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Hexachlorocyclopentadiene	ND		10	1.9	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Hexachloroethane	ND		1.6	0.28	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Indeno[1,2,3-cd]pyrene	ND		0.47	0.23	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Isophorone	ND		1.6	0.38	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
N-Nitrosodi-n-propylamine	ND		1.6	0.34	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
N-Nitrosodiphenylamine	ND		1.6	0.38	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Naphthalene	ND		0.47	0.075	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Nitrobenzene	ND		3.1	0.41	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Pentachlorophenol	ND		4.7	1.8	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Phenanthrene	ND		0.47	0.070	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Phenol	ND		1.6	0.25	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
Pyrene	0.23	J	0.47	0.067	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
3 & 4 Methylphenol	ND		13	0.91	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1
2-Butoxyethanol	ND		2.2	2.0	mg/Kg	✳	02/27/23 11:53	03/01/23 16:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	54		46 - 137	02/27/23 11:53	03/01/23 16:11	1
Phenol-d5 (Surr)	43		26 - 120	02/27/23 11:53	03/01/23 16:11	1
Nitrobenzene-d5 (Surr)	35		25 - 120	02/27/23 11:53	03/01/23 16:11	1
2-Fluorophenol (Surr)	40		20 - 120	02/27/23 11:53	03/01/23 16:11	1
2-Fluorobiphenyl (Surr)	42		34 - 120	02/27/23 11:53	03/01/23 16:11	1
2,4,6-Tribromophenol (Surr)	42		10 - 120	02/27/23 11:53	03/01/23 16:11	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0066	J B	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 06:10	1
Barium	0.42	J B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 06:10	1
Cadmium	0.0027	J	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 06:10	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 06:10	1
Lead	0.048	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 06:10	1
Selenium	0.0097	J	0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 06:10	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 06:10	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 11:52	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Date Collected: 02/25/23 16:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 95.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	95.9		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	4.1		0.1	0.1	%			02/27/23 13:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Date Collected: 02/25/23 17:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 91.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.55	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,1,2,2-Tetrachloroethane	ND		0.55	0.33	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.55	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,1,2-Trichloroethane	ND		0.55	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,1-Dichloroethane	ND		0.55	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,1-Dichloroethene	ND		0.55	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,2,4-Trichlorobenzene	ND		0.55	0.29	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,2-Dibromo-3-Chloropropane	ND		1.1	0.49	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Ethylene Dibromide	ND		0.55	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,2-Dichlorobenzene	ND		0.55	0.26	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,2-Dichloroethane	ND		0.55	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,2-Dichloropropane	ND		0.55	0.081	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,3-Dichlorobenzene	ND		0.55	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
1,4-Dichlorobenzene	ND		0.55	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
2-Butanone (MEK)	ND		2.2	0.35	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
2-Hexanone	ND		2.2	0.58	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
4-Methyl-2-pentanone (MIBK)	ND		2.2	0.52	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Acetone	ND		2.2	0.54	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Benzene	0.13	J	0.55	0.092	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Dichlorobromomethane	ND		0.55	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Bromoform	ND		0.55	0.50	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Bromomethane	ND		0.55	0.37	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Carbon disulfide	ND		0.55	0.24	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Carbon tetrachloride	ND		0.55	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Chlorobenzene	ND		0.55	0.077	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Chloroethane	ND		0.55	0.33	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Chloroform	ND		0.55	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Chloromethane	ND		0.55	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
cis-1,2-Dichloroethene	ND		0.55	0.088	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
cis-1,3-Dichloropropene	ND		0.55	0.27	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Cyclohexane	1.2		1.1	0.36	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Chlorodibromomethane	ND		0.55	0.26	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Dichlorodifluoromethane	ND		0.55	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Ethylbenzene	0.10	J	0.55	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Isopropylbenzene	0.085	J	0.55	0.084	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Methyl acetate	ND		2.8	0.37	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Methyl tert-butyl ether	ND		0.55	0.081	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Methylcyclohexane	2.8		1.1	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Methylene Chloride	ND		1.1	0.84	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Styrene	ND		0.55	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Tetrachloroethene	ND		0.55	0.21	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Toluene	0.54	J	0.55	0.53	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
trans-1,2-Dichloroethene	ND		0.55	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
trans-1,3-Dichloropropene	ND		0.55	0.23	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Trichloroethene	ND		0.55	0.31	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Trichlorofluoromethane	ND		0.55	0.30	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Vinyl chloride	ND		0.55	0.27	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Xylenes, Total	1.4		1.1	0.20	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1
Butyl acrylate	ND		5.5	3.0	mg/Kg	✱	02/27/23 17:21	02/28/23 18:03	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Date Collected: 02/25/23 17:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 91.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		1.1	0.26	mg/Kg	☼	02/27/23 17:21	02/28/23 18:03	1
2-Ethylhexyl acrylate	5.1	J	5.5	4.1	mg/Kg	☼	02/27/23 17:21	02/28/23 18:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125				02/27/23 17:21	02/28/23 18:03	1
Dibromofluoromethane (Surr)	75		41 - 138				02/27/23 17:21	02/28/23 18:03	1
4-Bromofluorobenzene (Surr)	74		41 - 143				02/27/23 17:21	02/28/23 18:03	1
1,2-Dichloroethane-d4 (Surr)	74		58 - 125				02/27/23 17:21	02/28/23 18:03	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.56	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
bis (2-chloroisopropyl) ether	ND		3.3	0.33	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,4,5-Trichlorophenol	ND		4.9	2.3	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,4,6-Trichlorophenol	ND		4.9	2.1	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,4-Dichlorophenol	ND		4.9	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,4-Dimethylphenol	ND		4.9	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,4-Dinitrophenol	ND		11	4.6	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,4-Dinitrotoluene	ND		6.5	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2,6-Dinitrotoluene	ND		6.5	1.8	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2-Chloronaphthalene	ND		1.6	0.46	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2-Chlorophenol	ND		1.6	0.33	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2-Methylnaphthalene	0.95		0.49	0.064	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2-Methylphenol	ND		6.5	1.0	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2-Nitroaniline	ND		6.5	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
2-Nitrophenol	ND		1.6	0.43	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
3,3'-Dichlorobenzidine	ND		3.3	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
3-Nitroaniline	ND		6.5	1.6	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4,6-Dinitro-2-methylphenol	ND		11	2.6	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4-Bromophenyl phenyl ether	ND		1.6	0.46	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4-Chloro-3-methylphenol	ND		4.9	1.5	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4-Chloroaniline	ND		4.9	0.98	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4-Chlorophenyl phenyl ether	ND		1.6	0.46	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4-Nitroaniline	ND		6.5	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
4-Nitrophenol	ND		11	3.1	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Acenaphthene	ND		0.49	0.094	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Acenaphthylene	0.22	J	0.49	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Acetophenone	ND		3.3	0.36	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Anthracene	1.0		0.49	0.079	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Atrazine	ND		6.5	1.2	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Benzaldehyde	ND		3.3	0.75	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Benzo[a]anthracene	0.87		0.49	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Benzo[a]pyrene	0.63		0.49	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Benzo[b]fluoranthene	1.3		0.49	0.21	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Benzo[g,h,i]perylene	0.38	J	0.49	0.23	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Benzo[k]fluoranthene	0.51		0.49	0.23	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Bis(2-chloroethoxy)methane	ND		3.3	0.39	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Bis(2-chloroethyl)ether	ND		3.3	0.39	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Bis(2-ethylhexyl) phthalate	ND		2.3	1.7	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1
Butyl benzyl phthalate	ND		2.3	0.72	mg/Kg	☼	02/27/23 11:53	03/01/23 15:47	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Date Collected: 02/25/23 17:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 91.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		11	2.5	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Carbazole	ND		1.6	0.62	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Chrysene	1.8		0.49	0.049	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Dibenz(a,h)anthracene	ND		0.49	0.23	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Dibenzofuran	0.69 J		1.6	0.43	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Diethyl phthalate	ND		2.3	1.0	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Dimethyl phthalate	ND		2.3	0.46	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Di-n-butyl phthalate	ND		2.3	1.7	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Di-n-octyl phthalate	ND		2.3	0.92	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Fluoranthene	2.1		0.49	0.15	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Fluorene	0.42 J		0.49	0.090	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Hexachlorobenzene	ND		0.49	0.093	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Hexachlorobutadiene	ND		1.6	0.39	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Hexachlorocyclopentadiene	ND		11	2.0	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Hexachloroethane	ND		1.6	0.29	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Indeno[1,2,3-cd]pyrene	0.40 J		0.49	0.24	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Isophorone	ND		1.6	0.39	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
N-Nitrosodi-n-propylamine	ND		1.6	0.36	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
N-Nitrosodiphenylamine	ND		1.6	0.39	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Naphthalene	0.82		0.49	0.079	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Nitrobenzene	ND		3.3	0.43	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Pentachlorophenol	ND		4.9	1.9	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Phenanthrene	1.8		0.49	0.073	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Phenol	0.66 J		1.6	0.26	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
Pyrene	1.7		0.49	0.070	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
3 & 4 Methylphenol	ND		13	0.95	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1
2-Butoxyethanol	ND		2.3	2.1	mg/Kg	✳	02/27/23 11:53	03/01/23 15:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	87		46 - 137	02/27/23 11:53	03/01/23 15:47	1
Phenol-d5 (Surr)	71		26 - 120	02/27/23 11:53	03/01/23 15:47	1
Nitrobenzene-d5 (Surr)	60		25 - 120	02/27/23 11:53	03/01/23 15:47	1
2-Fluorophenol (Surr)	64		20 - 120	02/27/23 11:53	03/01/23 15:47	1
2-Fluorobiphenyl (Surr)	77		34 - 120	02/27/23 11:53	03/01/23 15:47	1
2,4,6-Tribromophenol (Surr)	65		10 - 120	02/27/23 11:53	03/01/23 15:47	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0081	J B	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 06:32	1
Barium	0.47	J B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 06:32	1
Cadmium	0.0033	J	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 06:32	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 06:32	1
Lead	0.058		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 06:32	1
Selenium	0.0080	J	0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 06:32	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 06:32	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:04	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Date Collected: 02/25/23 17:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 91.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	91.7		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	8.3		0.1	0.1	%			02/27/23 13:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Date Collected: 02/25/23 17:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 96.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.59	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,1,2,2-Tetrachloroethane	ND		0.59	0.35	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.59	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,1,2-Trichloroethane	ND		0.59	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,1-Dichloroethane	ND		0.59	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,1-Dichloroethene	ND		0.59	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,2,4-Trichlorobenzene	ND		0.59	0.31	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,2-Dibromo-3-Chloropropane	ND		1.2	0.52	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Ethylene Dibromide	ND		0.59	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,2-Dichlorobenzene	ND		0.59	0.28	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,2-Dichloroethane	ND		0.59	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,2-Dichloropropane	ND		0.59	0.087	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,3-Dichlorobenzene	ND		0.59	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
1,4-Dichlorobenzene	ND		0.59	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
2-Butanone (MEK)	ND		2.4	0.37	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
2-Hexanone	ND		2.4	0.62	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
4-Methyl-2-pentanone (MIBK)	ND		2.4	0.56	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Acetone	ND		2.4	0.57	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Benzene	ND		0.59	0.099	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Dichlorobromomethane	ND		0.59	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Bromoform	ND		0.59	0.54	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Bromomethane	ND		0.59	0.39	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Carbon disulfide	ND		0.59	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Carbon tetrachloride	ND		0.59	0.24	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Chlorobenzene	ND		0.59	0.082	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Chloroethane	ND		0.59	0.35	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Chloroform	ND		0.59	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Chloromethane	ND		0.59	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
cis-1,2-Dichloroethene	ND		0.59	0.094	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
cis-1,3-Dichloropropene	ND		0.59	0.29	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Cyclohexane	0.63	J	1.2	0.38	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Chlorodibromomethane	ND		0.59	0.28	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Dichlorodifluoromethane	ND		0.59	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Ethylbenzene	ND		0.59	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Isopropylbenzene	ND		0.59	0.089	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Methyl acetate	ND		2.9	0.40	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Methyl tert-butyl ether	ND		0.59	0.087	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Methylcyclohexane	0.94	J	1.2	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Methylene Chloride	ND		1.2	0.90	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Styrene	ND		0.59	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Tetrachloroethene	0.35	J	0.59	0.23	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Toluene	ND		0.59	0.57	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
trans-1,2-Dichloroethene	ND		0.59	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
trans-1,3-Dichloropropene	ND		0.59	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Trichloroethene	ND		0.59	0.34	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Trichlorofluoromethane	ND		0.59	0.32	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Vinyl chloride	ND		0.011	0.0040	mg/Kg	✱	02/26/23 10:31	02/28/23 19:10	1
Xylenes, Total	0.52	J	1.2	0.21	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1
Butyl acrylate	ND		5.9	3.2	mg/Kg	✱	02/27/23 17:21	02/28/23 18:25	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Date Collected: 02/25/23 17:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 96.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		1.2	0.28	mg/Kg	☼	02/27/23 17:21	02/28/23 18:25	1
2-Ethylhexyl acrylate	ND		5.9	4.4	mg/Kg	☼	02/27/23 17:21	02/28/23 18:25	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125				02/27/23 17:21	02/28/23 18:25	1
Toluene-d8 (Surr)	109		56 - 125				02/26/23 10:31	02/28/23 19:10	1
Dibromofluoromethane (Surr)	78		41 - 138				02/27/23 17:21	02/28/23 18:25	1
Dibromofluoromethane (Surr)	105		41 - 138				02/26/23 10:31	02/28/23 19:10	1
4-Bromofluorobenzene (Surr)	74		41 - 143				02/27/23 17:21	02/28/23 18:25	1
4-Bromofluorobenzene (Surr)	136	*3	41 - 143				02/26/23 10:31	02/28/23 19:10	1
1,2-Dichloroethane-d4 (Surr)	77		58 - 125				02/27/23 17:21	02/28/23 18:25	1
1,2-Dichloroethane-d4 (Surr)	97		58 - 125				02/26/23 10:31	02/28/23 19:10	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.53	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
bis (2-chloroisopropyl) ether	ND		3.1	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,4,5-Trichlorophenol	ND		4.7	2.1	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,4,6-Trichlorophenol	ND		4.7	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,4-Dichlorophenol	ND		4.7	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,4-Dimethylphenol	ND		4.7	1.2	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,4-Dinitrophenol	ND		10	4.4	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,4-Dinitrotoluene	ND		6.2	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2,6-Dinitrotoluene	ND		6.2	1.7	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2-Chloronaphthalene	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2-Chlorophenol	ND		1.6	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2-Methylnaphthalene	2.7		0.47	0.061	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2-Methylphenol	ND		6.2	0.97	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2-Nitroaniline	ND		6.2	1.2	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
2-Nitrophenol	ND		1.6	0.40	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
3,3'-Dichlorobenzidine	ND		3.1	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
3-Nitroaniline	ND		6.2	1.5	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4-Bromophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4-Chloro-3-methylphenol	ND		4.7	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4-Chloroaniline	ND		4.7	0.93	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4-Chlorophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4-Nitroaniline	ND		6.2	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
4-Nitrophenol	ND		10	2.9	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Acenaphthene	0.58		0.47	0.089	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Acenaphthylene	0.25	J	0.47	0.12	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Acetophenone	ND		3.1	0.34	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Anthracene	0.55		0.47	0.075	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Atrazine	ND		6.2	1.1	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Benzaldehyde	ND		3.1	0.72	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Benzo[a]anthracene	0.85		0.47	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Benzo[a]pyrene	0.45	J	0.47	0.29	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Benzo[b]fluoranthene	1.0		0.47	0.20	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Benzo[g,h,i]perylene	0.30	J	0.47	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1
Benzo[k]fluoranthene	0.49		0.47	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 16:36	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Date Collected: 02/25/23 17:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 96.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		3.1	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Bis(2-chloroethyl)ether	ND		3.1	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Butyl benzyl phthalate	ND		2.2	0.68	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Caprolactam	ND		10	2.3	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Carbazole	ND		1.6	0.59	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Chrysene	1.2		0.47	0.046	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Dibenz(a,h)anthracene	ND		0.47	0.22	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Dibenzofuran	0.97	J	1.6	0.40	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Diethyl phthalate	ND		2.2	0.97	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Dimethyl phthalate	ND		2.2	0.44	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Di-n-octyl phthalate	ND		2.2	0.87	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Fluoranthene	1.7		0.47	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Fluorene	0.49		0.47	0.085	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Hexachlorobenzene	ND		0.47	0.089	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Hexachlorobutadiene	ND		1.6	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Hexachlorocyclopentadiene	ND		10	1.9	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Hexachloroethane	ND		1.6	0.28	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Indeno[1,2,3-cd]pyrene	0.28	J	0.47	0.23	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Isophorone	ND		1.6	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
N-Nitrosodi-n-propylamine	ND		1.6	0.34	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
N-Nitrosodiphenylamine	ND		1.6	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Naphthalene	1.4		0.47	0.075	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Nitrobenzene	ND		3.1	0.40	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Pentachlorophenol	ND		4.7	1.8	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Phenanthrene	2.4		0.47	0.069	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Phenol	0.89	J	1.6	0.25	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
Pyrene	1.6		0.47	0.067	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
3 & 4 Methylphenol	ND		12	0.90	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1
2-Butoxyethanol	ND		2.2	2.0	mg/Kg	✳	02/27/23 11:53	03/01/23 16:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	85		46 - 137	02/27/23 11:53	03/01/23 16:36	1
Phenol-d5 (Surr)	65		26 - 120	02/27/23 11:53	03/01/23 16:36	1
Nitrobenzene-d5 (Surr)	60		25 - 120	02/27/23 11:53	03/01/23 16:36	1
2-Fluorophenol (Surr)	59		20 - 120	02/27/23 11:53	03/01/23 16:36	1
2-Fluorobiphenyl (Surr)	70		34 - 120	02/27/23 11:53	03/01/23 16:36	1
2,4,6-Tribromophenol (Surr)	62		10 - 120	02/27/23 11:53	03/01/23 16:36	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 06:36	1
Barium	0.57	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 06:36	1
Cadmium	0.0024	J	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 06:36	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 06:36	1
Lead	0.057		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 06:36	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 06:36	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 06:36	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Date Collected: 02/25/23 17:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 96.4

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	96.4		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	3.6		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Date Collected: 02/25/23 17:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.53	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,1,2,2-Tetrachloroethane	ND		0.53	0.32	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.53	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,1,2-Trichloroethane	ND		0.53	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,1-Dichloroethane	ND		0.53	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,1-Dichloroethene	ND		0.53	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,2,4-Trichlorobenzene	ND		0.53	0.28	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,2-Dibromo-3-Chloropropane	ND		1.1	0.47	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Ethylene Dibromide	ND		0.53	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,2-Dichlorobenzene	ND		0.53	0.26	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,2-Dichloroethane	ND		0.53	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,2-Dichloropropane	ND		0.53	0.079	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,3-Dichlorobenzene	ND		0.53	0.098	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
1,4-Dichlorobenzene	ND		0.53	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
2-Butanone (MEK)	ND		2.1	0.33	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
2-Hexanone	ND		2.1	0.56	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
4-Methyl-2-pentanone (MIBK)	ND		2.1	0.51	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Acetone	ND		2.1	0.52	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Benzene	0.21	J	0.53	0.090	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Dichlorobromomethane	ND		0.53	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Bromoform	ND		0.53	0.49	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Bromomethane	ND		0.53	0.35	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Carbon disulfide	ND		0.53	0.23	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Carbon tetrachloride	ND		0.53	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Chlorobenzene	ND		0.53	0.075	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Chloroethane	ND		0.53	0.32	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Chloroform	ND		0.53	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Chloromethane	ND		0.53	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
cis-1,2-Dichloroethene	ND		0.53	0.085	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
cis-1,3-Dichloropropene	ND		0.53	0.26	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Cyclohexane	0.62	J	1.1	0.35	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Chlorodibromomethane	ND		0.53	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Dichlorodifluoromethane	ND		0.53	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Ethylbenzene	ND		0.53	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Isopropylbenzene	ND		0.53	0.081	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Methyl acetate	ND		2.7	0.36	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Methyl tert-butyl ether	ND		0.53	0.079	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Methylcyclohexane	0.71	J	1.1	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Methylene Chloride	ND		1.1	0.82	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Styrene	ND		0.53	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Tetrachloroethene	ND		0.53	0.21	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Toluene	0.60		0.53	0.51	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
trans-1,2-Dichloroethene	ND		0.53	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
trans-1,3-Dichloropropene	ND		0.53	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Trichloroethene	ND		0.53	0.30	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Trichlorofluoromethane	ND		0.53	0.29	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Vinyl chloride	ND		0.53	0.26	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Xylenes, Total	0.70	J	1.1	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1
Butyl acrylate	3.4	J	5.3	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 18:46	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Date Collected: 02/25/23 17:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		1.1	0.25	mg/Kg	☼	02/27/23 17:21	02/28/23 18:46	1
2-Ethylhexyl acrylate	9.4		5.3	4.0	mg/Kg	☼	02/27/23 17:21	02/28/23 18:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	79		56 - 125				02/27/23 17:21	02/28/23 18:46	1
<i>Dibromofluoromethane (Surr)</i>	78		41 - 138				02/27/23 17:21	02/28/23 18:46	1
<i>4-Bromofluorobenzene (Surr)</i>	74		41 - 143				02/27/23 17:21	02/28/23 18:46	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	78		58 - 125				02/27/23 17:21	02/28/23 18:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.53	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
bis (2-chloroisopropyl) ether	ND		3.1	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,4,5-Trichlorophenol	ND		4.7	2.1	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,4,6-Trichlorophenol	ND		4.7	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,4-Dichlorophenol	ND		4.7	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,4-Dimethylphenol	ND		4.7	1.2	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,4-Dinitrophenol	ND		10	4.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,4-Dinitrotoluene	ND		6.2	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2,6-Dinitrotoluene	ND		6.2	1.7	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2-Chloronaphthalene	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2-Chlorophenol	ND		1.6	0.31	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2-Methylnaphthalene	2.1		0.47	0.061	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2-Methylphenol	ND		6.2	0.96	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2-Nitroaniline	ND		6.2	1.2	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
2-Nitrophenol	ND		1.6	0.40	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
3,3'-Dichlorobenzidine	ND		3.1	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
3-Nitroaniline	ND		6.2	1.5	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4,6-Dinitro-2-methylphenol	ND		10	2.5	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4-Bromophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4-Chloro-3-methylphenol	ND		4.7	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4-Chloroaniline	ND		4.7	0.93	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4-Chlorophenyl phenyl ether	ND		1.6	0.44	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4-Nitroaniline	ND		6.2	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
4-Nitrophenol	ND		10	2.9	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Acenaphthene	2.2		0.47	0.089	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Acenaphthylene	0.57		0.47	0.12	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Acetophenone	ND		3.1	0.34	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Anthracene	1.7		0.47	0.075	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Atrazine	ND		6.2	1.1	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Benzaldehyde	ND		3.1	0.71	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Benzo[a]anthracene	2.4		0.47	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Benzo[a]pyrene	1.3		0.47	0.29	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Benzo[b]fluoranthene	3.7		0.47	0.20	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Benzo[g,h,i]perylene	0.68		0.47	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Benzo[k]fluoranthene	1.0		0.47	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Bis(2-chloroethoxy)methane	ND		3.1	0.37	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Bis(2-chloroethyl)ether	ND		3.1	0.37	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1
Butyl benzyl phthalate	ND		2.2	0.68	mg/Kg	☼	02/27/23 11:53	03/01/23 17:00	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Date Collected: 02/25/23 17:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		10	2.3	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Carbazole	ND		1.6	0.59	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Chrysene	3.6		0.47	0.046	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Dibenz(a,h)anthracene	ND		0.47	0.22	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Dibenzofuran	1.7		1.6	0.40	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Diethyl phthalate	ND		2.2	0.96	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Dimethyl phthalate	ND		2.2	0.44	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Di-n-octyl phthalate	ND		2.2	0.87	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Fluoranthene	6.0		0.47	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Fluorene	1.8		0.47	0.085	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Hexachlorobenzene	ND		0.47	0.089	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Hexachlorobutadiene	ND		1.6	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Hexachlorocyclopentadiene	ND		10	1.9	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Hexachloroethane	ND		1.6	0.28	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Indeno[1,2,3-cd]pyrene	0.75		0.47	0.23	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Isophorone	ND		1.6	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
N-Nitrosodi-n-propylamine	ND		1.6	0.34	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
N-Nitrosodiphenylamine	ND		1.6	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Naphthalene	1.6		0.47	0.075	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Nitrobenzene	ND		3.1	0.40	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Pentachlorophenol	ND		4.7	1.8	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Phenanthrene	5.2		0.47	0.069	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Phenol	0.58 J		1.6	0.25	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
Pyrene	5.4		0.47	0.066	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
3 & 4 Methylphenol	ND		12	0.90	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1
2-Butoxyethanol	ND		2.2	2.0	mg/Kg	✳	02/27/23 11:53	03/01/23 17:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	88		46 - 137	02/27/23 11:53	03/01/23 17:00	1
Phenol-d5 (Surr)	73		26 - 120	02/27/23 11:53	03/01/23 17:00	1
Nitrobenzene-d5 (Surr)	62		25 - 120	02/27/23 11:53	03/01/23 17:00	1
2-Fluorophenol (Surr)	64		20 - 120	02/27/23 11:53	03/01/23 17:00	1
2-Fluorobiphenyl (Surr)	77		34 - 120	02/27/23 11:53	03/01/23 17:00	1
2,4,6-Tribromophenol (Surr)	68		10 - 120	02/27/23 11:53	03/01/23 17:00	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 06:41	1
Barium	0.42 J B		0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 06:41	1
Cadmium	0.0014 J		0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 06:41	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 06:41	1
Lead	0.0063 J		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 06:41	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 06:41	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 06:41	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Date Collected: 02/25/23 17:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	93.7		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	6.3		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Date Collected: 02/25/23 17:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 92.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.52	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,1,2,2-Tetrachloroethane	ND		0.52	0.31	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.52	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,1,2-Trichloroethane	ND		0.52	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,1-Dichloroethane	ND		0.52	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,1-Dichloroethene	ND		0.52	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,2,4-Trichlorobenzene	ND		0.52	0.28	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.46	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Ethylene Dibromide	ND		0.52	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,2-Dichlorobenzene	ND		0.52	0.25	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,2-Dichloroethane	ND		0.52	0.098	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,2-Dichloropropane	ND		0.52	0.077	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,3-Dichlorobenzene	ND		0.52	0.096	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
1,4-Dichlorobenzene	ND		0.52	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
2-Butanone (MEK)	ND		2.1	0.33	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
2-Hexanone	ND		2.1	0.55	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
4-Methyl-2-pentanone (MIBK)	ND		2.1	0.50	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Acetone	ND		2.1	0.51	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Benzene	0.090	J	0.52	0.088	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Dichlorobromomethane	ND		0.52	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Bromoform	ND		0.52	0.48	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Bromomethane	ND		0.52	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Carbon disulfide	ND		0.52	0.23	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Carbon tetrachloride	ND		0.52	0.21	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Chlorobenzene	ND		0.52	0.073	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Chloroethane	ND		0.52	0.31	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Chloroform	ND		0.52	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Chloromethane	ND		0.52	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
cis-1,2-Dichloroethene	ND		0.52	0.084	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
cis-1,3-Dichloropropene	ND		0.52	0.26	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Cyclohexane	0.72	J	1.0	0.34	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Chlorodibromomethane	ND		0.52	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Dichlorodifluoromethane	ND		0.52	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Ethylbenzene	ND		0.52	0.098	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Isopropylbenzene	ND		0.52	0.079	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Methyl acetate	ND		2.6	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Methyl tert-butyl ether	ND		0.52	0.077	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Methylcyclohexane	1.4		1.0	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Methylene Chloride	ND		1.0	0.80	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Styrene	ND		0.52	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Tetrachloroethene	0.42	J	0.52	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Toluene	ND		0.52	0.50	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
trans-1,2-Dichloroethene	ND		0.52	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
trans-1,3-Dichloropropene	ND		0.52	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Trichloroethene	ND		0.52	0.30	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Trichlorofluoromethane	ND		0.52	0.29	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Vinyl chloride	ND		0.52	0.26	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Xylenes, Total	0.80	J	1.0	0.19	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1
Butyl acrylate	ND		5.2	2.8	mg/Kg	✳	02/27/23 17:21	02/28/23 19:07	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Date Collected: 02/25/23 17:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 92.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		1.0	0.25	mg/Kg	☼	02/27/23 17:21	02/28/23 19:07	1
2-Ethylhexyl acrylate	4.0	J	5.2	3.9	mg/Kg	☼	02/27/23 17:21	02/28/23 19:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	81		56 - 125				02/27/23 17:21	02/28/23 19:07	1
Dibromofluoromethane (Surr)	78		41 - 138				02/27/23 17:21	02/28/23 19:07	1
4-Bromofluorobenzene (Surr)	72		41 - 143				02/27/23 17:21	02/28/23 19:07	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125				02/27/23 17:21	02/28/23 19:07	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.6	0.54	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
bis (2-chloroisopropyl) ether	ND		3.2	0.32	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,4,5-Trichlorophenol	ND		4.8	2.2	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,4,6-Trichlorophenol	ND		4.8	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,4-Dichlorophenol	ND		4.8	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,4-Dimethylphenol	ND		4.8	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,4-Dinitrophenol	ND		11	4.5	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,4-Dinitrotoluene	ND		6.4	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2,6-Dinitrotoluene	ND		6.4	1.8	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Chloronaphthalene	ND		1.6	0.45	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Chlorophenol	ND		1.6	0.32	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Methylnaphthalene	1.0		0.48	0.063	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Methylphenol	ND		6.4	0.99	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Nitroaniline	ND		6.4	1.3	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Nitrophenol	ND		1.6	0.41	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
3,3'-Dichlorobenzidine	ND		3.2	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
3-Nitroaniline	ND		6.4	1.6	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4,6-Dinitro-2-methylphenol	ND		11	2.6	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4-Bromophenyl phenyl ether	ND		1.6	0.45	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4-Chloro-3-methylphenol	ND		4.8	1.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4-Chloroaniline	ND		4.8	0.96	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4-Chlorophenyl phenyl ether	ND		1.6	0.45	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4-Nitroaniline	ND		6.4	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
4-Nitrophenol	ND		11	3.0	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Acenaphthene	0.72		0.48	0.091	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Acenaphthylene	0.31	J	0.48	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Acetophenone	ND		3.2	0.35	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Anthracene	1.8		0.48	0.077	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Atrazine	ND		6.4	1.1	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Benzaldehyde	ND		3.2	0.73	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Benzo[a]anthracene	1.3		0.48	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Benzo[a]pyrene	0.71		0.48	0.30	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Benzo[b]fluoranthene	1.6		0.48	0.21	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Benzo[g,h,i]perylene	0.43	J	0.48	0.23	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Benzo[k]fluoranthene	0.63		0.48	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Bis(2-chloroethoxy)methane	ND		3.2	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Bis(2-chloroethyl)ether	ND		3.2	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Bis(2-ethylhexyl) phthalate	ND		2.2	1.6	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Butyl benzyl phthalate	ND		2.2	0.70	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Date Collected: 02/25/23 17:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 92.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		11	2.4	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Carbazole	ND		1.6	0.61	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Chrysene	1.7		0.48	0.048	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Dibenz(a,h)anthracene	ND		0.48	0.22	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Dibenzofuran	0.59 J		1.6	0.41	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Diethyl phthalate	ND		2.2	0.99	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Dimethyl phthalate	ND		2.2	0.45	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Di-n-butyl phthalate	ND		2.2	1.6	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Di-n-octyl phthalate	ND		2.2	0.89	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Fluoranthene	3.2		0.48	0.14	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Fluorene	0.51		0.48	0.087	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Hexachlorobenzene	ND		0.48	0.091	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Hexachlorobutadiene	ND		1.6	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Hexachlorocyclopentadiene	ND		11	2.0	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Hexachloroethane	ND		1.6	0.29	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Indeno[1,2,3-cd]pyrene	0.43 J		0.48	0.23	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Isophorone	ND		1.6	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
N-Nitrosodi-n-propylamine	ND		1.6	0.35	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
N-Nitrosodiphenylamine	ND		1.6	0.38	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Naphthalene	0.84		0.48	0.077	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Nitrobenzene	ND		3.2	0.41	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Pentachlorophenol	ND		4.8	1.9	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Phenanthrene	1.6		0.48	0.071	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Phenol	1.1 J		1.6	0.26	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
Pyrene	2.7		0.48	0.068	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
3 & 4 Methylphenol	ND		13	0.93	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1
2-Butoxyethanol	ND		2.2	2.1	mg/Kg	☼	02/27/23 11:53	03/01/23 17:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	87		46 - 137	02/27/23 11:53	03/01/23 17:25	1
Phenol-d5 (Surr)	65		26 - 120	02/27/23 11:53	03/01/23 17:25	1
Nitrobenzene-d5 (Surr)	56		25 - 120	02/27/23 11:53	03/01/23 17:25	1
2-Fluorophenol (Surr)	61		20 - 120	02/27/23 11:53	03/01/23 17:25	1
2-Fluorobiphenyl (Surr)	71		34 - 120	02/27/23 11:53	03/01/23 17:25	1
2,4,6-Tribromophenol (Surr)	60		10 - 120	02/27/23 11:53	03/01/23 17:25	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 06:54	1
Barium	0.49 J B		0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 06:54	1
Cadmium	0.0034 J		0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 06:54	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 06:54	1
Lead	0.10		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 06:54	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 06:54	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 06:54	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:11	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Date Collected: 02/25/23 17:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 92.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	92.1		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	7.9		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Date Collected: 02/25/23 10:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 82.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.46	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,1,2,2-Tetrachloroethane	ND		0.46	0.28	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.46	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,1,2-Trichloroethane	ND		0.46	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,1-Dichloroethane	ND		0.46	0.089	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,1-Dichloroethene	ND		0.46	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,2,4-Trichlorobenzene	ND		0.46	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,2-Dibromo-3-Chloropropane	ND		0.92	0.41	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Ethylene Dibromide	ND		0.46	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,2-Dichlorobenzene	ND		0.46	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,2-Dichloroethane	ND		0.46	0.087	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,2-Dichloropropane	ND		0.46	0.068	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,3-Dichlorobenzene	ND		0.46	0.085	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
1,4-Dichlorobenzene	ND		0.46	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
2-Butanone (MEK)	ND		1.8	0.29	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
2-Hexanone	ND		1.8	0.49	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
4-Methyl-2-pentanone (MIBK)	ND		1.8	0.44	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Acetone	1.1	J	1.8	0.45	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Benzene	7.2		0.46	0.078	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Dichlorobromomethane	ND		0.46	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Bromoform	ND		0.46	0.42	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Bromomethane	ND		0.46	0.31	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Carbon disulfide	ND		0.46	0.20	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Carbon tetrachloride	ND		0.46	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Chlorobenzene	ND		0.46	0.065	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Chloroethane	ND		0.46	0.28	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Chloroform	ND		0.46	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Chloromethane	0.12	J	0.46	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
cis-1,2-Dichloroethene	ND		0.46	0.074	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
cis-1,3-Dichloropropene	ND		0.46	0.23	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Cyclohexane	ND		0.92	0.30	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Chlorodibromomethane	ND		0.46	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Dichlorodifluoromethane	ND		0.46	0.098	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Ethylbenzene	ND		0.46	0.087	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Isopropylbenzene	ND		0.46	0.070	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Methyl acetate	0.96	J	2.3	0.31	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Methyl tert-butyl ether	ND		0.46	0.068	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Methylcyclohexane	ND		0.92	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Methylene Chloride	ND		0.92	0.71	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Styrene	ND		0.46	0.096	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Tetrachloroethene	ND		0.46	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Toluene	ND		0.46	0.44	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
trans-1,2-Dichloroethene	ND		0.46	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
trans-1,3-Dichloropropene	ND		0.46	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Trichloroethene	ND		0.46	0.26	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Trichlorofluoromethane	ND		0.46	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Vinyl chloride	ND		0.46	0.23	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Xylenes, Total	ND		0.92	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1
Butyl acrylate	16		4.6	2.5	mg/Kg	✱	02/27/23 17:21	02/28/23 19:29	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Date Collected: 02/25/23 10:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 82.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.92	0.22	mg/Kg	☼	02/27/23 17:21	02/28/23 19:29	1
2-Ethylhexyl acrylate	ND		4.6	3.4	mg/Kg	☼	02/27/23 17:21	02/28/23 19:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125				02/27/23 17:21	02/28/23 19:29	1
Dibromofluoromethane (Surr)	77		41 - 138				02/27/23 17:21	02/28/23 19:29	1
4-Bromofluorobenzene (Surr)	72		41 - 143				02/27/23 17:21	02/28/23 19:29	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125				02/27/23 17:21	02/28/23 19:29	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.30	0.10	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
bis (2-chloroisopropyl) ether	ND		0.61	0.061	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,4,5-Trichlorophenol	ND		0.91	0.42	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,4,6-Trichlorophenol	ND		0.91	0.39	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,4-Dichlorophenol	ND		0.91	0.27	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,4-Dimethylphenol	ND		0.91	0.24	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,4-Dinitrophenol	ND		2.0	0.86	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,4-Dinitrotoluene	ND		1.2	0.38	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2,6-Dinitrotoluene	ND		1.2	0.34	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Chloronaphthalene	ND		0.30	0.085	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Chlorophenol	ND		0.30	0.061	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Methylnaphthalene	0.33		0.091	0.012	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Methylphenol	ND		1.2	0.19	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Nitroaniline	ND		1.2	0.24	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Nitrophenol	ND		0.30	0.079	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
3,3'-Dichlorobenzidine	ND		0.61	0.26	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
3-Nitroaniline	ND		1.2	0.30	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4,6-Dinitro-2-methylphenol	ND		2.0	0.48	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4-Bromophenyl phenyl ether	ND		0.30	0.085	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4-Chloro-3-methylphenol	ND		0.91	0.27	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4-Chloroaniline	ND		0.91	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4-Chlorophenyl phenyl ether	ND		0.30	0.085	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4-Nitroaniline	ND		1.2	0.36	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
4-Nitrophenol	ND		2.0	0.57	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Acenaphthene	ND		0.091	0.017	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Acenaphthylene	ND		0.091	0.024	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Acetophenone	0.87		0.61	0.067	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Anthracene	0.022 J		0.091	0.015	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Atrazine	ND		1.2	0.22	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Benzaldehyde	ND		0.61	0.14	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Benzo[a]anthracene	ND		0.091	0.021	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Benzo[a]pyrene	ND		0.091	0.057	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Benzo[b]fluoranthene	ND		0.091	0.039	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Benzo[g,h,i]perylene	ND		0.091	0.043	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Benzo[k]fluoranthene	ND		0.091	0.042	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Bis(2-chloroethoxy)methane	ND		0.61	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Bis(2-chloroethyl)ether	ND		0.61	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Bis(2-ethylhexyl) phthalate	0.75		0.42	0.31	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Butyl benzyl phthalate	ND		0.42	0.13	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Date Collected: 02/25/23 10:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 82.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.0	0.45	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Carbazole	ND		0.30	0.12	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Chrysene	0.082	J	0.091	0.0090	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Dibenz(a,h)anthracene	ND		0.091	0.042	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Dibenzofuran	0.16	J	0.30	0.079	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Diethyl phthalate	ND		0.42	0.19	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Dimethyl phthalate	ND		0.42	0.085	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Di-n-butyl phthalate	ND		0.42	0.31	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Di-n-octyl phthalate	ND		0.42	0.17	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Fluoranthene	0.081	J	0.091	0.027	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Fluorene	0.045	J	0.091	0.017	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Hexachlorobenzene	ND		0.091	0.017	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Hexachlorobutadiene	ND		0.30	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Hexachlorocyclopentadiene	ND		2.0	0.38	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Hexachloroethane	ND		0.30	0.055	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Indeno[1,2,3-cd]pyrene	ND		0.091	0.045	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Isophorone	ND		0.30	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
N-Nitrosodi-n-propylamine	ND		0.30	0.067	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
N-Nitrosodiphenylamine	ND		0.30	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Naphthalene	0.39		0.091	0.015	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Nitrobenzene	ND		0.61	0.079	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Pentachlorophenol	ND		0.91	0.35	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Phenanthrene	0.35		0.091	0.014	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Phenol	0.14	J	0.30	0.048	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
Pyrene	0.069	J	0.091	0.013	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
3 & 4 Methylphenol	ND		2.4	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5
2-Butoxyethanol	ND		0.42	0.40	mg/Kg	☼	02/27/23 11:53	03/03/23 13:48	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	17	S1-	46 - 137	02/27/23 11:53	03/03/23 13:48	5
Phenol-d5 (Surr)	17	S1-	26 - 120	02/27/23 11:53	03/03/23 13:48	5
Nitrobenzene-d5 (Surr)	16	S1-	25 - 120	02/27/23 11:53	03/03/23 13:48	5
2-Fluorophenol (Surr)	14	S1-	20 - 120	02/27/23 11:53	03/03/23 13:48	5
2-Fluorobiphenyl (Surr)	15	S1-	34 - 120	02/27/23 11:53	03/03/23 13:48	5
2,4,6-Tribromophenol (Surr)	14		10 - 120	02/27/23 11:53	03/03/23 13:48	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0098	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:15	1
Barium	0.89	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:15	1
Cadmium	0.0033	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:15	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:15	1
Lead	0.0084	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:15	1
Selenium	0.012	J	0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:15	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:15	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:21	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Date Collected: 02/25/23 10:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 82.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.6		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	17.4		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Date Collected: 02/25/23 10:15

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.32	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,1,2,2-Tetrachloroethane	ND		0.32	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	0.087	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,1,2-Trichloroethane	ND		0.32	0.074	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,1-Dichloroethane	ND		0.32	0.062	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,1-Dichloroethene	ND		0.32	0.11	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,2,4-Trichlorobenzene	ND		0.32	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,2-Dibromo-3-Chloropropane	ND		0.65	0.29	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Ethylene Dibromide	ND		0.32	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,2-Dichlorobenzene	ND		0.32	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,2-Dichloroethane	ND		0.32	0.061	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,2-Dichloropropane	ND		0.32	0.048	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,3-Dichlorobenzene	ND		0.32	0.059	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
1,4-Dichlorobenzene	ND		0.32	0.071	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
2-Butanone (MEK)	ND		1.3	0.20	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
2-Hexanone	ND		1.3	0.34	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
4-Methyl-2-pentanone (MIBK)	ND		1.3	0.31	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Acetone	ND		1.3	0.32	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Benzene	0.33		0.32	0.054	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Dichlorobromomethane	ND		0.32	0.079	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Bromoform	ND		0.32	0.29	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Bromomethane	ND		0.32	0.21	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Carbon disulfide	ND		0.32	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Carbon tetrachloride	ND		0.32	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Chlorobenzene	ND		0.32	0.045	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Chloroethane	ND		0.32	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Chloroform	ND		0.32	0.070	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Chloromethane	ND		0.32	0.085	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
cis-1,2-Dichloroethene	ND		0.32	0.052	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
cis-1,3-Dichloropropene	ND		0.32	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Cyclohexane	ND		0.65	0.21	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Chlorodibromomethane	ND		0.32	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Dichlorodifluoromethane	ND		0.32	0.068	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Ethylbenzene	ND		0.32	0.061	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Isopropylbenzene	ND		0.32	0.049	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Methyl acetate	ND		1.6	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Methyl tert-butyl ether	ND		0.32	0.048	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Methylcyclohexane	0.14 J		0.65	0.085	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Methylene Chloride	ND		0.65	0.49	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Styrene	ND		0.32	0.067	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Tetrachloroethene	ND		0.32	0.13	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Toluene	ND		0.32	0.31	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
trans-1,2-Dichloroethene	ND		0.32	0.080	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
trans-1,3-Dichloropropene	ND		0.32	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Trichloroethene	ND		0.32	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Trichlorofluoromethane	ND		0.32	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Vinyl chloride	ND		0.32	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Xylenes, Total	ND		0.65	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1
Butyl acrylate	4.9		3.2	1.7	mg/Kg	✱	02/27/23 17:21	02/28/23 19:50	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Date Collected: 02/25/23 10:15

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.65	0.15	mg/Kg	☼	02/27/23 17:21	02/28/23 19:50	1
2-Ethylhexyl acrylate	ND		3.2	2.4	mg/Kg	☼	02/27/23 17:21	02/28/23 19:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125				02/27/23 17:21	02/28/23 19:50	1
Dibromofluoromethane (Surr)	76		41 - 138				02/27/23 17:21	02/28/23 19:50	1
4-Bromofluorobenzene (Surr)	72		41 - 143				02/27/23 17:21	02/28/23 19:50	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125				02/27/23 17:21	02/28/23 19:50	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.64	0.22	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
bis (2-chloroisopropyl) ether	ND		1.3	0.13	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,4,5-Trichlorophenol	ND		1.9	0.89	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,4,6-Trichlorophenol	ND		1.9	0.82	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,4-Dichlorophenol	ND		1.9	0.57	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,4-Dimethylphenol	ND		1.9	0.52	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,4-Dinitrophenol	ND		4.2	1.8	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,4-Dinitrotoluene	ND		2.6	0.80	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2,6-Dinitrotoluene	ND		2.6	0.72	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2-Chloronaphthalene	ND		0.64	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2-Chlorophenol	ND		0.64	0.13	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2-Methylnaphthalene	0.28		0.19	0.025	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2-Methylphenol	ND		2.6	0.40	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2-Nitroaniline	ND		2.6	0.52	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
2-Nitrophenol	ND		0.64	0.17	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
3,3'-Dichlorobenzidine	ND		1.3	0.55	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
3-Nitroaniline	ND		2.6	0.63	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4,6-Dinitro-2-methylphenol	ND		4.2	1.0	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4-Bromophenyl phenyl ether	ND		0.64	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4-Chloro-3-methylphenol	ND		1.9	0.58	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4-Chloroaniline	ND		1.9	0.39	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4-Chlorophenyl phenyl ether	ND		0.64	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4-Nitroaniline	ND		2.6	0.77	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
4-Nitrophenol	ND		4.2	1.2	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Acenaphthene	ND		0.19	0.037	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Acenaphthylene	ND		0.19	0.052	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Acetophenone	0.84 J		1.3	0.14	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Anthracene	ND		0.19	0.031	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Atrazine	ND		2.6	0.46	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Benzaldehyde	ND		1.3	0.30	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Benzo[a]anthracene	ND		0.19	0.044	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Benzo[a]pyrene	ND		0.19	0.12	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Benzo[b]fluoranthene	ND		0.19	0.084	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Benzo[g,h,i]perylene	ND		0.19	0.091	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Benzo[k]fluoranthene	ND		0.19	0.089	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Bis(2-chloroethoxy)methane	ND		1.3	0.15	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Bis(2-chloroethyl)ether	ND		1.3	0.15	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Bis(2-ethylhexyl) phthalate	ND		0.90	0.66	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10
Butyl benzyl phthalate	ND		0.90	0.28	mg/Kg	☼	02/27/23 11:53	03/03/23 13:24	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Date Collected: 02/25/23 10:15

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		4.2	0.97	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Carbazole	ND		0.64	0.24	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Chrysene	0.14	J	0.19	0.019	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Dibenz(a,h)anthracene	ND		0.19	0.089	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Dibenzofuran	ND		0.64	0.17	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Diethyl phthalate	ND		0.90	0.40	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Dimethyl phthalate	ND		0.90	0.18	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Di-n-butyl phthalate	ND		0.90	0.65	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Di-n-octyl phthalate	ND		0.90	0.36	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Fluoranthene	0.11	J	0.19	0.057	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Fluorene	ND		0.19	0.035	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Hexachlorobenzene	ND		0.19	0.037	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Hexachlorobutadiene	ND		0.64	0.15	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Hexachlorocyclopentadiene	ND		4.2	0.80	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Hexachloroethane	ND		0.64	0.12	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Indeno[1,2,3-cd]pyrene	ND		0.19	0.095	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Isophorone	ND		0.64	0.15	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
N-Nitrosodi-n-propylamine	ND		0.64	0.14	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
N-Nitrosodiphenylamine	ND		0.64	0.15	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Naphthalene	0.26		0.19	0.031	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Nitrobenzene	ND		1.3	0.17	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Pentachlorophenol	ND		1.9	0.75	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Phenanthrene	0.30		0.19	0.029	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Phenol	0.22	J	0.64	0.10	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
Pyrene	0.097	J	0.19	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
3 & 4 Methylphenol	ND		5.2	0.37	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10
2-Butoxyethanol	ND		0.90	0.84	mg/Kg	✳	02/27/23 11:53	03/03/23 13:24	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	26	S1-	46 - 137	02/27/23 11:53	03/03/23 13:24	10
Phenol-d5 (Surr)	28		26 - 120	02/27/23 11:53	03/03/23 13:24	10
Nitrobenzene-d5 (Surr)	24	S1-	25 - 120	02/27/23 11:53	03/03/23 13:24	10
2-Fluorophenol (Surr)	21		20 - 120	02/27/23 11:53	03/03/23 13:24	10
2-Fluorobiphenyl (Surr)	23	S1-	34 - 120	02/27/23 11:53	03/03/23 13:24	10
2,4,6-Tribromophenol (Surr)	21		10 - 120	02/27/23 11:53	03/03/23 13:24	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0061	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:45	1
Barium	0.85	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:45	1
Cadmium	0.0020	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:45	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:45	1
Lead	0.0042	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:45	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:45	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:45	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:33	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Date Collected: 02/25/23 10:15

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.5		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	22.5		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Date Collected: 02/25/23 10:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.37	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,1,2,2-Tetrachloroethane	ND		0.37	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.37	0.10	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,1,2-Trichloroethane	ND		0.37	0.085	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,1-Dichloroethane	ND		0.37	0.072	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,1-Dichloroethene	ND		0.37	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,2,4-Trichlorobenzene	ND		0.37	0.20	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,2-Dibromo-3-Chloropropane	ND		0.75	0.33	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Ethylene Dibromide	ND		0.37	0.12	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,2-Dichlorobenzene	ND		0.37	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,2-Dichloroethane	ND		0.37	0.070	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,2-Dichloropropane	ND		0.37	0.055	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,3-Dichlorobenzene	ND		0.37	0.069	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
1,4-Dichlorobenzene	ND		0.37	0.082	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
2-Butanone (MEK)	ND		1.5	0.23	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
2-Hexanone	ND		1.5	0.39	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.36	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Acetone	0.78	J	1.5	0.36	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Benzene	12		0.37	0.063	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Dichlorobromomethane	ND		0.37	0.091	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Bromoform	ND		0.37	0.34	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Bromomethane	ND		0.37	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Carbon disulfide	ND		0.37	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Carbon tetrachloride	ND		0.37	0.15	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Chlorobenzene	ND		0.37	0.052	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Chloroethane	ND		0.37	0.22	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Chloroform	ND		0.37	0.081	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Chloromethane	0.17	J	0.37	0.098	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
cis-1,2-Dichloroethene	ND		0.37	0.060	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
cis-1,3-Dichloropropene	ND		0.37	0.19	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Cyclohexane	0.35	J	0.75	0.24	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Chlorodibromomethane	ND		0.37	0.17	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Dichlorodifluoromethane	ND		0.37	0.079	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Ethylbenzene	ND		0.37	0.070	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Isopropylbenzene	0.068	J	0.37	0.057	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Methyl acetate	0.31	J	1.9	0.25	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Methyl tert-butyl ether	ND		0.37	0.055	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Methylcyclohexane	1.1		0.75	0.098	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Methylene Chloride	ND		0.75	0.57	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Styrene	ND		0.37	0.078	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Tetrachloroethene	ND		0.37	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Toluene	0.36	J	0.37	0.36	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
trans-1,2-Dichloroethene	ND		0.37	0.093	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
trans-1,3-Dichloropropene	ND		0.37	0.16	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Trichloroethene	ND		0.37	0.21	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Trichlorofluoromethane	ND		0.37	0.20	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Vinyl chloride	ND		0.37	0.18	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Xylenes, Total	0.48	J	0.75	0.14	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1
Butyl acrylate	9.6		3.7	2.0	mg/Kg	✱	02/27/23 17:21	02/28/23 20:11	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Date Collected: 02/25/23 10:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.75	0.18	mg/Kg	☼	02/27/23 17:21	02/28/23 20:11	1
2-Ethylhexyl acrylate	ND		3.7	2.8	mg/Kg	☼	02/27/23 17:21	02/28/23 20:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125				02/27/23 17:21	02/28/23 20:11	1
Dibromofluoromethane (Surr)	77		41 - 138				02/27/23 17:21	02/28/23 20:11	1
4-Bromofluorobenzene (Surr)	73		41 - 143				02/27/23 17:21	02/28/23 20:11	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125				02/27/23 17:21	02/28/23 20:11	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.3	0.43	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,4,5-Trichlorophenol	ND		3.8	1.8	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,4,6-Trichlorophenol	ND		3.8	1.6	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,4-Dichlorophenol	ND		3.8	1.1	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,4-Dimethylphenol	ND		3.8	1.0	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,4-Dinitrophenol	ND		8.4	3.6	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,4-Dinitrotoluene	ND		5.1	1.6	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2,6-Dinitrotoluene	ND		5.1	1.4	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2-Chloronaphthalene	ND		1.3	0.36	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2-Chlorophenol	ND		1.3	0.25	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2-Methylnaphthalene	0.66		0.38	0.050	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2-Methylphenol	ND		5.1	0.79	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2-Nitroaniline	ND		5.1	1.0	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
2-Nitrophenol	ND		1.3	0.33	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
3-Nitroaniline	ND		5.1	1.2	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4,6-Dinitro-2-methylphenol	ND		8.4	2.0	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4-Bromophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4-Chloro-3-methylphenol	ND		3.8	1.1	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4-Chloroaniline	ND		3.8	0.76	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4-Chlorophenyl phenyl ether	ND		1.3	0.36	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4-Nitroaniline	ND		5.1	1.5	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
4-Nitrophenol	ND		8.4	2.4	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Acenaphthene	ND		0.38	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Acenaphthylene	0.84		0.38	0.10	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Acetophenone	0.83 J		2.5	0.28	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Anthracene	0.87		0.38	0.061	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Atrazine	ND		5.1	0.92	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Benzaldehyde	ND		2.5	0.59	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Benzo[a]anthracene	2.9		0.38	0.087	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Benzo[a]pyrene	2.1		0.38	0.24	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Benzo[b]fluoranthene	2.9		0.38	0.17	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Benzo[g,h,i]perylene	1.3		0.38	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Benzo[k]fluoranthene	1.2		0.38	0.18	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Bis(2-chloroethoxy)methane	ND		2.5	0.31	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Bis(2-chloroethyl)ether	ND		2.5	0.31	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20
Butyl benzyl phthalate	ND		1.8	0.56	mg/Kg	☼	02/27/23 11:53	03/03/23 11:11	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Date Collected: 02/25/23 10:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		8.4	1.9	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Carbazole	ND		1.3	0.48	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Chrysene	2.9		0.38	0.038	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Dibenz(a,h)anthracene	ND		0.38	0.18	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Dibenzofuran	0.56	J	1.3	0.33	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Diethyl phthalate	ND		1.8	0.79	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Dimethyl phthalate	ND		1.8	0.36	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Di-n-octyl phthalate	ND		1.8	0.71	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Fluoranthene	7.4		0.38	0.11	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Fluorene	0.84		0.38	0.070	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Hexachlorobenzene	ND		0.38	0.073	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Hexachlorobutadiene	ND		1.3	0.31	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Hexachlorocyclopentadiene	ND		8.4	1.6	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Hexachloroethane	ND		1.3	0.23	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Indeno[1,2,3-cd]pyrene	1.2		0.38	0.19	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Isophorone	ND		1.3	0.31	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
N-Nitrosodiphenylamine	ND		1.3	0.31	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Naphthalene	0.68		0.38	0.061	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Nitrobenzene	ND		2.5	0.33	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Pentachlorophenol	ND		3.8	1.5	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Phenanthrene	6.4		0.38	0.057	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Phenol	ND		1.3	0.20	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
Pyrene	5.6		0.38	0.055	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
3 & 4 Methylphenol	ND		10	0.74	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20
2-Butoxyethanol	ND		1.8	1.7	mg/Kg	✳	02/27/23 11:53	03/03/23 11:11	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	35	S1-	46 - 137	02/27/23 11:53	03/03/23 11:11	20
Phenol-d5 (Surr)	23	S1-	26 - 120	02/27/23 11:53	03/03/23 11:11	20
Nitrobenzene-d5 (Surr)	32		25 - 120	02/27/23 11:53	03/03/23 11:11	20
2-Fluorophenol (Surr)	24		20 - 120	02/27/23 11:53	03/03/23 11:11	20
2-Fluorobiphenyl (Surr)	27	S1-	34 - 120	02/27/23 11:53	03/03/23 11:11	20
2,4,6-Tribromophenol (Surr)	34		10 - 120	02/27/23 11:53	03/03/23 11:11	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0059	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:50	1
Barium	1.1	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:50	1
Cadmium	0.0019	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:50	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:50	1
Lead	0.0063	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:50	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:50	1
Silver	0.00083	J	0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:50	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:36	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Date Collected: 02/25/23 10:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.8		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	22.2		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Date Collected: 02/25/23 09:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
2-Hexanone	ND		1.0	0.26	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Acetone	ND		1.0	0.25	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Benzene	2.6		0.25	0.042	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Bromoform	ND		0.25	0.23	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Bromomethane	ND		0.25	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Carbon disulfide	ND		0.25	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Chlorobenzene	ND		0.25	0.035	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Chloroethane	ND		0.25	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Chloroform	ND		0.25	0.054	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Chloromethane	ND		0.25	0.066	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Cyclohexane	ND		0.50	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Ethylbenzene	ND		0.25	0.047	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Methyl acetate	ND		1.3	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Methylcyclohexane	0.22 J		0.50	0.066	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Methylene Chloride	ND		0.50	0.39	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Styrene	ND		0.25	0.052	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Tetrachloroethene	ND		0.25	0.098	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Toluene	ND		0.25	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Trichloroethene	ND		0.25	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Vinyl chloride	ND		0.25	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Xylenes, Total	0.13 J		0.50	0.092	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1
Butyl acrylate	21		2.5	1.4	mg/Kg	✳	02/27/23 17:21	02/28/23 20:32	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Date Collected: 02/25/23 09:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.50	0.12	mg/Kg	☼	02/27/23 17:21	02/28/23 20:32	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg	☼	02/27/23 17:21	02/28/23 20:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125				02/27/23 17:21	02/28/23 20:32	1
Dibromofluoromethane (Surr)	77		41 - 138				02/27/23 17:21	02/28/23 20:32	1
4-Bromofluorobenzene (Surr)	72		41 - 143				02/27/23 17:21	02/28/23 20:32	1
1,2-Dichloroethane-d4 (Surr)	76		58 - 125				02/27/23 17:21	02/28/23 20:32	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.58	0.20	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
bis (2-chloroisopropyl) ether	ND		1.2	0.12	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,4,5-Trichlorophenol	ND		1.7	0.80	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,4,6-Trichlorophenol	ND		1.7	0.75	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,4-Dichlorophenol	ND		1.7	0.51	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,4-Dimethylphenol	ND		1.7	0.47	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,4-Dinitrophenol	ND		3.8	1.7	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,4-Dinitrotoluene	ND		2.3	0.72	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2,6-Dinitrotoluene	ND		2.3	0.65	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2-Chloronaphthalene	ND		0.58	0.16	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2-Chlorophenol	ND		0.58	0.12	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2-Methylnaphthalene	0.78		0.17	0.023	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2-Methylphenol	ND		2.3	0.36	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2-Nitroaniline	ND		2.3	0.47	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
2-Nitrophenol	ND		0.58	0.15	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
3,3'-Dichlorobenzidine	ND		1.2	0.50	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
3-Nitroaniline	ND		2.3	0.57	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4,6-Dinitro-2-methylphenol	ND		3.8	0.93	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4-Bromophenyl phenyl ether	ND		0.58	0.16	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4-Chloro-3-methylphenol	ND		1.7	0.52	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4-Chloroaniline	ND		1.7	0.35	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4-Chlorophenyl phenyl ether	ND		0.58	0.16	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4-Nitroaniline	ND		2.3	0.70	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
4-Nitrophenol	ND		3.8	1.1	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Acenaphthene	ND		0.17	0.033	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Acenaphthylene	0.066	J	0.17	0.047	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Acetophenone	0.47	J	1.2	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Anthracene	0.053	J	0.17	0.028	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Atrazine	ND		2.3	0.42	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Benzaldehyde	ND		1.2	0.27	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Benzo[a]anthracene	0.22		0.17	0.040	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Benzo[a]pyrene	0.24		0.17	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Benzo[b]fluoranthene	0.35		0.17	0.076	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Benzo[g,h,i]perylene	ND		0.17	0.083	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Benzo[k]fluoranthene	ND		0.17	0.081	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Bis(2-chloroethoxy)methane	ND		1.2	0.14	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Bis(2-chloroethyl)ether	ND		1.2	0.14	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Bis(2-ethylhexyl) phthalate	ND		0.82	0.59	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10
Butyl benzyl phthalate	ND		0.82	0.26	mg/Kg	☼	02/27/23 11:53	03/01/23 18:38	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Date Collected: 02/25/23 09:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		3.8	0.87	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Carbazole	ND		0.58	0.22	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Chrysene	0.37		0.17	0.017	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Dibenz(a,h)anthracene	ND		0.17	0.081	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Dibenzofuran	0.44	J	0.58	0.15	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Diethyl phthalate	ND		0.82	0.36	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Dimethyl phthalate	ND		0.82	0.16	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Di-n-butyl phthalate	ND		0.82	0.59	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Di-n-octyl phthalate	ND		0.82	0.33	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Fluoranthene	0.49		0.17	0.052	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Fluorene	0.078	J	0.17	0.032	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Hexachlorobenzene	ND		0.17	0.033	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Hexachlorobutadiene	ND		0.58	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Hexachlorocyclopentadiene	ND		3.8	0.72	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Hexachloroethane	ND		0.58	0.10	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Indeno[1,2,3-cd]pyrene	ND		0.17	0.086	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Isophorone	ND		0.58	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
N-Nitrosodi-n-propylamine	ND		0.58	0.13	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
N-Nitrosodiphenylamine	ND		0.58	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Naphthalene	0.67		0.17	0.028	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Nitrobenzene	ND		1.2	0.15	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Pentachlorophenol	ND		1.7	0.68	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Phenanthrene	0.89		0.17	0.026	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Phenol	0.11	J	0.58	0.093	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
Pyrene	0.44		0.17	0.025	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
3 & 4 Methylphenol	ND		4.7	0.34	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10
2-Butoxyethanol	2.8		0.82	0.76	mg/Kg	✳	02/27/23 11:53	03/01/23 18:38	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	49		46 - 137	02/27/23 11:53	03/01/23 18:38	10
Phenol-d5 (Surr)	48		26 - 120	02/27/23 11:53	03/01/23 18:38	10
Nitrobenzene-d5 (Surr)	47		25 - 120	02/27/23 11:53	03/01/23 18:38	10
2-Fluorophenol (Surr)	38		20 - 120	02/27/23 11:53	03/01/23 18:38	10
2-Fluorobiphenyl (Surr)	48		34 - 120	02/27/23 11:53	03/01/23 18:38	10
2,4,6-Tribromophenol (Surr)	40		10 - 120	02/27/23 11:53	03/01/23 18:38	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0063	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:54	1
Barium	1.1	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:54	1
Cadmium	0.00031	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:54	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:54	1
Lead	0.0093	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:54	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:54	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:54	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:38	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Date Collected: 02/25/23 09:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.8		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	15.2		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Date Collected: 02/25/23 10:35

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 78.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		16	4.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,1,2,2-Tetrachloroethane	ND		16	9.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		16	4.2	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,1,2-Trichloroethane	ND		16	3.6	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,1-Dichloroethane	ND		16	3.0	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,1-Dichloroethene	ND		16	5.1	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,2,4-Trichlorobenzene	ND		16	8.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,2-Dibromo-3-Chloropropane	ND		31	14	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Ethylene Dibromide	ND		16	4.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,2-Dichlorobenzene	ND		16	7.5	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,2-Dichloroethane	ND		16	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,2-Dichloropropane	ND		16	2.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,3-Dichlorobenzene	ND		16	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
1,4-Dichlorobenzene	ND		16	3.4	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
2-Butanone (MEK)	ND		62	9.8	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
2-Hexanone	ND		62	16	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
4-Methyl-2-pentanone (MIBK)	ND		62	15	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Acetone	ND		62	15	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Benzene	ND		16	2.6	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Dichlorobromomethane	ND		16	3.8	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Bromoform	ND		16	14	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Bromomethane	ND		16	10	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Carbon disulfide	ND		16	6.7	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Carbon tetrachloride	ND		16	6.4	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Chlorobenzene	ND		16	2.2	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Chloroethane	ND		16	9.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Chloroform	ND		16	3.4	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Chloromethane	ND		16	4.1	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
cis-1,2-Dichloroethene	ND		16	2.5	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
cis-1,3-Dichloropropene	ND		16	7.7	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Cyclohexane	ND		31	10	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Chlorodibromomethane	ND		16	7.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Dichlorodifluoromethane	ND		16	3.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Ethylbenzene	ND		16	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Isopropylbenzene	ND		16	2.4	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Methyl acetate	ND		78	10	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Methyl tert-butyl ether	ND		16	2.3	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Methylcyclohexane	ND		31	4.1	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Methylene Chloride	ND		31	24	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Styrene	ND		16	3.2	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Tetrachloroethene	ND		16	6.0	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Toluene	ND		16	15	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
trans-1,2-Dichloroethene	ND		16	3.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
trans-1,3-Dichloropropene	ND		16	6.5	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Trichloroethene	ND		16	8.9	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Trichlorofluoromethane	ND		16	8.5	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Vinyl chloride	ND		0.31	0.15	mg/Kg	✱	02/27/23 17:21	03/02/23 00:56	1
Xylenes, Total	ND		31	5.7	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50
Butyl acrylate	220		160	84	mg/Kg	✱	02/27/23 17:21	02/28/23 20:54	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Date Collected: 02/25/23 10:35

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 78.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		31	7.4	mg/Kg	✳	02/27/23 17:21	02/28/23 20:54	50
2-Ethylhexyl acrylate	ND		160	120	mg/Kg	✳	02/27/23 17:21	02/28/23 20:54	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	83		56 - 125				02/27/23 17:21	02/28/23 20:54	50
Toluene-d8 (Surr)	108		56 - 125				02/27/23 17:21	03/02/23 00:56	1
Dibromofluoromethane (Surr)	86		41 - 138				02/27/23 17:21	02/28/23 20:54	50
Dibromofluoromethane (Surr)	97		41 - 138				02/27/23 17:21	03/02/23 00:56	1
4-Bromofluorobenzene (Surr)	75		41 - 143				02/27/23 17:21	02/28/23 20:54	50
4-Bromofluorobenzene (Surr)	104		41 - 143				02/27/23 17:21	03/02/23 00:56	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				02/27/23 17:21	02/28/23 20:54	50
1,2-Dichloroethane-d4 (Surr)	86		58 - 125				02/27/23 17:21	03/02/23 00:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.12	J	0.32	0.11	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
bis (2-chloroisopropyl) ether	ND		0.64	0.064	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,4,5-Trichlorophenol	ND		0.96	0.44	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,4,6-Trichlorophenol	ND		0.96	0.41	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,4-Dichlorophenol	ND		0.96	0.28	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,4-Dimethylphenol	ND		0.96	0.26	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,4-Dinitrophenol	ND		2.1	0.91	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,4-Dinitrotoluene	ND		1.3	0.40	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2,6-Dinitrotoluene	ND		1.3	0.36	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Chloronaphthalene	ND		0.32	0.090	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Chlorophenol	ND		0.32	0.064	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Methylnaphthalene	0.65		0.096	0.013	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Methylphenol	ND		1.3	0.20	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Nitroaniline	ND		1.3	0.26	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Nitrophenol	ND		0.32	0.083	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
3,3'-Dichlorobenzidine	ND		0.64	0.28	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
3-Nitroaniline	ND		1.3	0.31	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4,6-Dinitro-2-methylphenol	ND		2.1	0.51	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4-Bromophenyl phenyl ether	ND		0.32	0.090	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4-Chloro-3-methylphenol	ND		0.96	0.29	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4-Chloroaniline	ND		0.96	0.19	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4-Chlorophenyl phenyl ether	ND		0.32	0.090	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4-Nitroaniline	ND		1.3	0.38	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
4-Nitrophenol	ND		2.1	0.60	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Acenaphthene	ND		0.096	0.018	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Acenaphthylene	ND		0.096	0.026	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Acetophenone	0.26	J	0.64	0.070	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Anthracene	0.033	J	0.096	0.015	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Atrazine	ND		1.3	0.23	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Benzaldehyde	ND		0.64	0.15	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Benzo[a]anthracene	0.10		0.096	0.022	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Benzo[a]pyrene	ND		0.096	0.060	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Benzo[b]fluoranthene	ND		0.096	0.042	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Benzo[g,h,i]perylene	ND		0.096	0.045	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Benzo[k]fluoranthene	ND		0.096	0.044	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Date Collected: 02/25/23 10:35

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 78.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.64	0.077	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Bis(2-chloroethyl)ether	ND		0.64	0.077	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Bis(2-ethylhexyl) phthalate	ND		0.45	0.33	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Butyl benzyl phthalate	ND		0.45	0.14	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Caprolactam	ND		2.1	0.48	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Carbazole	ND		0.32	0.12	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Chrysene	0.17		0.096	0.0095	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Dibenz(a,h)anthracene	ND		0.096	0.044	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Dibenzofuran	0.34		0.32	0.083	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Diethyl phthalate	ND		0.45	0.20	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Dimethyl phthalate	ND		0.45	0.090	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Di-n-butyl phthalate	ND		0.45	0.32	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Di-n-octyl phthalate	ND		0.45	0.18	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Fluoranthene	0.15		0.096	0.028	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Fluorene	0.026	J	0.096	0.018	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Hexachlorobenzene	ND		0.096	0.018	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Hexachlorobutadiene	ND		0.32	0.077	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Hexachlorocyclopentadiene	ND		2.1	0.40	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Hexachloroethane	ND		0.32	0.058	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Indeno[1,2,3-cd]pyrene	ND		0.096	0.047	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Isophorone	ND		0.32	0.077	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
N-Nitrosodi-n-propylamine	ND		0.32	0.070	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
N-Nitrosodiphenylamine	ND		0.32	0.077	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Naphthalene	0.56		0.096	0.015	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Nitrobenzene	ND		0.64	0.083	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Pentachlorophenol	ND		0.96	0.37	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Phenanthrene	0.64		0.096	0.014	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Phenol	ND		0.32	0.051	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
Pyrene	0.14		0.096	0.014	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
3 & 4 Methylphenol	ND		2.6	0.19	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5
2-Butoxyethanol	ND		0.45	0.42	mg/Kg	✳	02/27/23 11:53	03/01/23 19:02	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	32	S1-	46 - 137	02/27/23 11:53	03/01/23 19:02	5
Phenol-d5 (Surr)	28		26 - 120	02/27/23 11:53	03/01/23 19:02	5
Nitrobenzene-d5 (Surr)	29		25 - 120	02/27/23 11:53	03/01/23 19:02	5
2-Fluorophenol (Surr)	26		20 - 120	02/27/23 11:53	03/01/23 19:02	5
2-Fluorobiphenyl (Surr)	30	S1-	34 - 120	02/27/23 11:53	03/01/23 19:02	5
2,4,6-Tribromophenol (Surr)	26		10 - 120	02/27/23 11:53	03/01/23 19:02	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:59	1
Barium	1.0	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:59	1
Cadmium	0.00087	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:59	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:59	1
Lead	0.0052	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:59	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:59	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:59	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Date Collected: 02/25/23 10:35

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 78.4

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.4		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	21.6		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Date Collected: 02/25/23 09:55

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.33	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,1,2,2-Tetrachloroethane	ND		0.33	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.33	0.088	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,1,2-Trichloroethane	ND		0.33	0.075	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,1-Dichloroethane	ND		0.33	0.063	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,1-Dichloroethene	ND		0.33	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,2,4-Trichlorobenzene	ND		0.33	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,2-Dibromo-3-Chloropropane	ND		0.66	0.29	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Ethylene Dibromide	ND		0.33	0.10	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,2-Dichlorobenzene	ND		0.33	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,2-Dichloroethane	ND		0.33	0.062	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,2-Dichloropropane	ND		0.33	0.049	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,3-Dichlorobenzene	ND		0.33	0.060	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
1,4-Dichlorobenzene	ND		0.33	0.072	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
2-Butanone (MEK)	ND		1.3	0.21	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
2-Hexanone	ND		1.3	0.34	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
4-Methyl-2-pentanone (MIBK)	ND		1.3	0.31	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Acetone	0.67	J	1.3	0.32	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Benzene	9.8		0.33	0.055	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Dichlorobromomethane	ND		0.33	0.080	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Bromoform	ND		0.33	0.30	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Bromomethane	ND		0.33	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Carbon disulfide	ND		0.33	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Carbon tetrachloride	ND		0.33	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Chlorobenzene	ND		0.33	0.046	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Chloroethane	ND		0.33	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Chloroform	ND		0.33	0.071	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Chloromethane	0.26	J	0.33	0.087	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
cis-1,2-Dichloroethene	ND		0.33	0.052	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
cis-1,3-Dichloropropene	ND		0.33	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Cyclohexane	0.33	J	0.66	0.21	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Chlorodibromomethane	ND		0.33	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Dichlorodifluoromethane	ND		0.33	0.070	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Ethylbenzene	0.074	J	0.33	0.062	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Isopropylbenzene	0.052	J	0.33	0.050	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Methyl acetate	0.65	J	1.6	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Methyl tert-butyl ether	ND		0.33	0.049	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Methylcyclohexane	0.97		0.66	0.087	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Methylene Chloride	ND		0.66	0.50	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Styrene	ND		0.33	0.068	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Tetrachloroethene	ND		0.33	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Toluene	0.50		0.33	0.31	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
trans-1,2-Dichloroethene	ND		0.33	0.081	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
trans-1,3-Dichloropropene	ND		0.33	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Trichloroethene	ND		0.33	0.19	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Trichlorofluoromethane	ND		0.33	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Vinyl chloride	ND		0.33	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Xylenes, Total	0.73		0.66	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1
Butyl acrylate	6.2		3.3	1.8	mg/Kg	✳	02/27/23 17:21	02/28/23 21:15	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Date Collected: 02/25/23 09:55

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.66	0.15	mg/Kg	☼	02/27/23 17:21	02/28/23 21:15	1
2-Ethylhexyl acrylate	ND		3.3	2.4	mg/Kg	☼	02/27/23 17:21	02/28/23 21:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125				02/27/23 17:21	02/28/23 21:15	1
Dibromofluoromethane (Surr)	74		41 - 138				02/27/23 17:21	02/28/23 21:15	1
4-Bromofluorobenzene (Surr)	71		41 - 143				02/27/23 17:21	02/28/23 21:15	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125				02/27/23 17:21	02/28/23 21:15	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.089	J	0.15	0.050	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
bis (2-chloroisopropyl) ether	ND		0.29	0.029	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,4,5-Trichlorophenol	ND		0.44	0.20	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,4,6-Trichlorophenol	ND		0.44	0.19	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,4-Dichlorophenol	ND		0.44	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,4-Dimethylphenol	ND		0.44	0.12	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,4-Dinitrophenol	ND		0.96	0.41	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,4-Dinitrotoluene	ND		0.58	0.18	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2,6-Dinitrotoluene	ND		0.58	0.16	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2-Chloronaphthalene	ND		0.15	0.041	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2-Chlorophenol	ND		0.15	0.029	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2-Methylnaphthalene	0.26		0.044	0.0057	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2-Methylphenol	ND		0.58	0.090	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2-Nitroaniline	ND		0.58	0.12	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
2-Nitrophenol	ND		0.15	0.038	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
3,3'-Dichlorobenzidine	ND		0.29	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
3-Nitroaniline	ND		0.58	0.14	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4,6-Dinitro-2-methylphenol	ND		0.96	0.23	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4-Bromophenyl phenyl ether	ND		0.15	0.041	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4-Chloro-3-methylphenol	ND		0.44	0.13	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4-Chloroaniline	ND		0.44	0.088	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4-Chlorophenyl phenyl ether	ND		0.15	0.041	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4-Nitroaniline	ND		0.58	0.18	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
4-Nitrophenol	ND		0.96	0.27	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Acenaphthene	ND		0.044	0.0083	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Acenaphthylene	0.016	J	0.044	0.012	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Acetophenone	0.89		0.29	0.032	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Anthracene	0.053		0.044	0.0070	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Atrazine	ND		0.58	0.11	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Benzaldehyde	ND		0.29	0.067	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Benzo[a]anthracene	0.048		0.044	0.0099	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Benzo[a]pyrene	ND		0.044	0.027	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Benzo[b]fluoranthene	ND		0.044	0.019	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Benzo[g,h,i]perylene	ND		0.044	0.021	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Benzo[k]fluoranthene	ND		0.044	0.020	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Bis(2-chloroethoxy)methane	ND		0.29	0.035	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Bis(2-chloroethyl)ether	ND		0.29	0.035	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Bis(2-ethylhexyl) phthalate	ND		0.20	0.15	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5
Butyl benzyl phthalate	ND		0.20	0.064	mg/Kg	☼	02/27/23 11:53	03/01/23 18:14	2.5

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Date Collected: 02/25/23 09:55

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		0.96	0.22	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Carbazole	ND		0.15	0.055	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Chrysene	0.083		0.044	0.0043	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Dibenz(a,h)anthracene	ND		0.044	0.020	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Dibenzofuran	0.13	J	0.15	0.038	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Diethyl phthalate	ND		0.20	0.090	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Dimethyl phthalate	ND		0.20	0.041	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Di-n-butyl phthalate	ND		0.20	0.15	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Di-n-octyl phthalate	ND		0.20	0.082	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Fluoranthene	0.084		0.044	0.013	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Fluorene	ND		0.044	0.0080	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Hexachlorobenzene	ND		0.044	0.0083	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Hexachlorobutadiene	ND		0.15	0.035	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Hexachlorocyclopentadiene	ND		0.96	0.18	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Hexachloroethane	ND		0.15	0.026	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Indeno[1,2,3-cd]pyrene	ND		0.044	0.021	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Isophorone	ND		0.15	0.035	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
N-Nitrosodi-n-propylamine	ND		0.15	0.032	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
N-Nitrosodiphenylamine	ND		0.15	0.035	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Naphthalene	0.39		0.044	0.0070	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Nitrobenzene	ND		0.29	0.038	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Pentachlorophenol	ND		0.44	0.17	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Phenanthrene	0.37		0.044	0.0065	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Phenol	0.20		0.15	0.023	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
Pyrene	0.073		0.044	0.0062	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
3 & 4 Methylphenol	ND		1.2	0.085	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5
2-Butoxyethanol	ND		0.20	0.19	mg/Kg	☆	02/27/23 11:53	03/01/23 18:14	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	20	S1-	46 - 137	02/27/23 11:53	03/01/23 18:14	2.5
Phenol-d5 (Surr)	23	S1-	26 - 120	02/27/23 11:53	03/01/23 18:14	2.5
Nitrobenzene-d5 (Surr)	20	S1-	25 - 120	02/27/23 11:53	03/01/23 18:14	2.5
2-Fluorophenol (Surr)	18	S1-	20 - 120	02/27/23 11:53	03/01/23 18:14	2.5
2-Fluorobiphenyl (Surr)	19	S1-	34 - 120	02/27/23 11:53	03/01/23 18:14	2.5
2,4,6-Tribromophenol (Surr)	19		10 - 120	02/27/23 11:53	03/01/23 18:14	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0052	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 08:03	1
Barium	0.98	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 08:03	1
Cadmium	0.0035	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 08:03	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 08:03	1
Lead	0.0076	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 08:03	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 08:03	1
Silver	0.00083	J	0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 08:03	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:42	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Date Collected: 02/25/23 09:55

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.7		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	15.3		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Date Collected: 02/25/23 10:25

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0	0.94	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,1,2,2-Tetrachloroethane	ND		3.0	1.8	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.0	0.81	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,1,2-Trichloroethane	ND		3.0	0.69	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,1-Dichloroethane	ND		3.0	0.58	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,1-Dichloroethene	ND		3.0	0.99	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,2,4-Trichlorobenzene	ND		3.0	1.6	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,2-Dibromo-3-Chloropropane	ND		6.0	2.7	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Ethylene Dibromide	ND		3.0	0.95	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,2-Dichlorobenzene	ND		3.0	1.4	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,2-Dichloroethane	ND		3.0	0.57	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,2-Dichloropropane	ND		3.0	0.45	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,3-Dichlorobenzene	ND		3.0	0.55	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
1,4-Dichlorobenzene	ND		3.0	0.66	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
2-Butanone (MEK)	ND		12	1.9	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
2-Hexanone	ND		12	3.2	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
4-Methyl-2-pentanone (MIBK)	ND		12	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Acetone	3.1	J	12	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Benzene	0.94	J	3.0	0.51	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Dichlorobromomethane	ND		3.0	0.73	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Bromoform	ND		3.0	2.7	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Bromomethane	ND		3.0	2.0	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Carbon disulfide	ND		3.0	1.3	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Carbon tetrachloride	ND		3.0	1.2	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Chlorobenzene	ND		3.0	0.42	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Chloroethane	ND		3.0	1.8	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Chloroform	ND		3.0	0.65	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Chloromethane	ND		3.0	0.80	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
cis-1,2-Dichloroethene	ND		3.0	0.48	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
cis-1,3-Dichloropropene	ND		3.0	1.5	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Cyclohexane	ND		6.0	2.0	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Chlorodibromomethane	ND		3.0	1.4	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Dichlorodifluoromethane	ND		3.0	0.64	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Ethylbenzene	0.68	J	3.0	0.57	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Isopropylbenzene	0.80	J	3.0	0.46	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Methyl acetate	ND		15	2.0	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Methyl tert-butyl ether	ND		3.0	0.45	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Methylcyclohexane	ND		6.0	0.80	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Methylene Chloride	ND		6.0	4.6	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Styrene	ND		3.0	0.63	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Tetrachloroethene	ND		3.0	1.2	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Toluene	ND		3.0	2.9	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
trans-1,2-Dichloroethene	ND		3.0	0.75	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
trans-1,3-Dichloropropene	ND		3.0	1.3	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Trichloroethene	ND		3.0	1.7	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Trichlorofluoromethane	ND		3.0	1.7	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Vinyl chloride	ND		0.30	0.15	mg/Kg	✱	02/27/23 17:21	03/02/23 01:20	1
Xylenes, Total	22		6.0	1.1	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10
Butyl acrylate	60		30	16	mg/Kg	✱	02/27/23 17:21	02/28/23 21:36	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Date Collected: 02/25/23 10:25

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		6.0	1.4	mg/Kg	☼	02/27/23 17:21	02/28/23 21:36	10
2-Ethylhexyl acrylate	ND		30	22	mg/Kg	☼	02/27/23 17:21	02/28/23 21:36	10

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125				02/27/23 17:21	02/28/23 21:36	10
Toluene-d8 (Surr)	110		56 - 125				02/27/23 17:21	03/02/23 01:20	1
Dibromofluoromethane (Surr)	79		41 - 138				02/27/23 17:21	02/28/23 21:36	10
Dibromofluoromethane (Surr)	94		41 - 138				02/27/23 17:21	03/02/23 01:20	1
4-Bromofluorobenzene (Surr)	73		41 - 143				02/27/23 17:21	02/28/23 21:36	10
4-Bromofluorobenzene (Surr)	104		41 - 143				02/27/23 17:21	03/02/23 01:20	1
1,2-Dichloroethane-d4 (Surr)	77		58 - 125				02/27/23 17:21	02/28/23 21:36	10
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				02/27/23 17:21	03/02/23 01:20	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.66	0.22	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
bis (2-chloroisopropyl) ether	ND		1.3	0.13	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,4,5-Trichlorophenol	ND		2.0	0.91	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,4,6-Trichlorophenol	ND		2.0	0.85	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,4-Dichlorophenol	ND		2.0	0.58	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,4-Dimethylphenol	ND		2.0	0.53	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,4-Dinitrophenol	ND		4.4	1.9	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,4-Dinitrotoluene	ND		2.6	0.82	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2,6-Dinitrotoluene	ND		2.6	0.74	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2-Chloronaphthalene	ND		0.66	0.19	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2-Chlorophenol	ND		0.66	0.13	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2-Methylnaphthalene	1.2		0.20	0.026	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2-Methylphenol	ND		2.6	0.41	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2-Nitroaniline	ND		2.6	0.53	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
2-Nitrophenol	ND		0.66	0.17	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
3,3'-Dichlorobenzidine	ND		1.3	0.57	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
3-Nitroaniline	ND		2.6	0.65	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4,6-Dinitro-2-methylphenol	ND		4.4	1.1	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4-Bromophenyl phenyl ether	ND		0.66	0.19	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4-Chloro-3-methylphenol	ND		2.0	0.60	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4-Chloroaniline	ND		2.0	0.40	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4-Chlorophenyl phenyl ether	ND		0.66	0.19	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4-Nitroaniline	ND		2.6	0.79	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
4-Nitrophenol	ND		4.4	1.2	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Acenaphthene	ND		0.20	0.038	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Acenaphthylene	0.055	J	0.20	0.053	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Acetophenone	0.37	J	1.3	0.15	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Anthracene	0.058	J	0.20	0.032	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Atrazine	ND		2.6	0.48	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Benzaldehyde	ND		1.3	0.30	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Benzo[a]anthracene	0.22		0.20	0.045	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Benzo[a]pyrene	0.20		0.20	0.12	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Benzo[b]fluoranthene	0.29		0.20	0.086	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Benzo[g,h,i]perylene	0.17	J	0.20	0.094	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10
Benzo[k]fluoranthene	ND		0.20	0.092	mg/Kg	☼	02/27/23 11:53	03/03/23 12:59	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Date Collected: 02/25/23 10:25

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		1.3	0.16	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Bis(2-chloroethyl)ether	ND		1.3	0.16	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Bis(2-ethylhexyl) phthalate	ND		0.93	0.67	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Butyl benzyl phthalate	ND		0.93	0.29	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Caprolactam	ND		4.4	0.99	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Carbazole	ND		0.66	0.25	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Chrysene	0.33		0.20	0.020	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Dibenz(a,h)anthracene	ND		0.20	0.092	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Dibenzofuran	0.64	J	0.66	0.17	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Diethyl phthalate	ND		0.93	0.41	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Dimethyl phthalate	ND		0.93	0.19	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Di-n-butyl phthalate	ND		0.93	0.67	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Di-n-octyl phthalate	ND		0.93	0.37	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Fluoranthene	0.37		0.20	0.059	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Fluorene	ND		0.20	0.036	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Hexachlorobenzene	ND		0.20	0.038	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Hexachlorobutadiene	ND		0.66	0.16	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Hexachlorocyclopentadiene	ND		4.4	0.82	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Hexachloroethane	ND		0.66	0.12	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Indeno[1,2,3-cd]pyrene	ND		0.20	0.097	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Isophorone	ND		0.66	0.16	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
N-Nitrosodi-n-propylamine	ND		0.66	0.15	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
N-Nitrosodiphenylamine	ND		0.66	0.16	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Naphthalene	1.1		0.20	0.032	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Nitrobenzene	ND		1.3	0.17	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Pentachlorophenol	ND		2.0	0.77	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Phenanthrene	1.2		0.20	0.030	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Phenol	ND		0.66	0.11	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
Pyrene	0.38		0.20	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
3 & 4 Methylphenol	ND		5.3	0.38	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10
2-Butoxyethanol	ND		0.93	0.87	mg/Kg	✳	02/27/23 11:53	03/03/23 12:59	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	77		46 - 137	02/27/23 11:53	03/03/23 12:59	10
Phenol-d5 (Surr)	72		26 - 120	02/27/23 11:53	03/03/23 12:59	10
Nitrobenzene-d5 (Surr)	69		25 - 120	02/27/23 11:53	03/03/23 12:59	10
2-Fluorophenol (Surr)	75		20 - 120	02/27/23 11:53	03/03/23 12:59	10
2-Fluorobiphenyl (Surr)	72		34 - 120	02/27/23 11:53	03/03/23 12:59	10
2,4,6-Tribromophenol (Surr)	76		10 - 120	02/27/23 11:53	03/03/23 12:59	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0060	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 08:08	1
Barium	1.6	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 08:08	1
Cadmium	0.0048	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 08:08	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 08:08	1
Lead	0.044	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 08:08	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 08:08	1
Silver	0.0011	J	0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 08:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Date Collected: 02/25/23 10:25

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.8

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	76.8		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	23.2		0.1	0.1	%			02/27/23 13:12	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Date Collected: 02/25/23 09:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 86.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.7	0.83	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,1,2,2-Tetrachloroethane	ND		2.7	1.6	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.7	0.72	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,1,2-Trichloroethane	ND		2.7	0.61	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,1-Dichloroethane	ND		2.7	0.51	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,1-Dichloroethene	ND		2.7	0.88	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,2,4-Trichlorobenzene	ND		2.7	1.4	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,2-Dibromo-3-Chloropropane	ND		5.3	2.4	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Ethylene Dibromide	ND		2.7	0.84	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,2-Dichlorobenzene	ND		2.7	1.3	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,2-Dichloroethane	ND		2.7	0.50	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,2-Dichloropropane	ND		2.7	0.40	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,3-Dichlorobenzene	ND		2.7	0.49	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
1,4-Dichlorobenzene	ND		2.7	0.59	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
2-Butanone (MEK)	ND		11	1.7	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
2-Hexanone	ND		11	2.8	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
4-Methyl-2-pentanone (MIBK)	ND		11	2.5	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Acetone	ND		11	2.6	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Benzene	1.1	J	2.7	0.45	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Dichlorobromomethane	ND		2.7	0.65	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Bromoform	ND		2.7	2.4	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Bromomethane	ND		2.7	1.8	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Carbon disulfide	ND		2.7	1.2	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Carbon tetrachloride	ND		2.7	1.1	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Chlorobenzene	ND		2.7	0.37	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Chloroethane	ND		2.7	1.6	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Chloroform	ND		2.7	0.58	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Chloromethane	ND		2.7	0.71	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
cis-1,2-Dichloroethene	ND		2.7	0.43	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
cis-1,3-Dichloropropene	ND		2.7	1.3	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Cyclohexane	ND		5.3	1.7	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Chlorodibromomethane	ND		2.7	1.3	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Dichlorodifluoromethane	ND		2.7	0.57	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Ethylbenzene	ND		2.7	0.50	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Isopropylbenzene	ND		2.7	0.41	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Methyl acetate	ND		13	1.8	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Methyl tert-butyl ether	ND		2.7	0.40	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Methylcyclohexane	ND		5.3	0.71	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Methylene Chloride	ND		5.3	4.1	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Styrene	ND		2.7	0.56	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Tetrachloroethene	ND		2.7	1.0	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Toluene	ND		2.7	2.6	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
trans-1,2-Dichloroethene	ND		2.7	0.66	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
trans-1,3-Dichloropropene	ND		2.7	1.1	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Trichloroethene	ND		2.7	1.5	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Trichlorofluoromethane	ND		2.7	1.5	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Vinyl chloride	ND		0.27	0.13	mg/Kg	✱	02/27/23 17:21	03/02/23 01:43	1
Xylenes, Total	ND		5.3	0.97	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10
Butyl acrylate	49		27	14	mg/Kg	✱	02/27/23 17:21	02/28/23 21:57	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Date Collected: 02/25/23 09:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 86.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		5.3	1.3	mg/Kg	☼	02/27/23 17:21	02/28/23 21:57	10
2-Ethylhexyl acrylate	ND		27	20	mg/Kg	☼	02/27/23 17:21	02/28/23 21:57	10

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125				02/27/23 17:21	02/28/23 21:57	10
Toluene-d8 (Surr)	103		56 - 125				02/27/23 17:21	03/02/23 01:43	1
Dibromofluoromethane (Surr)	81		41 - 138				02/27/23 17:21	02/28/23 21:57	10
Dibromofluoromethane (Surr)	93		41 - 138				02/27/23 17:21	03/02/23 01:43	1
4-Bromofluorobenzene (Surr)	71		41 - 143				02/27/23 17:21	02/28/23 21:57	10
4-Bromofluorobenzene (Surr)	108		41 - 143				02/27/23 17:21	03/02/23 01:43	1
1,2-Dichloroethane-d4 (Surr)	77		58 - 125				02/27/23 17:21	02/28/23 21:57	10
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				02/27/23 17:21	03/02/23 01:43	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.083	J	0.12	0.040	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
bis (2-chloroisopropyl) ether	ND		0.24	0.024	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,4,5-Trichlorophenol	ND		0.35	0.16	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,4,6-Trichlorophenol	ND		0.35	0.15	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,4-Dichlorophenol	ND		0.35	0.10	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,4-Dimethylphenol	ND		0.35	0.094	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,4-Dinitrophenol	ND		0.78	0.33	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,4-Dinitrotoluene	ND		0.47	0.15	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2,6-Dinitrotoluene	ND		0.47	0.13	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2-Chloronaphthalene	ND		0.12	0.033	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2-Chlorophenol	ND		0.12	0.024	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2-Methylnaphthalene	0.28		0.035	0.0046	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2-Methylphenol	ND		0.47	0.073	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2-Nitroaniline	ND		0.47	0.094	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
2-Nitrophenol	ND		0.12	0.031	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
3,3'-Dichlorobenzidine	ND		0.24	0.10	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
3-Nitroaniline	ND		0.47	0.12	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4,6-Dinitro-2-methylphenol	ND		0.78	0.19	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4-Bromophenyl phenyl ether	ND		0.12	0.033	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4-Chloro-3-methylphenol	ND		0.35	0.11	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4-Chloroaniline	ND		0.35	0.071	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4-Chlorophenyl phenyl ether	ND		0.12	0.033	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4-Nitroaniline	ND		0.47	0.14	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
4-Nitrophenol	ND		0.78	0.22	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Acenaphthene	ND		0.035	0.0067	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Acenaphthylene	ND		0.035	0.0094	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Acetophenone	0.70		0.24	0.026	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Anthracene	0.020	J	0.035	0.0057	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Atrazine	ND		0.47	0.085	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Benzaldehyde	ND		0.24	0.054	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Benzo[a]anthracene	0.035		0.035	0.0080	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Benzo[a]pyrene	ND		0.035	0.022	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Benzo[b]fluoranthene	0.046		0.035	0.015	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Benzo[g,h,i]perylene	ND		0.035	0.017	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2
Benzo[k]fluoranthene	ND		0.035	0.016	mg/Kg	☼	02/27/23 11:53	03/03/23 14:13	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Date Collected: 02/25/23 09:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 86.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.24	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Bis(2-chloroethyl)ether	ND		0.24	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Bis(2-ethylhexyl) phthalate	ND		0.16	0.12	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Butyl benzyl phthalate	ND		0.16	0.052	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Caprolactam	ND		0.78	0.18	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Carbazole	ND		0.12	0.045	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Chrysene	0.064		0.035	0.0035	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Dibenz(a,h)anthracene	ND		0.035	0.016	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Dibenzofuran	0.15		0.12	0.031	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Diethyl phthalate	ND		0.16	0.073	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Dimethyl phthalate	ND		0.16	0.033	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Di-n-butyl phthalate	ND		0.16	0.12	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Di-n-octyl phthalate	ND		0.16	0.066	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Fluoranthene	0.070		0.035	0.010	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Fluorene	0.026	J	0.035	0.0064	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Hexachlorobenzene	ND		0.035	0.0067	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Hexachlorobutadiene	ND		0.12	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Hexachlorocyclopentadiene	ND		0.78	0.15	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Hexachloroethane	ND		0.12	0.021	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Indeno[1,2,3-cd]pyrene	ND		0.035	0.017	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Isophorone	ND		0.12	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
N-Nitrosodi-n-propylamine	ND		0.12	0.026	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
N-Nitrosodiphenylamine	ND		0.12	0.028	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Naphthalene	0.31		0.035	0.0057	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Nitrobenzene	ND		0.24	0.031	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Pentachlorophenol	ND		0.35	0.14	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Phenanthrene	0.26		0.035	0.0052	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Phenol	0.18		0.12	0.019	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
Pyrene	0.056		0.035	0.0050	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
3 & 4 Methylphenol	ND		0.94	0.068	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2
2-Butoxyethanol	ND		0.16	0.15	mg/Kg	✳	02/27/23 11:53	03/03/23 14:13	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	12	S1-	46 - 137	02/27/23 11:53	03/03/23 14:13	2
Phenol-d5 (Surr)	12	S1-	26 - 120	02/27/23 11:53	03/03/23 14:13	2
Nitrobenzene-d5 (Surr)	12	S1-	25 - 120	02/27/23 11:53	03/03/23 14:13	2
2-Fluorophenol (Surr)	13	S1-	20 - 120	02/27/23 11:53	03/03/23 14:13	2
2-Fluorobiphenyl (Surr)	13	S1-	34 - 120	02/27/23 11:53	03/03/23 14:13	2
2,4,6-Tribromophenol (Surr)	13		10 - 120	02/27/23 11:53	03/03/23 14:13	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0054	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 08:12	1
Barium	1.1	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 08:12	1
Cadmium	0.0014	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 08:12	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 08:12	1
Lead	0.0076	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 08:12	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 08:12	1
Silver	0.00085	J	0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 08:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Date Collected: 02/25/23 09:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 86.3

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.3		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	13.7		0.1	0.1	%			02/27/23 13:12	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Date Collected: 02/25/23 10:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 75.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.37	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,1,2,2-Tetrachloroethane	ND		0.37	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.37	0.099	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,1,2-Trichloroethane	ND		0.37	0.084	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,1-Dichloroethane	ND		0.37	0.071	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,1-Dichloroethene	ND		0.37	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,2,4-Trichlorobenzene	ND		0.37	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,2-Dibromo-3-Chloropropane	ND		0.74	0.33	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Ethylene Dibromide	ND		0.37	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,2-Dichlorobenzene	ND		0.37	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,2-Dichloroethane	ND		0.37	0.069	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,2-Dichloropropane	ND		0.37	0.055	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,3-Dichlorobenzene	ND		0.37	0.068	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
1,4-Dichlorobenzene	ND		0.37	0.081	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
2-Butanone (MEK)	ND		1.5	0.23	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
2-Hexanone	ND		1.5	0.39	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Acetone	0.66	J	1.5	0.36	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Benzene	3.6		0.37	0.062	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Dichlorobromomethane	ND		0.37	0.090	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Bromoform	ND		0.37	0.34	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Bromomethane	ND		0.37	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Carbon disulfide	ND		0.37	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Carbon tetrachloride	ND		0.37	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Chlorobenzene	ND		0.37	0.052	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Chloroethane	ND		0.37	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Chloroform	ND		0.37	0.080	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Chloromethane	ND		0.37	0.097	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
cis-1,2-Dichloroethene	ND		0.37	0.059	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
cis-1,3-Dichloropropene	ND		0.37	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Cyclohexane	ND		0.74	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Chlorodibromomethane	ND		0.37	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Dichlorodifluoromethane	ND		0.37	0.078	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Ethylbenzene	ND		0.37	0.069	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Isopropylbenzene	0.64		0.37	0.056	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Methyl acetate	2.1		1.8	0.25	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Methyl tert-butyl ether	ND		0.37	0.055	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Methylcyclohexane	0.22	J	0.74	0.097	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Methylene Chloride	ND		0.74	0.56	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Styrene	ND		0.37	0.077	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Tetrachloroethene	ND		0.37	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Toluene	ND		0.37	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
trans-1,2-Dichloroethene	ND		0.37	0.091	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
trans-1,3-Dichloropropene	ND		0.37	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Trichloroethene	ND		0.37	0.21	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Trichlorofluoromethane	ND		0.37	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Vinyl chloride	ND		0.37	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Xylenes, Total	0.19	J	0.74	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1
Butyl acrylate	2.0	J	3.7	2.0	mg/Kg	✳	02/27/23 17:21	02/28/23 22:19	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Date Collected: 02/25/23 10:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 75.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.74	0.17	mg/Kg	☼	02/27/23 17:21	02/28/23 22:19	1
2-Ethylhexyl acrylate	ND		3.7	2.7	mg/Kg	☼	02/27/23 17:21	02/28/23 22:19	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	81		56 - 125				02/27/23 17:21	02/28/23 22:19	1
Dibromofluoromethane (Surr)	76		41 - 138				02/27/23 17:21	02/28/23 22:19	1
4-Bromofluorobenzene (Surr)	75		41 - 143				02/27/23 17:21	02/28/23 22:19	1
1,2-Dichloroethane-d4 (Surr)	74		58 - 125				02/27/23 17:21	02/28/23 22:19	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.33	0.11	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
bis (2-chloroisopropyl) ether	ND		0.65	0.065	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,4,5-Trichlorophenol	ND		0.98	0.45	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,4,6-Trichlorophenol	ND		0.98	0.42	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,4-Dichlorophenol	ND		0.98	0.29	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,4-Dimethylphenol	ND		0.98	0.26	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,4-Dinitrophenol	ND		2.2	0.93	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,4-Dinitrotoluene	ND		1.3	0.41	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2,6-Dinitrotoluene	ND		1.3	0.37	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Chloronaphthalene	ND		0.33	0.091	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Chlorophenol	ND		0.33	0.065	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Methylnaphthalene	0.18		0.098	0.013	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Methylphenol	ND		1.3	0.20	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Nitroaniline	ND		1.3	0.26	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Nitrophenol	ND		0.33	0.085	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
3,3'-Dichlorobenzidine	ND		0.65	0.28	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
3-Nitroaniline	ND		1.3	0.32	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4,6-Dinitro-2-methylphenol	ND		2.2	0.52	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4-Bromophenyl phenyl ether	ND		0.33	0.091	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4-Chloro-3-methylphenol	ND		0.98	0.29	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4-Chloroaniline	ND		0.98	0.20	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4-Chlorophenyl phenyl ether	ND		0.33	0.091	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4-Nitroaniline	ND		1.3	0.39	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
4-Nitrophenol	ND		2.2	0.61	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Acenaphthene	ND		0.098	0.019	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Acenaphthylene	ND		0.098	0.026	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Acetophenone	0.38	J	0.65	0.072	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Anthracene	0.049	J	0.098	0.016	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Atrazine	ND		1.3	0.24	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Benzaldehyde	ND		0.65	0.15	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Benzo[a]anthracene	0.075	J	0.098	0.022	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Benzo[a]pyrene	ND		0.098	0.061	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Benzo[b]fluoranthene	ND		0.098	0.042	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Benzo[g,h,i]perylene	ND		0.098	0.046	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Benzo[k]fluoranthene	ND		0.098	0.045	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Bis(2-chloroethoxy)methane	ND		0.65	0.078	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Bis(2-chloroethyl)ether	ND		0.65	0.078	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Bis(2-ethylhexyl) phthalate	ND		0.46	0.33	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Butyl benzyl phthalate	ND		0.46	0.14	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Date Collected: 02/25/23 10:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 75.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.2	0.49	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Carbazole	ND		0.33	0.12	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Chrysene	0.10		0.098	0.0097	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Dibenz(a,h)anthracene	ND		0.098	0.045	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Dibenzofuran	0.11	J	0.33	0.085	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Diethyl phthalate	ND		0.46	0.20	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Dimethyl phthalate	ND		0.46	0.091	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Di-n-butyl phthalate	ND		0.46	0.33	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Di-n-octyl phthalate	ND		0.46	0.18	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Fluoranthene	0.14		0.098	0.029	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Fluorene	0.042	J	0.098	0.018	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Hexachlorobenzene	ND		0.098	0.019	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Hexachlorobutadiene	ND		0.33	0.078	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Hexachlorocyclopentadiene	ND		2.2	0.41	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Hexachloroethane	ND		0.33	0.059	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Indeno[1,2,3-cd]pyrene	ND		0.098	0.048	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Isophorone	ND		0.33	0.078	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
N-Nitrosodi-n-propylamine	ND		0.33	0.072	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
N-Nitrosodiphenylamine	ND		0.33	0.078	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Naphthalene	0.17		0.098	0.016	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Nitrobenzene	ND		0.65	0.085	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Pentachlorophenol	ND		0.98	0.38	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Phenanthrene	0.26		0.098	0.015	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Phenol	0.096	J	0.33	0.052	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
Pyrene	0.12		0.098	0.014	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
3 & 4 Methylphenol	ND		2.6	0.19	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5
2-Butoxyethanol	0.44	J	0.46	0.43	mg/Kg	☼	02/27/23 11:53	03/02/23 20:47	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	18	S1-	46 - 137	02/27/23 11:53	03/02/23 20:47	5
Phenol-d5 (Surr)	17	S1-	26 - 120	02/27/23 11:53	03/02/23 20:47	5
Nitrobenzene-d5 (Surr)	18	S1-	25 - 120	02/27/23 11:53	03/02/23 20:47	5
2-Fluorophenol (Surr)	14	S1-	20 - 120	02/27/23 11:53	03/02/23 20:47	5
2-Fluorobiphenyl (Surr)	17	S1-	34 - 120	02/27/23 11:53	03/02/23 20:47	5
2,4,6-Tribromophenol (Surr)	22		10 - 120	02/27/23 11:53	03/02/23 20:47	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0041	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 08:17	1
Barium	0.68	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 08:17	1
Cadmium	0.010	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 08:17	1
Chromium	0.0043	J	0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 08:17	1
Lead	0.016	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 08:17	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 08:17	1
Silver	0.0014	J	0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 08:17	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:48	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Date Collected: 02/25/23 10:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 75.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	75.9		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	24.1		0.1	0.1	%			02/27/23 13:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Date Collected: 02/25/23 11:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 80.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.36	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,1,2,2-Tetrachloroethane	ND		0.36	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.36	0.097	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,1,2-Trichloroethane	ND		0.36	0.083	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,1-Dichloroethane	ND		0.36	0.070	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,1-Dichloroethene	ND		0.36	0.12	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,2,4-Trichlorobenzene	ND		0.36	0.19	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,2-Dibromo-3-Chloropropane	ND		0.73	0.32	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Ethylene Dibromide	ND		0.36	0.11	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,2-Dichlorobenzene	ND		0.36	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,2-Dichloroethane	ND		0.36	0.068	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,2-Dichloropropane	ND		0.36	0.054	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,3-Dichlorobenzene	ND		0.36	0.067	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
1,4-Dichlorobenzene	ND		0.36	0.080	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
2-Butanone (MEK)	ND		1.5	0.23	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
2-Hexanone	ND		1.5	0.38	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Acetone	0.59	J	1.5	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Benzene	7.9		0.36	0.061	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Dichlorobromomethane	ND		0.36	0.088	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Bromoform	ND		0.36	0.33	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Bromomethane	ND		0.36	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Carbon disulfide	ND		0.36	0.16	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Carbon tetrachloride	ND		0.36	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Chlorobenzene	ND		0.36	0.051	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Chloroethane	ND		0.36	0.22	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Chloroform	ND		0.36	0.078	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Chloromethane	0.31	J	0.36	0.096	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
cis-1,2-Dichloroethene	ND		0.36	0.058	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
cis-1,3-Dichloropropene	ND		0.36	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Cyclohexane	0.41	J	0.73	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Chlorodibromomethane	ND		0.36	0.17	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Dichlorodifluoromethane	ND		0.36	0.077	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Ethylbenzene	ND		0.36	0.068	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Isopropylbenzene	ND		0.36	0.055	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Methyl acetate	0.37	J	1.8	0.24	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Methyl tert-butyl ether	ND		0.36	0.054	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Methylcyclohexane	1.2		0.73	0.096	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Methylene Chloride	ND		0.73	0.56	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Styrene	ND		0.36	0.075	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Tetrachloroethene	ND		0.36	0.14	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Toluene	ND		0.36	0.35	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
trans-1,2-Dichloroethene	ND		0.36	0.090	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
trans-1,3-Dichloropropene	ND		0.36	0.15	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Trichloroethene	ND		0.36	0.21	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Trichlorofluoromethane	ND		0.36	0.20	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Vinyl chloride	ND		0.36	0.18	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Xylenes, Total	0.59	J	0.73	0.13	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1
Butyl acrylate	3.5	J	3.6	2.0	mg/Kg	✳	02/27/23 17:21	02/28/23 22:40	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Date Collected: 02/25/23 11:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 80.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.73	0.17	mg/Kg	☼	02/27/23 17:21	02/28/23 22:40	1
2-Ethylhexyl acrylate	ND		3.6	2.7	mg/Kg	☼	02/27/23 17:21	02/28/23 22:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125				02/27/23 17:21	02/28/23 22:40	1
Dibromofluoromethane (Surr)	75		41 - 138				02/27/23 17:21	02/28/23 22:40	1
4-Bromofluorobenzene (Surr)	71		41 - 143				02/27/23 17:21	02/28/23 22:40	1
1,2-Dichloroethane-d4 (Surr)	73		58 - 125				02/27/23 17:21	02/28/23 22:40	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.31	0.11	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
bis (2-chloroisopropyl) ether	ND		0.63	0.063	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,4,5-Trichlorophenol	ND		0.94	0.43	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,4,6-Trichlorophenol	ND		0.94	0.40	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,4-Dichlorophenol	ND		0.94	0.28	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,4-Dimethylphenol	ND		0.94	0.25	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,4-Dinitrophenol	ND		2.1	0.89	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,4-Dinitrotoluene	ND		1.3	0.39	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2,6-Dinitrotoluene	ND		1.3	0.35	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2-Chloronaphthalene	ND		0.31	0.088	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2-Chlorophenol	ND		0.31	0.063	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2-Methylnaphthalene	0.27		0.094	0.012	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2-Methylphenol	ND		1.3	0.19	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2-Nitroaniline	ND		1.3	0.25	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
2-Nitrophenol	ND		0.31	0.081	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
3,3'-Dichlorobenzidine	ND		0.63	0.27	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
3-Nitroaniline	ND		1.3	0.31	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4,6-Dinitro-2-methylphenol	ND		2.1	0.50	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4-Bromophenyl phenyl ether	ND		0.31	0.088	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4-Chloro-3-methylphenol	ND		0.94	0.28	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4-Chloroaniline	ND		0.94	0.19	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4-Chlorophenyl phenyl ether	ND		0.31	0.088	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4-Nitroaniline	ND		1.3	0.38	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
4-Nitrophenol	ND		2.1	0.59	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Acenaphthene	ND		0.094	0.018	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Acenaphthylene	ND		0.094	0.025	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Acetophenone	0.50	J	0.63	0.069	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Anthracene	ND		0.094	0.015	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Atrazine	ND		1.3	0.23	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Benzaldehyde	ND		0.63	0.14	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Benzo[a]anthracene	ND		0.094	0.021	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Benzo[a]pyrene	ND		0.094	0.059	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Benzo[b]fluoranthene	0.059	J	0.094	0.041	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Benzo[g,h,i]perylene	ND		0.094	0.044	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Benzo[k]fluoranthene	ND		0.094	0.043	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Bis(2-chloroethoxy)methane	ND		0.63	0.075	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Bis(2-chloroethyl)ether	ND		0.63	0.075	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Bis(2-ethylhexyl) phthalate	1.2		0.44	0.32	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5
Butyl benzyl phthalate	ND		0.44	0.14	mg/Kg	☼	02/27/23 11:53	03/02/23 21:11	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Date Collected: 02/25/23 11:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 80.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.1	0.47	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Carbazole	ND		0.31	0.12	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Chrysene	0.080	J	0.094	0.0093	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Dibenz(a,h)anthracene	ND		0.094	0.043	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Dibenzofuran	0.14	J	0.31	0.081	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Diethyl phthalate	ND		0.44	0.19	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Dimethyl phthalate	ND		0.44	0.088	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Di-n-butyl phthalate	ND		0.44	0.32	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Di-n-octyl phthalate	ND		0.44	0.18	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Fluoranthene	0.087	J	0.094	0.028	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Fluorene	0.035	J	0.094	0.017	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Hexachlorobenzene	ND		0.094	0.018	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Hexachlorobutadiene	ND		0.31	0.075	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Hexachlorocyclopentadiene	ND		2.1	0.39	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Hexachloroethane	ND		0.31	0.056	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Indeno[1,2,3-cd]pyrene	ND		0.094	0.046	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Isophorone	ND		0.31	0.075	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
N-Nitrosodi-n-propylamine	ND		0.31	0.069	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
N-Nitrosodiphenylamine	ND		0.31	0.075	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Naphthalene	0.30		0.094	0.015	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Nitrobenzene	ND		0.63	0.081	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Pentachlorophenol	ND		0.94	0.36	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Phenanthrene	0.28		0.094	0.014	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Phenol	0.11	J	0.31	0.050	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
Pyrene	0.080	J	0.094	0.013	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
3 & 4 Methylphenol	ND		2.5	0.18	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5
2-Butoxyethanol	0.44		0.44	0.41	mg/Kg	✳	02/27/23 11:53	03/02/23 21:11	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	14	S1-	46 - 137	02/27/23 11:53	03/02/23 21:11	5
Phenol-d5 (Surr)	14	S1-	26 - 120	02/27/23 11:53	03/02/23 21:11	5
Nitrobenzene-d5 (Surr)	13	S1-	25 - 120	02/27/23 11:53	03/02/23 21:11	5
2-Fluorophenol (Surr)	17	S1-	20 - 120	02/27/23 11:53	03/02/23 21:11	5
2-Fluorobiphenyl (Surr)	14	S1-	34 - 120	02/27/23 11:53	03/02/23 21:11	5
2,4,6-Tribromophenol (Surr)	14		10 - 120	02/27/23 11:53	03/02/23 21:11	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 08:22	1
Barium	1.0	B	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 08:22	1
Cadmium	0.0051	J B	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 08:22	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 08:22	1
Lead	0.012	J	0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 08:22	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 08:22	1
Silver	0.00087	J	0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 08:22	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:50	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Date Collected: 02/25/23 11:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 80.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.0		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	20.0		0.1	0.1	%			02/27/23 13:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)

Lab Sample ID: 240-180954-16

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/27/23 13:38	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/27/23 13:38	1
2-Butanone (MEK)	0.023	J B	0.25	0.0012	mg/L			02/27/23 13:38	1
Benzene	0.096		0.025	0.00042	mg/L			02/27/23 13:38	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/27/23 13:38	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/27/23 13:38	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/27/23 13:38	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/27/23 13:38	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/27/23 13:38	1
Chloroform	ND		0.025	0.00047	mg/L			02/27/23 13:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	96		80 - 120					02/27/23 13:38	1
<i>Dibromofluoromethane (Surr)</i>	107		71 - 121					02/27/23 13:38	1
<i>4-Bromofluorobenzene (Surr)</i>	84		80 - 120					02/27/23 13:38	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	105		76 - 120					02/27/23 13:38	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:25	03/02/23 13:12	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:25	03/02/23 13:12	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:25	03/02/23 13:12	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:25	03/02/23 13:12	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:25	03/02/23 13:12	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:25	03/02/23 13:12	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:25	03/02/23 13:12	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:25	03/02/23 13:12	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:25	03/02/23 13:12	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:25	03/02/23 13:12	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:25	03/02/23 13:12	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:25	03/02/23 13:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	112		46 - 137				02/28/23 07:25	03/02/23 13:12	1
<i>Phenol-d5 (Surr)</i>	68		26 - 120				02/28/23 07:25	03/02/23 13:12	1
<i>Nitrobenzene-d5 (Surr)</i>	84		24 - 120				02/28/23 07:25	03/02/23 13:12	1
<i>2-Fluorophenol (Surr)</i>	74		19 - 120				02/28/23 07:25	03/02/23 13:12	1
<i>2-Fluorobiphenyl (Surr)</i>	98		33 - 120				02/28/23 07:25	03/02/23 13:12	1
<i>2,4,6-Tribromophenol (Surr)</i>	88		10 - 120				02/28/23 07:25	03/02/23 13:12	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/28/23 07:30	02/28/23 14:14	1
Endrin	ND		0.00050	0.0000065	mg/L		02/28/23 07:30	02/28/23 14:14	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/28/23 07:30	02/28/23 14:14	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/28/23 07:30	02/28/23 14:14	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/28/23 07:30	02/28/23 14:14	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/28/23 07:30	02/28/23 14:14	1
Toxaphene	ND		0.020	0.000058	mg/L		02/28/23 07:30	02/28/23 14:14	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)

Lab Sample ID: 240-180954-16

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	68		10 - 145	02/28/23 07:30	02/28/23 14:14	1
DCB Decachlorobiphenyl	72		10 - 145	02/28/23 07:30	02/28/23 14:14	1
Tetrachloro-m-xylene	61		10 - 123	02/28/23 07:30	02/28/23 14:14	1
Tetrachloro-m-xylene	70		10 - 123	02/28/23 07:30	02/28/23 14:14	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/01/23 19:30	03/02/23 07:04	1
2,4-D	ND		0.050	0.016	mg/L		03/01/23 19:30	03/02/23 07:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	54		26 - 136	03/01/23 19:30	03/02/23 07:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability Screen (SW846 1030)	Negative				NONE			03/02/23 13:36	1
Percent Solids (EPA Moisture)	73.7		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	26.3		0.1	0.1	%			02/27/23 13:12	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)

Lab Sample ID: 240-180954-16

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 73.7

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		69	34	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1221	ND		69	41	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1232	ND		69	29	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1242	ND		69	26	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1248	ND		69	23	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1254	ND		69	29	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1260	ND		69	29	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1262	ND		69	30	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1
Aroclor-1268	410		69	22	ug/Kg	☼	02/27/23 12:32	02/28/23 19:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	54		10 - 149	02/27/23 12:32	02/28/23 19:16	1
DCB Decachlorobiphenyl	95	p	10 - 174	02/27/23 12:32	02/28/23 19:16	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/27/23 14:01	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/27/23 14:01	1
2-Butanone (MEK)	0.016	J B	0.25	0.0012	mg/L			02/27/23 14:01	1
Benzene	0.057		0.025	0.00042	mg/L			02/27/23 14:01	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/27/23 14:01	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/27/23 14:01	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/27/23 14:01	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/27/23 14:01	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/27/23 14:01	1
Chloroform	ND		0.025	0.00047	mg/L			02/27/23 14:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		80 - 120		02/27/23 14:01	1
Dibromofluoromethane (Surr)	102		71 - 121		02/27/23 14:01	1
4-Bromofluorobenzene (Surr)	82		80 - 120		02/27/23 14:01	1
1,2-Dichloroethane-d4 (Surr)	100		76 - 120		02/27/23 14:01	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:25	03/02/23 13:39	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:25	03/02/23 13:39	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:25	03/02/23 13:39	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:25	03/02/23 13:39	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:25	03/02/23 13:39	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:25	03/02/23 13:39	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:25	03/02/23 13:39	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:25	03/02/23 13:39	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:25	03/02/23 13:39	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:25	03/02/23 13:39	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:25	03/02/23 13:39	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:25	03/02/23 13:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	110		46 - 137	02/28/23 07:25	03/02/23 13:39	1
Phenol-d5 (Surr)	68		26 - 120	02/28/23 07:25	03/02/23 13:39	1
Nitrobenzene-d5 (Surr)	86		24 - 120	02/28/23 07:25	03/02/23 13:39	1
2-Fluorophenol (Surr)	72		19 - 120	02/28/23 07:25	03/02/23 13:39	1
2-Fluorobiphenyl (Surr)	100		33 - 120	02/28/23 07:25	03/02/23 13:39	1
2,4,6-Tribromophenol (Surr)	93		10 - 120	02/28/23 07:25	03/02/23 13:39	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/28/23 07:30	02/28/23 14:49	1
Endrin	ND		0.00050	0.0000065	mg/L		02/28/23 07:30	02/28/23 14:49	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/28/23 07:30	02/28/23 14:49	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/28/23 07:30	02/28/23 14:49	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/28/23 07:30	02/28/23 14:49	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/28/23 07:30	02/28/23 14:49	1
Toxaphene	ND		0.020	0.000058	mg/L		02/28/23 07:30	02/28/23 14:49	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	70		10 - 145	02/28/23 07:30	02/28/23 14:49	1
DCB Decachlorobiphenyl	67		10 - 145	02/28/23 07:30	02/28/23 14:49	1
Tetrachloro-m-xylene	61		10 - 123	02/28/23 07:30	02/28/23 14:49	1
Tetrachloro-m-xylene	67		10 - 123	02/28/23 07:30	02/28/23 14:49	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/01/23 19:30	03/02/23 07:32	1
2,4-D	ND		0.050	0.016	mg/L		03/01/23 19:30	03/02/23 07:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	53		26 - 136	03/01/23 19:30	03/02/23 07:32	1
2,4-Dichlorophenylacetic acid (Surr)	52		26 - 136	03/01/23 19:30	03/02/23 07:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability Screen (SW846 1030)	Negative				NONE			03/02/23 13:36	1
Percent Solids (EPA Moisture)	76.4		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	23.6		0.1	0.1	%			02/27/23 13:12	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.4

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		67	34	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1221	ND		67	40	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1232	ND		67	28	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1242	ND		67	26	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1248	ND		67	23	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1254	ND		67	28	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1260	ND		67	28	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1262	ND		67	30	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1
Aroclor-1268	280		67	22	ug/Kg	✳	02/27/23 12:32	02/28/23 19:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	43		10 - 149	02/27/23 12:32	02/28/23 19:32	1
DCB Decachlorobiphenyl	148		10 - 174	02/27/23 12:32	02/28/23 19:32	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	ND		0.78	0.26	ng/g	✳	02/28/23 19:41	03/02/23 21:12	1
Perfluorooctanesulfonic acid	ND		0.78	0.26	ng/g	✳	02/28/23 19:41	03/02/23 21:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	85		26 - 159	02/28/23 19:41	03/02/23 21:12	1
13C8 PFOS	88		41 - 154	02/28/23 19:41	03/02/23 21:12	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-PELLETS & SOIL-COMP

Lab Sample ID: 240-180954-18

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/27/23 14:25	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/27/23 14:25	1
2-Butanone (MEK)	0.029	J B	0.25	0.0012	mg/L			02/27/23 14:25	1
Benzene	ND		0.025	0.00042	mg/L			02/27/23 14:25	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/27/23 14:25	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/27/23 14:25	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/27/23 14:25	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/27/23 14:25	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/27/23 14:25	1
Chloroform	ND		0.025	0.00047	mg/L			02/27/23 14:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	93		80 - 120					02/27/23 14:25	1
Dibromofluoromethane (Surr)	100		71 - 121					02/27/23 14:25	1
4-Bromofluorobenzene (Surr)	82		80 - 120					02/27/23 14:25	1
1,2-Dichloroethane-d4 (Surr)	100		76 - 120					02/27/23 14:25	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:25	03/02/23 14:05	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:25	03/02/23 14:05	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:25	03/02/23 14:05	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:25	03/02/23 14:05	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:25	03/02/23 14:05	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:25	03/02/23 14:05	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:25	03/02/23 14:05	1
2-Methylphenol	0.00087	J	0.0040	0.00021	mg/L		02/28/23 07:25	03/02/23 14:05	1
3 & 4 Methylphenol	0.0013	J	0.0040	0.00019	mg/L		02/28/23 07:25	03/02/23 14:05	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:25	03/02/23 14:05	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:25	03/02/23 14:05	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:25	03/02/23 14:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	105		46 - 137				02/28/23 07:25	03/02/23 14:05	1
Phenol-d5 (Surr)	64		26 - 120				02/28/23 07:25	03/02/23 14:05	1
Nitrobenzene-d5 (Surr)	81		24 - 120				02/28/23 07:25	03/02/23 14:05	1
2-Fluorophenol (Surr)	68		19 - 120				02/28/23 07:25	03/02/23 14:05	1
2-Fluorobiphenyl (Surr)	94		33 - 120				02/28/23 07:25	03/02/23 14:05	1
2,4,6-Tribromophenol (Surr)	84		10 - 120				02/28/23 07:25	03/02/23 14:05	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/28/23 07:30	02/28/23 15:06	1
Endrin	ND		0.00050	0.0000065	mg/L		02/28/23 07:30	02/28/23 15:06	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/28/23 07:30	02/28/23 15:06	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/28/23 07:30	02/28/23 15:06	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/28/23 07:30	02/28/23 15:06	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/28/23 07:30	02/28/23 15:06	1
Toxaphene	ND		0.020	0.000058	mg/L		02/28/23 07:30	02/28/23 15:06	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-PELLETS & SOIL-COMP

Lab Sample ID: 240-180954-18

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	73		10 - 145	02/28/23 07:30	02/28/23 15:06	1
DCB Decachlorobiphenyl	70		10 - 145	02/28/23 07:30	02/28/23 15:06	1
Tetrachloro-m-xylene	61		10 - 123	02/28/23 07:30	02/28/23 15:06	1
Tetrachloro-m-xylene	63		10 - 123	02/28/23 07:30	02/28/23 15:06	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/01/23 19:30	03/02/23 07:59	1
2,4-D	ND		0.050	0.016	mg/L		03/01/23 19:30	03/02/23 07:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	52		26 - 136	03/01/23 19:30	03/02/23 07:59	1
2,4-Dichlorophenylacetic acid (Surr)	51		26 - 136	03/01/23 19:30	03/02/23 07:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability Screen (SW846 1030)	Negative				NONE			03/02/23 13:36	1
Percent Solids (EPA Moisture)	93.3		0.1	0.1	%			02/27/23 13:12	1
Percent Moisture (EPA Moisture)	6.7		0.1	0.1	%			02/27/23 13:12	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-PELLETS & SOIL-COMP

Lab Sample ID: 240-180954-18

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.3

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		500	250	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1221	ND		500	300	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1232	ND		500	210	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1242	ND		500	190	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1248	ND		500	170	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1254	ND		500	210	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1260	ND		500	210	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1262	ND		500	220	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1
Aroclor-1268	ND		500	160	ug/Kg	☼	02/27/23 12:32	02/28/23 19:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	117		10 - 149	02/27/23 12:32	02/28/23 19:49	1
DCB Decachlorobiphenyl	121		10 - 174	02/27/23 12:32	02/28/23 19:49	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-180954-1	WC-SB2325-PELLETS & SOIL	79	77	71	75
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	85	88	77	81
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	80	84	72	73
240-180954-2	WC-SB2636-PELLETS & SOIL	80	75	74	74
240-180954-3	WC-SB1855-PELLETS & SOIL	80	78	74	77
240-180954-3	WC-SB1855-PELLETS & SOIL	109	105	136 *3	97
240-180954-4	WC-SB1252-PELLETS & SOIL	79	78	74	78
240-180954-5	WC-SB1841-PELLETS & SOIL	81	78	72	76
240-180954-6	WC-TW-7 (2-4)	79	77	72	75
240-180954-7	WC-TW-6 (2-4)	80	76	72	76
240-180954-8	WC-TW-5 (2-4)	80	77	73	75
240-180954-9	WC-TW-1 (4-6)	79	77	72	76
240-180954-10	WC-TW-9 (8-10)	83	86	75	84
240-180954-10	WC-TW-9 (8-10)	108	97	104	86
240-180954-11	WC-TW-3 (2-4)	79	74	71	75
240-180954-12	WC-TW-8 (6-8)	77	79	73	77
240-180954-12	WC-TW-8 (6-8)	110	94	104	84
240-180954-13	WC-TW-2 (2-4)	77	81	71	77
240-180954-13	WC-TW-2 (2-4)	103	93	108	84
240-180954-14	WC-TW-4 (2-4)	81	76	75	74
240-180954-15	WC-TW-10 (6-8)	79	75	71	73
LCS 240-563638/2-A	Lab Control Sample	86	92	78	82
LCS 240-563784/4	Lab Control Sample	96	100	102	87
MB 240-563638/1-A	Method Blank	78	80	68	77
MB 240-563777/1-A	Method Blank	100	102	104	88

Surrogate Legend

- TOL = Toluene-d8 (Surr)
- DBFM = Dibromofluoromethane (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-563488/12	Lab Control Sample	98	102	94	98

Surrogate Legend

- TOL = Toluene-d8 (Surr)
- DBFM = Dibromofluoromethane (Surr)
- BFB = 4-Bromofluorobenzene (Surr)
- DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-180954-16	WC-TW-COMP (TW-1 THRU TV	96	107	84	105
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	92	102	82	100
240-180954-18	WC-PELLETS & SOIL-COMP	93	100	82	100
LB 240-563461/1-A MB	Method Blank	94	106	81	103

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-180954-1	WC-SB2325-PELLETS & SOIL	54	43	35	40	42	42
240-180954-2	WC-SB2636-PELLETS & SOIL	87	71	60	64	77	65
240-180954-3	WC-SB1855-PELLETS & SOIL	85	65	60	59	70	62
240-180954-4	WC-SB1252-PELLETS & SOIL	88	73	62	64	77	68
240-180954-5	WC-SB1841-PELLETS & SOIL	87	65	56	61	71	60
240-180954-6	WC-TW-7 (2-4)	17 S1-	17 S1-	16 S1-	14 S1-	15 S1-	14
240-180954-7	WC-TW-6 (2-4)	26 S1-	28	24 S1-	21	23 S1-	21
240-180954-8	WC-TW-5 (2-4)	35 S1-	23 S1-	32	24	27 S1-	34
240-180954-9	WC-TW-1 (4-6)	49	48	47	38	48	40
240-180954-10	WC-TW-9 (8-10)	32 S1-	28	29	26	30 S1-	26
240-180954-11	WC-TW-3 (2-4)	20 S1-	23 S1-	20 S1-	18 S1-	19 S1-	19
240-180954-12	WC-TW-8 (6-8)	77	72	69	75	72	76
240-180954-13	WC-TW-2 (2-4)	12 S1-	12 S1-	12 S1-	13 S1-	13 S1-	13
240-180954-14	WC-TW-4 (2-4)	18 S1-	17 S1-	18 S1-	14 S1-	17 S1-	22
240-180954-15	WC-TW-10 (6-8)	14 S1-	14 S1-	13 S1-	17 S1-	14 S1-	14
LCS 240-563569/24-A	Lab Control Sample	87	68	67	64	71	70
LCS 240-563569/25-A	Lab Control Sample	92	66	68	56	77	24
MB 240-563569/23-A	Method Blank	95	71	65	58	79	34

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-563671/7-A	Lab Control Sample	108	71	88	74	100	84

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
MB 240-563671/6-A	Method Blank	102	65	81	68	88	76

Surrogate Legend

- TPHL = Terphenyl-d14 (Surr)
- PHL = Phenol-d5 (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- 2FP = 2-Fluorophenol (Surr)
- FBP = 2-Fluorobiphenyl (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-180954-16	WC-TW-COMP (TW-1 THRU TV	112	68	84	74	98	88
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	110	68	86	72	100	93
240-180954-18	WC-PELLETS & SOIL-COMP	105	64	81	68	94	84

Surrogate Legend

- TPHL = Terphenyl-d14 (Surr)
- PHL = Phenol-d5 (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- 2FP = 2-Fluorophenol (Surr)
- FBP = 2-Fluorobiphenyl (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-563676/6-A	Lab Control Sample	72	70	60	70
MB 240-563676/5-A	Method Blank	70	74	65	77

Surrogate Legend

- DCBP = DCB Decachlorobiphenyl
- TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-180954-16	WC-TW-COMP (TW-1 THRU TV	68	72	61	70
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	64	69	60	69
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	70	67	61	67
240-180954-18	WC-PELLETS & SOIL-COMP	73	70	61	63

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (10-149)	DCBP2 (10-174)
240-180954-16	WC-TW-COMP (TW-1 THRU TV	54	95 p

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX1 (10-149)	DCBP1 (10-174)
240-180954-17	WC-TW-COMP (TW-6 THRU TV	43	148
240-180954-18	WC-PELLETS & SOIL-COMP	117	121
LCS 240-563578/2-A	Lab Control Sample	115	100
MB 240-563578/1-A	Method Blank	106	86

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)
LCS 410-349322/3-A	Lab Control Sample	63

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA2 (26-136)
MB 410-349322/2-A	Method Blank	61

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)	DCPAA2 (26-136)
240-180954-16	WC-TW-COMP (TW-1 THRU TV		54

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8151A - Herbicides (GC) (Continued)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)	DCPAA2 (26-136)
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TV		60
240-180954-16 MSD	WC-TW-COMP (TW-1 THRU TW-5)		65
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	53	52
240-180954-18	WC-PELLETS & SOIL-COMP	52	51

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: LCS 240-563488/12
Matrix: Solid
Analysis Batch: 563488

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	1.13		mg/L		113	74 - 127
1,2-Dichloroethane	1.00	0.980		mg/L		98	72 - 120
2-Butanone (MEK)	2.00	2.14		mg/L		107	68 - 130
Benzene	1.00	1.06		mg/L		106	80 - 121
Carbon tetrachloride	1.00	0.920		mg/L		92	69 - 120
Chlorobenzene	1.00	1.01		mg/L		101	80 - 120
Chloroform	1.00	1.06		mg/L		106	75 - 120
Tetrachloroethene	1.00	1.01		mg/L		101	74 - 120
Trichloroethene	1.00	0.961		mg/L		96	75 - 120
Vinyl chloride	1.00	0.816		mg/L		82	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	102		71 - 121
4-Bromofluorobenzene (Surr)	94		80 - 120
1,2-Dichloroethane-d4 (Surr)	98		76 - 120

Lab Sample ID: MB 240-563638/1-A
Matrix: Solid
Analysis Batch: 563775

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563638

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
2-Hexanone	ND		1.0	0.26	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Acetone	ND		1.0	0.24	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Benzene	ND		0.25	0.042	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Bromoform	ND		0.25	0.23	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Bromomethane	ND		0.25	0.17	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Chloroethane	ND		0.25	0.15	mg/Kg		02/27/23 17:21	02/28/23 16:12	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-563638/1-A
Matrix: Solid
Analysis Batch: 563775

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563638

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.25	0.054	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Chloromethane	ND		0.25	0.066	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Cyclohexane	ND		0.50	0.16	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Methyl acetate	ND		1.3	0.17	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Styrene	ND		0.25	0.052	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Toluene	ND		0.25	0.24	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Trichloroethene	ND		0.25	0.14	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Butyl acrylate	ND		2.5	1.4	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
Methyl acrylate	ND		0.50	0.12	mg/Kg		02/27/23 17:21	02/28/23 16:12	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg		02/27/23 17:21	02/28/23 16:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125	02/27/23 17:21	02/28/23 16:12	1
Dibromofluoromethane (Surr)	80		41 - 138	02/27/23 17:21	02/28/23 16:12	1
4-Bromofluorobenzene (Surr)	68		41 - 143	02/27/23 17:21	02/28/23 16:12	1
1,2-Dichloroethane-d4 (Surr)	77		58 - 125	02/27/23 17:21	02/28/23 16:12	1

Lab Sample ID: LCS 240-563638/2-A
Matrix: Solid
Analysis Batch: 563775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563638

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	1.25	1.34		mg/Kg		107	74 - 136
1,1,2,2-Tetrachloroethane	1.25	1.08		mg/Kg		87	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.55		mg/Kg		124	64 - 148
1,1,2-Trichloroethane	1.25	1.25		mg/Kg		100	79 - 120
1,1-Dichloroethane	1.25	1.14		mg/Kg		91	74 - 121
1,1-Dichloroethene	1.25	1.36		mg/Kg		109	68 - 141
1,2,4-Trichlorobenzene	1.25	1.23		mg/Kg		98	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.812		mg/Kg		65	52 - 133
Ethylene Dibromide	1.25	1.20		mg/Kg		96	80 - 121
1,2-Dichlorobenzene	1.25	1.21		mg/Kg		97	73 - 120
1,2-Dichloroethane	1.25	1.15		mg/Kg		92	71 - 123

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-563638/2-A
Matrix: Solid
Analysis Batch: 563775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563638

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichloropropane	1.25	1.13		mg/Kg		91	76 - 126
1,3-Dichlorobenzene	1.25	1.23		mg/Kg		99	73 - 120
1,4-Dichlorobenzene	1.25	1.21		mg/Kg		96	74 - 120
2-Butanone (MEK)	2.50	2.57		mg/Kg		103	63 - 142
2-Hexanone	2.50	2.00		mg/Kg		80	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.08		mg/Kg		83	62 - 142
Acetone	2.50	2.87		mg/Kg		115	58 - 160
Benzene	1.25	1.29		mg/Kg		104	76 - 121
Dichlorobromomethane	1.25	1.16		mg/Kg		93	71 - 138
Bromoform	1.25	1.06		mg/Kg		85	57 - 140
Bromomethane	1.25	0.807		mg/Kg		65	10 - 171
Carbon disulfide	1.25	1.13		mg/Kg		91	43 - 152
Carbon tetrachloride	1.25	1.40		mg/Kg		112	64 - 144
Chlorobenzene	1.25	1.20		mg/Kg		96	80 - 120
Chloroethane	1.25	1.14		mg/Kg		91	11 - 164
Chloroform	1.25	1.28		mg/Kg		102	78 - 120
Chloromethane	1.25	0.930		mg/Kg		74	41 - 142
cis-1,2-Dichloroethene	1.25	1.34		mg/Kg		108	78 - 124
cis-1,3-Dichloropropene	1.25	1.07		mg/Kg		86	70 - 133
Cyclohexane	1.25	1.23		mg/Kg		99	65 - 137
Chlorodibromomethane	1.25	1.08		mg/Kg		86	68 - 131
Dichlorodifluoromethane	1.25	0.974		mg/Kg		78	21 - 150
Ethylbenzene	1.25	1.24		mg/Kg		99	80 - 120
Isopropylbenzene	1.25	1.34		mg/Kg		107	80 - 130
Methyl acetate	2.50	2.22		mg/Kg		89	60 - 133
Methyl tert-butyl ether	1.25	1.21		mg/Kg		97	70 - 130
Methylcyclohexane	1.25	1.43		mg/Kg		115	70 - 138
Methylene Chloride	1.25	1.13		mg/Kg		90	71 - 124
Styrene	1.25	1.32		mg/Kg		106	75 - 140
Tetrachloroethene	1.25	1.38		mg/Kg		111	76 - 127
Toluene	1.25	1.26		mg/Kg		101	80 - 120
trans-1,2-Dichloroethene	1.25	1.38		mg/Kg		110	76 - 130
trans-1,3-Dichloropropene	1.25	0.953		mg/Kg		76	61 - 121
Trichloroethene	1.25	1.37		mg/Kg		109	74 - 130
Trichlorofluoromethane	1.25	1.33		mg/Kg		107	50 - 154
Vinyl chloride	1.25	1.18		mg/Kg		94	49 - 146
Xylenes, Total	2.50	2.59		mg/Kg		104	80 - 122
m-Xylene & p-Xylene	1.25	1.27		mg/Kg		102	80 - 122
o-Xylene	1.25	1.32		mg/Kg		106	80 - 124
Butyl acrylate	5.00	4.41		mg/Kg		88	10 - 120
Methyl acrylate	5.00	5.27		mg/Kg		105	10 - 120
2-Ethylhexyl acrylate	5.00	5.08		mg/Kg		102	10 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	86		56 - 125
Dibromofluoromethane (Surr)	92		41 - 138
4-Bromofluorobenzene (Surr)	78		41 - 143
1,2-Dichloroethane-d4 (Surr)	82		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180954-1 MS

Matrix: Solid

Analysis Batch: 563775

Client Sample ID: WC-SB2325-PELLETS & SOIL

Prep Type: Total/NA

Prep Batch: 563638

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
1,1,1-Trichloroethane	ND		2.69	2.91		mg/Kg	☼	108		46 - 144
1,1,2,2-Tetrachloroethane	ND		2.69	2.51		mg/Kg	☼	93		26 - 159
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.69	3.36		mg/Kg	☼	125		35 - 164
1,1,2-Trichloroethane	ND		2.69	3.47		mg/Kg	☼	129		26 - 149
1,1-Dichloroethane	ND		2.69	2.59		mg/Kg	☼	96		46 - 135
1,1-Dichloroethene	ND		2.69	2.92		mg/Kg	☼	109		44 - 160
1,2,4-Trichlorobenzene	ND		2.69	2.75		mg/Kg	☼	102		10 - 120
1,2-Dibromo-3-Chloropropane	ND		2.69	1.68		mg/Kg	☼	62		12 - 144
Ethylene Dibromide	ND		2.69	2.83		mg/Kg	☼	105		31 - 142
1,2-Dichlorobenzene	ND		2.69	2.59		mg/Kg	☼	96		10 - 126
1,2-Dichloroethane	ND		2.69	2.59		mg/Kg	☼	96		40 - 132
1,2-Dichloropropane	ND		2.69	2.58		mg/Kg	☼	96		45 - 133
1,3-Dichlorobenzene	ND		2.69	2.62		mg/Kg	☼	98		10 - 131
1,4-Dichlorobenzene	ND		2.69	2.46		mg/Kg	☼	92		10 - 129
2-Butanone (MEK)	ND		5.37	5.60		mg/Kg	☼	104		30 - 157
2-Hexanone	ND		5.37	4.03		mg/Kg	☼	75		20 - 166
4-Methyl-2-pentanone (MIBK)	ND		5.37	4.85		mg/Kg	☼	90		31 - 159
Acetone	ND		5.37	8.57		mg/Kg	☼	159		35 - 167
Benzene	0.10	J	2.69	2.94		mg/Kg	☼	105		39 - 134
Dichlorobromomethane	ND		2.69	2.57		mg/Kg	☼	96		32 - 146
Bromoform	ND		2.69	1.97		mg/Kg	☼	73		12 - 144
Bromomethane	ND		2.69	1.57		mg/Kg	☼	58		10 - 161
Carbon disulfide	ND		2.69	2.31		mg/Kg	☼	86		24 - 153
Carbon tetrachloride	ND		2.69	2.90		mg/Kg	☼	108		37 - 145
Chlorobenzene	ND		2.69	2.59		mg/Kg	☼	97		18 - 134
Chloroethane	ND		2.69	2.35		mg/Kg	☼	88		14 - 159
Chloroform	ND		2.69	2.91		mg/Kg	☼	108		43 - 134
Chloromethane	ND		2.69	2.00		mg/Kg	☼	74		32 - 151
cis-1,2-Dichloroethene	ND		2.69	2.95		mg/Kg	☼	110		48 - 132
cis-1,3-Dichloropropene	ND		2.69	2.41		mg/Kg	☼	90		23 - 139
Cyclohexane	0.74	J	2.69	3.55		mg/Kg	☼	104		31 - 147
Chlorodibromomethane	ND		2.69	2.16		mg/Kg	☼	81		25 - 143
Dichlorodifluoromethane	ND		2.69	1.96		mg/Kg	☼	73		16 - 157
Ethylbenzene	ND		2.69	2.81		mg/Kg	☼	104		17 - 137
Isopropylbenzene	ND		2.69	2.92		mg/Kg	☼	109		10 - 146
Methyl acetate	ND		5.37	6.77		mg/Kg	☼	126		13 - 164
Methyl tert-butyl ether	ND		2.69	2.63		mg/Kg	☼	98		55 - 134
Methylcyclohexane	1.6		2.69	4.83		mg/Kg	☼	120		20 - 153
Methylene Chloride	ND		2.69	2.74		mg/Kg	☼	102		38 - 145
Styrene	ND		2.69	2.91		mg/Kg	☼	108		10 - 149
Tetrachloroethene	0.25	J	2.69	3.09		mg/Kg	☼	106		19 - 147
Toluene	ND		2.69	3.12		mg/Kg	☼	116		30 - 137
trans-1,2-Dichloroethene	ND		2.69	2.89		mg/Kg	☼	108		41 - 145
trans-1,3-Dichloropropene	ND		2.69	2.05		mg/Kg	☼	76		19 - 130
Trichloroethene	ND		2.69	3.05		mg/Kg	☼	113		21 - 158
Trichlorofluoromethane	ND		2.69	2.71		mg/Kg	☼	101		36 - 161
Vinyl chloride	ND		2.69	2.50		mg/Kg	☼	93		32 - 163
Xylenes, Total	0.78	J	5.37	6.28		mg/Kg	☼	102		17 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180954-1 MS

Matrix: Solid

Analysis Batch: 563775

Client Sample ID: WC-SB2325-PELLETS & SOIL

Prep Type: Total/NA

Prep Batch: 563638

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
m-Xylene & p-Xylene	0.44	J	2.69	3.15		mg/Kg	☼	101		10 - 141
o-Xylene	0.34	J	2.69	3.13		mg/Kg	☼	104		18 - 139
Butyl acrylate	ND		10.7	10.2		mg/Kg	☼	95		10 - 120
Methyl acrylate	ND		10.7	12.0		mg/Kg	☼	112		10 - 120
2-Ethylhexyl acrylate	ND		10.7	10.4		mg/Kg	☼	97		10 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	85		56 - 125
Dibromofluoromethane (Surr)	88		41 - 138
4-Bromofluorobenzene (Surr)	77		41 - 143
1,2-Dichloroethane-d4 (Surr)	81		58 - 125

Lab Sample ID: 240-180954-1 MSD

Matrix: Solid

Analysis Batch: 563775

Client Sample ID: WC-SB2325-PELLETS & SOIL

Prep Type: Total/NA

Prep Batch: 563638

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
1,1,1-Trichloroethane	ND		2.69	2.78		mg/Kg	☼	103		46 - 144	4	37
1,1,2,2-Tetrachloroethane	ND		2.69	2.15		mg/Kg	☼	80		26 - 159	15	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.69	3.12		mg/Kg	☼	116		35 - 164	8	37
1,1,2-Trichloroethane	ND		2.69	3.17		mg/Kg	☼	118		26 - 149	9	40
1,1-Dichloroethane	ND		2.69	2.47		mg/Kg	☼	92		46 - 135	5	36
1,1-Dichloroethene	ND		2.69	2.72		mg/Kg	☼	101		44 - 160	7	37
1,2,4-Trichlorobenzene	ND		2.69	2.65		mg/Kg	☼	98		10 - 120	4	40
1,2-Dibromo-3-Chloropropane	ND		2.69	1.97		mg/Kg	☼	73		12 - 144	16	40
Ethylene Dibromide	ND		2.69	2.61		mg/Kg	☼	97		31 - 142	8	40
1,2-Dichlorobenzene	ND		2.69	2.46		mg/Kg	☼	92		10 - 126	5	40
1,2-Dichloroethane	ND		2.69	2.40		mg/Kg	☼	89		40 - 132	8	35
1,2-Dichloropropane	ND		2.69	2.44		mg/Kg	☼	91		45 - 133	6	37
1,3-Dichlorobenzene	ND		2.69	2.48		mg/Kg	☼	92		10 - 131	6	40
1,4-Dichlorobenzene	ND		2.69	2.39		mg/Kg	☼	89		10 - 129	3	40
2-Butanone (MEK)	ND		5.37	5.38		mg/Kg	☼	100		30 - 157	4	40
2-Hexanone	ND		5.37	4.84		mg/Kg	☼	90		20 - 166	18	40
4-Methyl-2-pentanone (MIBK)	ND		5.37	4.49		mg/Kg	☼	83		31 - 159	8	40
Acetone	ND		5.37	7.91		mg/Kg	☼	147		35 - 167	8	40
Benzene	0.10	J	2.69	2.77		mg/Kg	☼	99		39 - 134	6	40
Dichlorobromomethane	ND		2.69	2.45		mg/Kg	☼	91		32 - 146	5	39
Bromoform	ND		2.69	1.90		mg/Kg	☼	71		12 - 144	3	40
Bromomethane	ND		2.69	1.53		mg/Kg	☼	57		10 - 161	2	40
Carbon disulfide	ND		2.69	2.26		mg/Kg	☼	84		24 - 153	2	40
Carbon tetrachloride	ND		2.69	2.77		mg/Kg	☼	103		37 - 145	4	38
Chlorobenzene	ND		2.69	2.49		mg/Kg	☼	92		18 - 134	4	40
Chloroethane	ND		2.69	2.21		mg/Kg	☼	82		14 - 159	6	40
Chloroform	ND		2.69	2.83		mg/Kg	☼	105		43 - 134	3	36
Chloromethane	ND		2.69	1.89		mg/Kg	☼	70		32 - 151	6	38
cis-1,2-Dichloroethene	ND		2.69	2.82		mg/Kg	☼	105		48 - 132	4	37
cis-1,3-Dichloropropene	ND		2.69	2.29		mg/Kg	☼	85		23 - 139	5	39
Cyclohexane	0.74	J	2.69	3.29		mg/Kg	☼	95		31 - 147	8	39

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-180954-1 MSD

Matrix: Solid

Analysis Batch: 563775

Client Sample ID: WC-SB2325-PELLETS & SOIL

Prep Type: Total/NA

Prep Batch: 563638

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD		
Chlorodibromomethane	ND		2.69	1.97		mg/Kg	⊛	73	25 - 143	9	40	
Dichlorodifluoromethane	ND		2.69	1.88		mg/Kg	⊛	70	16 - 157	5	40	
Ethylbenzene	ND		2.69	2.66		mg/Kg	⊛	99	17 - 137	5	40	
Isopropylbenzene	ND		2.69	2.80		mg/Kg	⊛	104	10 - 146	4	40	
Methyl acetate	ND		5.37	6.04		mg/Kg	⊛	112	13 - 164	11	40	
Methyl tert-butyl ether	ND		2.69	2.47		mg/Kg	⊛	92	55 - 134	6	37	
Methylcyclohexane	1.6		2.69	4.46		mg/Kg	⊛	106	20 - 153	8	40	
Methylene Chloride	ND		2.69	2.35		mg/Kg	⊛	88	38 - 145	15	40	
Styrene	ND		2.69	2.77		mg/Kg	⊛	103	10 - 149	5	40	
Tetrachloroethene	0.25	J	2.69	2.87		mg/Kg	⊛	98	19 - 147	7	40	
Toluene	ND		2.69	2.97		mg/Kg	⊛	110	30 - 137	5	40	
trans-1,2-Dichloroethene	ND		2.69	2.77		mg/Kg	⊛	103	41 - 145	4	37	
trans-1,3-Dichloropropene	ND		2.69	1.94		mg/Kg	⊛	72	19 - 130	6	40	
Trichloroethene	ND		2.69	2.83		mg/Kg	⊛	105	21 - 158	7	40	
Trichlorofluoromethane	ND		2.69	2.53		mg/Kg	⊛	94	36 - 161	7	40	
Vinyl chloride	ND		2.69	2.38		mg/Kg	⊛	88	32 - 163	5	38	
Xylenes, Total	0.78	J	5.37	5.88		mg/Kg	⊛	95	17 - 138	7	40	
m-Xylene & p-Xylene	0.44	J	2.69	2.98		mg/Kg	⊛	95	10 - 141	6	40	
o-Xylene	0.34	J	2.69	2.90		mg/Kg	⊛	95	18 - 139	7	40	
Butyl acrylate	ND		10.7	9.70		mg/Kg	⊛	90	10 - 120	5	30	
Methyl acrylate	ND		10.7	10.7		mg/Kg	⊛	100	10 - 120	12	30	
2-Ethylhexyl acrylate	ND		10.7	11.8		mg/Kg	⊛	110	10 - 120	13	30	

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	80		56 - 125
Dibromofluoromethane (Surr)	84		41 - 138
4-Bromofluorobenzene (Surr)	72		41 - 143
1,2-Dichloroethane-d4 (Surr)	73		58 - 125

Lab Sample ID: MB 240-563777/1-A

Matrix: Solid

Analysis Batch: 563784

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 563777

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		02/28/23 15:57	02/28/23 18:46	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	100		56 - 125	02/28/23 15:57	02/28/23 18:46	1
Dibromofluoromethane (Surr)	102		41 - 138	02/28/23 15:57	02/28/23 18:46	1
4-Bromofluorobenzene (Surr)	104		41 - 143	02/28/23 15:57	02/28/23 18:46	1
1,2-Dichloroethane-d4 (Surr)	88		58 - 125	02/28/23 15:57	02/28/23 18:46	1

Lab Sample ID: LCS 240-563784/4

Matrix: Solid

Analysis Batch: 563784

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Vinyl chloride	0.0250	0.0233		mg/Kg		93	49 - 146

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-563784/4
Matrix: Solid
Analysis Batch: 563784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	96		56 - 125
Dibromofluoromethane (Surr)	100		41 - 138
4-Bromofluorobenzene (Surr)	102		41 - 143
1,2-Dichloroethane-d4 (Surr)	87		58 - 125

Lab Sample ID: LB 240-563461/1-A MB
Matrix: Solid
Analysis Batch: 563488

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			02/27/23 12:50	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			02/27/23 12:50	1
2-Butanone (MEK)	0.0203	J	0.25	0.0012	mg/L			02/27/23 12:50	1
Benzene	ND		0.025	0.00042	mg/L			02/27/23 12:50	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			02/27/23 12:50	1
Chlorobenzene	ND		0.025	0.00038	mg/L			02/27/23 12:50	1
Chloroform	ND		0.025	0.00047	mg/L			02/27/23 12:50	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			02/27/23 12:50	1
Trichloroethene	ND		0.025	0.00044	mg/L			02/27/23 12:50	1
Vinyl chloride	ND		0.025	0.00045	mg/L			02/27/23 12:50	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	94		80 - 120		02/27/23 12:50	1
Dibromofluoromethane (Surr)	106		71 - 121		02/27/23 12:50	1
4-Bromofluorobenzene (Surr)	81		80 - 120		02/27/23 12:50	1
1,2-Dichloroethane-d4 (Surr)	103		76 - 120		02/27/23 12:50	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-563569/23-A
Matrix: Solid
Analysis Batch: 563825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563569

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		02/27/23 11:53	03/01/23 11:17	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563569/23-A
Matrix: Solid
Analysis Batch: 563825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563569

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Nitrophenol	ND		0.050	0.013	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Acetophenone	ND		0.10	0.011	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Anthracene	ND		0.015	0.0024	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Atrazine	ND		0.20	0.036	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Caprolactam	ND		0.33	0.075	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Carbazole	ND		0.050	0.019	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Chrysene	ND		0.015	0.0015	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Fluorene	ND		0.015	0.0027	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Isophorone	ND		0.050	0.012	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Naphthalene	ND		0.015	0.0024	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
Phenol	ND		0.050	0.0080	mg/Kg		02/27/23 11:53	03/01/23 11:17	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-563569/23-A
Matrix: Solid
Analysis Batch: 563825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563569

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	ND		0.015	0.0021	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		02/27/23 11:53	03/01/23 11:17	1
2-Butoxyethanol	ND		0.070	0.066	mg/Kg		02/27/23 11:53	03/01/23 11:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	95		46 - 137	02/27/23 11:53	03/01/23 11:17	1
Phenol-d5 (Surr)	71		26 - 120	02/27/23 11:53	03/01/23 11:17	1
Nitrobenzene-d5 (Surr)	65		25 - 120	02/27/23 11:53	03/01/23 11:17	1
2-Fluorophenol (Surr)	58		20 - 120	02/27/23 11:53	03/01/23 11:17	1
2-Fluorobiphenyl (Surr)	79		34 - 120	02/27/23 11:53	03/01/23 11:17	1
2,4,6-Tribromophenol (Surr)	34		10 - 120	02/27/23 11:53	03/01/23 11:17	1

Lab Sample ID: LCS 240-563569/24-A
Matrix: Solid
Analysis Batch: 563825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563569

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1'-Biphenyl	0.667	0.439		mg/Kg		66	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.425		mg/Kg		64	38 - 120
2,4,5-Trichlorophenol	0.667	0.449		mg/Kg		67	50 - 120
2,4,6-Trichlorophenol	0.667	0.451		mg/Kg		68	50 - 120
2,4-Dichlorophenol	0.667	0.414		mg/Kg		62	50 - 120
2,4-Dimethylphenol	0.667	0.314		mg/Kg		47	24 - 120
2,4-Dinitrophenol	1.33	0.668		mg/Kg		50	19 - 132
2,4-Dinitrotoluene	0.667	0.517		mg/Kg		78	64 - 120
2,6-Dinitrotoluene	0.667	0.508		mg/Kg		76	62 - 120
2-Chloronaphthalene	0.667	0.439		mg/Kg		66	51 - 120
2-Chlorophenol	0.667	0.394		mg/Kg		59	47 - 120
2-Methylnaphthalene	0.667	0.401		mg/Kg		60	38 - 120
2-Methylphenol	0.667	0.384		mg/Kg		58	45 - 120
2-Nitroaniline	0.667	0.516		mg/Kg		77	57 - 120
2-Nitrophenol	0.667	0.415		mg/Kg		62	51 - 120
3,3'-Dichlorobenzidine	1.33	0.947		mg/Kg		71	27 - 199
3-Nitroaniline	0.667	0.450		mg/Kg		68	41 - 120
4,6-Dinitro-2-methylphenol	1.33	0.827		mg/Kg		62	46 - 126
4-Bromophenyl phenyl ether	0.667	0.440		mg/Kg		66	65 - 120
4-Chloro-3-methylphenol	0.667	0.441		mg/Kg		66	51 - 120
4-Chloroaniline	0.667	0.338		mg/Kg		51	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.457		mg/Kg		69	59 - 120
4-Nitroaniline	0.667	0.456		mg/Kg		68	48 - 128
4-Nitrophenol	1.33	1.09		mg/Kg		82	43 - 120
Acenaphthene	0.667	0.470		mg/Kg		71	52 - 120
Acenaphthylene	0.667	0.429		mg/Kg		64	52 - 120
Acetophenone	0.667	0.408		mg/Kg		61	47 - 120
Anthracene	0.667	0.483		mg/Kg		72	64 - 120
Atrazine	1.33	1.10		mg/Kg		83	71 - 125
Benzaldehyde	1.33	0.842		mg/Kg		63	42 - 120
Benzo[a]anthracene	0.667	0.534		mg/Kg		80	70 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563569/24-A
Matrix: Solid
Analysis Batch: 563825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563569

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	0.667	0.463		mg/Kg		70	63 - 125
Benzo[b]fluoranthene	0.667	0.523		mg/Kg		78	64 - 121
Benzo[g,h,i]perylene	0.667	0.461		mg/Kg		69	62 - 120
Benzo[k]fluoranthene	0.667	0.509		mg/Kg		76	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.411		mg/Kg		62	50 - 120
Bis(2-chloroethyl)ether	0.667	0.436		mg/Kg		65	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.525		mg/Kg		79	63 - 133
Butyl benzyl phthalate	0.667	0.553		mg/Kg		83	66 - 127
Caprolactam	1.33	1.00		mg/Kg		75	67 - 120
Carbazole	0.667	0.496		mg/Kg		74	61 - 129
Chrysene	0.667	0.540		mg/Kg		81	67 - 120
Dibenz(a,h)anthracene	0.667	0.462		mg/Kg		69	62 - 120
Dibenzofuran	0.667	0.447		mg/Kg		67	55 - 120
Diethyl phthalate	0.667	0.506		mg/Kg		76	61 - 120
Dimethyl phthalate	0.667	0.494		mg/Kg		74	64 - 120
Di-n-butyl phthalate	0.667	0.508		mg/Kg		76	70 - 129
Di-n-octyl phthalate	0.667	0.496		mg/Kg		74	64 - 129
Fluoranthene	0.667	0.492		mg/Kg		74	71 - 124
Fluorene	0.667	0.474		mg/Kg		71	58 - 120
Hexachlorobenzene	0.667	0.427		mg/Kg		64	59 - 120
Hexachlorobutadiene	0.667	0.400		mg/Kg		60	45 - 120
Hexachlorocyclopentadiene	0.667	0.303	J	mg/Kg		45	10 - 120
Hexachloroethane	0.667	0.381		mg/Kg		57	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.468		mg/Kg		70	65 - 122
Isophorone	0.667	0.430		mg/Kg		65	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.387		mg/Kg		58	48 - 120
N-Nitrosodiphenylamine	0.667	0.452		mg/Kg		68	64 - 120
Naphthalene	0.667	0.400		mg/Kg		60	34 - 120
Nitrobenzene	0.667	0.411		mg/Kg		62	48 - 120
Pentachlorophenol	1.33	0.460		mg/Kg		34	10 - 120
Phenanthrene	0.667	0.471		mg/Kg		71	60 - 120
Phenol	0.667	0.407		mg/Kg		61	48 - 120
Pyrene	0.667	0.537		mg/Kg		81	67 - 120
3 & 4 Methylphenol	0.667	0.389	J	mg/Kg		58	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	87		46 - 137
Phenol-d5 (Surr)	68		26 - 120
Nitrobenzene-d5 (Surr)	67		25 - 120
2-Fluorophenol (Surr)	64		20 - 120
2-Fluorobiphenyl (Surr)	71		34 - 120
2,4,6-Tribromophenol (Surr)	70		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563569/25-A
Matrix: Solid
Analysis Batch: 563825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563569

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butoxyethanol	0.667	0.507		mg/Kg		76	
Surrogate							
	%Recovery	Qualifier	Limits				
Terphenyl-d14 (Surr)	92		46 - 137				
Phenol-d5 (Surr)	66		26 - 120				
Nitrobenzene-d5 (Surr)	68		25 - 120				
2-Fluorophenol (Surr)	56		20 - 120				
2-Fluorobiphenyl (Surr)	77		34 - 120				
2,4,6-Tribromophenol (Surr)	24		10 - 120				

Lab Sample ID: MB 240-563671/6-A
Matrix: Solid
Analysis Batch: 563967

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563671

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		02/28/23 07:25	03/02/23 10:36	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		02/28/23 07:25	03/02/23 10:36	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		02/28/23 07:25	03/02/23 10:36	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		02/28/23 07:25	03/02/23 10:36	1
Pyridine	ND		0.0040	0.00036	mg/L		02/28/23 07:25	03/02/23 10:36	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		02/28/23 07:25	03/02/23 10:36	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		02/28/23 07:25	03/02/23 10:36	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		02/28/23 07:25	03/02/23 10:36	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		02/28/23 07:25	03/02/23 10:36	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		02/28/23 07:25	03/02/23 10:36	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		02/28/23 07:25	03/02/23 10:36	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		02/28/23 07:25	03/02/23 10:36	1
Surrogate									
	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Terphenyl-d14 (Surr)	102		46 - 137			02/28/23 07:25	03/02/23 10:36	1	
Phenol-d5 (Surr)	65		26 - 120			02/28/23 07:25	03/02/23 10:36	1	
Nitrobenzene-d5 (Surr)	81		24 - 120			02/28/23 07:25	03/02/23 10:36	1	
2-Fluorophenol (Surr)	68		19 - 120			02/28/23 07:25	03/02/23 10:36	1	
2-Fluorobiphenyl (Surr)	88		33 - 120			02/28/23 07:25	03/02/23 10:36	1	
2,4,6-Tribromophenol (Surr)	76		10 - 120			02/28/23 07:25	03/02/23 10:36	1	

Lab Sample ID: LCS 240-563671/7-A
Matrix: Solid
Analysis Batch: 563967

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563671

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	0.0800	0.0669		mg/L		84	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0862		mg/L		108	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0795		mg/L		99	51 - 120
2,4-Dinitrotoluene	0.0800	0.0847		mg/L		106	58 - 125
Pyridine	0.160	0.0536		mg/L		34	10 - 120
2-Methylphenol	0.0800	0.0742		mg/L		93	45 - 120
Hexachlorobenzene	0.0800	0.0711		mg/L		89	55 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-563671/7-A
Matrix: Solid
Analysis Batch: 563967

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563671

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorobutadiene	0.0800	0.0799		mg/L		100	41 - 120
Hexachloroethane	0.0800	0.0727		mg/L		91	39 - 120
Nitrobenzene	0.0800	0.0748		mg/L		94	47 - 120
Pentachlorophenol	0.160	0.132		mg/L		83	19 - 132
3 & 4 Methylphenol	0.0800	0.0658		mg/L		82	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	108		46 - 137
Phenol-d5 (Surr)	71		26 - 120
Nitrobenzene-d5 (Surr)	88		24 - 120
2-Fluorophenol (Surr)	74		19 - 120
2-Fluorobiphenyl (Surr)	100		33 - 120
2,4,6-Tribromophenol (Surr)	84		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-563676/5-A
Matrix: Solid
Analysis Batch: 563710

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563676

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		02/28/23 07:30	02/28/23 13:40	1
Endrin	ND		0.00050	0.0000065	mg/L		02/28/23 07:30	02/28/23 13:40	1
Heptachlor	ND		0.00050	0.0000082	mg/L		02/28/23 07:30	02/28/23 13:40	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		02/28/23 07:30	02/28/23 13:40	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		02/28/23 07:30	02/28/23 13:40	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		02/28/23 07:30	02/28/23 13:40	1
Toxaphene	ND		0.020	0.000058	mg/L		02/28/23 07:30	02/28/23 13:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	70		10 - 145	02/28/23 07:30	02/28/23 13:40	1
DCB Decachlorobiphenyl	74		10 - 145	02/28/23 07:30	02/28/23 13:40	1
Tetrachloro-m-xylene	65		10 - 123	02/28/23 07:30	02/28/23 13:40	1
Tetrachloro-m-xylene	77		10 - 123	02/28/23 07:30	02/28/23 13:40	1

Lab Sample ID: LCS 240-563676/6-A
Matrix: Solid
Analysis Batch: 563710

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Endrin	0.00100	0.000808		mg/L		81	36 - 120
Heptachlor	0.00100	0.000760		mg/L		76	29 - 120
Heptachlor epoxide	0.00100	0.000770		mg/L		77	36 - 120
gamma-BHC (Lindane)	0.00100	0.000771		mg/L		77	23 - 120
Methoxychlor	0.00100	0.000957	J	mg/L		96	23 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	72		10 - 145

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 240-563676/6-A
Matrix: Solid
Analysis Batch: 563710

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563676

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	70		10 - 145
Tetrachloro-m-xylene	60		10 - 123
Tetrachloro-m-xylene	70		10 - 123

Lab Sample ID: 240-180954-16 MS
Matrix: Solid
Analysis Batch: 563710

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)
Prep Type: TCLP
Prep Batch: 563676

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Endrin	ND		0.00100	0.000795		mg/L		80	58 - 120
Heptachlor	ND		0.00100	0.000743		mg/L		74	42 - 120
Heptachlor epoxide	ND		0.00100	0.000745		mg/L		75	54 - 120
gamma-BHC (Lindane)	ND		0.00100	0.000736		mg/L		74	32 - 120
Methoxychlor	ND		0.00100	0.000986	J	mg/L		99	11 - 159

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	64		10 - 145
DCB Decachlorobiphenyl	69		10 - 145
Tetrachloro-m-xylene	60		10 - 123
Tetrachloro-m-xylene	69		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-563578/1-A
Matrix: Solid
Analysis Batch: 563699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563578

Analyte	MB	MB	RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier									
Aroclor-1016	ND		50	25	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1221	ND		50	30	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1232	ND		50	21	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1242	ND		50	19	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1248	ND		50	17	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1254	ND		50	21	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1260	ND		50	21	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1262	ND		50	22	ug/Kg		02/27/23 12:32	02/28/23 12:38			1
Aroclor-1268	ND		50	16	ug/Kg		02/27/23 12:32	02/28/23 12:38			1

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier						
Tetrachloro-m-xylene	106		10 - 149	02/27/23 12:32	02/28/23 12:38			1
DCB Decachlorobiphenyl	86		10 - 174	02/27/23 12:32	02/28/23 12:38			1

Lab Sample ID: LCS 240-563578/2-A
Matrix: Solid
Analysis Batch: 563699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563578

Analyte	Spike	LCS LCS		Unit	D	%Rec	Limits
		Added	Result				
Aroclor-1016	1000	1020		ug/Kg		102	28 - 140

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-563578/2-A
Matrix: Solid
Analysis Batch: 563699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563578

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1260	1000	968		ug/Kg		97	39 - 153
		LCS	LCS				
Surrogate	%Recovery	Qualifier	Limits				
Tetrachloro-m-xylene	115		10 - 149				
DCB Decachlorobiphenyl	100		10 - 174				

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-349322/2-A
Matrix: Solid
Analysis Batch: 349396

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 349322

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/01/23 19:30	03/02/23 05:12	1
2,4-D	ND		0.050	0.016	mg/L		03/01/23 19:30	03/02/23 05:12	1
		MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	03/01/23 19:30	03/02/23 05:12	1			

Lab Sample ID: LCS 410-349322/3-A
Matrix: Solid
Analysis Batch: 349396

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 349322

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silvex (2,4,5-TP)	0.00500	0.00317	J	mg/L		63	58 - 148
2,4-D	0.0502	0.0298	J	mg/L		59	42 - 147
		LCS	LCS				
Surrogate	%Recovery	Qualifier	Limits				
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136				

Lab Sample ID: 240-180954-16 MS
Matrix: Solid
Analysis Batch: 349396

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)
Prep Type: TCLP
Prep Batch: 349322

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Silvex (2,4,5-TP)	ND		0.00500	0.00313	J	mg/L		63	58 - 148
2,4-D	ND		0.0502	0.0294	J	mg/L		59	42 - 147
		MS	MS						
Surrogate	%Recovery	Qualifier	Limits						
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136						

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: 240-180954-16 MSD
Matrix: Solid
Analysis Batch: 349396

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)
Prep Type: TCLP
Prep Batch: 349322

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Silvex (2,4,5-TP)	ND		0.00500	0.00328	J	mg/L		66	58 - 148	5	30
2,4-D	ND		0.0502	0.0308	J	mg/L		61	42 - 147	5	30
		MSD	MSD								
Surrogate	%Recovery	Qualifier	Limits								
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136								

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-348895/1-B
Matrix: Solid
Analysis Batch: 349425

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 348895

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier								
Perfluorooctanoic acid	ND		0.60	0.20	ng/g		02/28/23 19:41	03/02/23 20:50	1	
Perfluorooctanesulfonic acid	ND		0.60	0.20	ng/g		02/28/23 19:41	03/02/23 20:50	1	
		MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
13C8 PFOA	89		26 - 159	02/28/23 19:41	03/02/23 20:50	1				
13C8 PFOS	94		41 - 154	02/28/23 19:41	03/02/23 20:50	1				

Lab Sample ID: LCS 410-348895/2-B
Matrix: Solid
Analysis Batch: 349425

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 348895

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier				Limits	
Perfluorooctanoic acid	25.0	20.2		ng/g		81	59 - 131	
Perfluorooctanesulfonic acid	23.1	19.9		ng/g		86	61 - 126	
		LCS	LCS					
Isotope Dilution	%Recovery	Qualifier	Limits					
13C8 PFOA	95		26 - 159					
13C8 PFOS	92		41 - 154					

Lab Sample ID: 240-180954-17 MS
Matrix: Solid
Analysis Batch: 349425

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)
Prep Type: Total/NA
Prep Batch: 348895

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				Limits	
Perfluorooctanoic acid	ND		31.8	26.0		ng/g	✱	82	59 - 131	
Perfluorooctanesulfonic acid	ND		29.4	24.9		ng/g	✱	85	61 - 126	
		MS	MS							
Isotope Dilution	%Recovery	Qualifier	Limits							
13C8 PFOA	92		26 - 159							
13C8 PFOS	95		41 - 154							

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: 240-180954-17 MSD
Matrix: Solid
Analysis Batch: 349425

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)
Prep Type: Total/NA
Prep Batch: 348895

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Perfluorooctanoic acid	ND		30.3	26.0		ng/g	☼	86	59 - 131	0	30
Perfluorooctanesulfonic acid	ND		28.0	24.2		ng/g	☼	86	61 - 126	3	30
		MSD	MSD								
Isotope Dilution	%Recovery	Qualifier	Limits								
13C8 PFOA	83		26 - 159								
13C8 PFOS	90		41 - 154								

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-563594/2-A
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563594

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 05:36	1
Barium	ND		0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 05:36	1
Cadmium	ND		0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 05:36	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 05:36	1
Lead	ND		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 05:36	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 05:36	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 05:36	1

Lab Sample ID: LCS 240-563594/3-A
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563594

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	
							Result	Qualifier
Arsenic	2.00	2.21		mg/L		110	50 - 150	
Barium	2.00	2.02		mg/L		101	50 - 150	
Cadmium	1.00	1.02		mg/L		102	50 - 150	
Chromium	1.00	1.03		mg/L		103	50 - 150	
Lead	1.00	0.943		mg/L		94	50 - 150	
Selenium	2.00	2.26		mg/L		113	50 - 150	
Silver	0.100	0.106		mg/L		106	50 - 150	

Lab Sample ID: MB 240-563597/2-A
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563597

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:07	1
Barium	ND		0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:07	1
Cadmium	0.000203	J	0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:07	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:07	1
Lead	ND		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:07	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:07	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:07	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 240-563597/3-A
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563597

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.17		mg/L		108	50 - 150
Barium	2.00	2.00		mg/L		100	50 - 150
Cadmium	1.00	0.999		mg/L		100	50 - 150
Chromium	1.00	1.02		mg/L		102	50 - 150
Lead	1.00	0.932		mg/L		93	50 - 150
Selenium	2.00	2.21		mg/L		110	50 - 150
Silver	0.100	0.106		mg/L		106	50 - 150

Lab Sample ID: LB 240-563462/1-B
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563594

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00445	J	0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 05:32	1
Barium	0.00329	J	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 05:32	1
Cadmium	ND		0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 05:32	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 05:32	1
Lead	ND		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 05:32	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 05:32	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 05:32	1

Lab Sample ID: 240-180954-1 MS
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: WC-SB2325-PELLETS & SOIL
Prep Type: TCLP
Prep Batch: 563594

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0066	J B	5.00	5.16		mg/L		103	75 - 125
Barium	0.42	J B	50.0	49.1		mg/L		97	75 - 125
Cadmium	0.0027	J	1.00	0.992		mg/L		99	75 - 125
Chromium	ND		5.00	5.00		mg/L		100	75 - 125
Lead	0.048	J	5.00	4.84		mg/L		96	75 - 125
Selenium	0.0097	J	1.00	1.07		mg/L		106	75 - 125
Silver	ND		1.00	1.01		mg/L		101	75 - 125

Lab Sample ID: 240-180954-1 MSD
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: WC-SB2325-PELLETS & SOIL
Prep Type: TCLP
Prep Batch: 563594

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Arsenic	0.0066	J B	5.00	5.13		mg/L		103	75 - 125	1	20
Barium	0.42	J B	50.0	49.1		mg/L		97	75 - 125	0	20
Cadmium	0.0027	J	1.00	0.988		mg/L		99	75 - 125	0	20
Chromium	ND		5.00	4.98		mg/L		100	75 - 125	0	20
Lead	0.048	J	5.00	4.81		mg/L		95	75 - 125	1	20
Selenium	0.0097	J	1.00	1.04		mg/L		103	75 - 125	3	20
Silver	ND		1.00	1.01		mg/L		101	75 - 125	1	20

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 240-563463/1-B
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563597

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		02/27/23 14:00	03/01/23 07:02	1
Barium	0.00383	J	0.50	0.0013	mg/L		02/27/23 14:00	03/01/23 07:02	1
Cadmium	ND		0.050	0.00020	mg/L		02/27/23 14:00	03/01/23 07:02	1
Chromium	ND		0.050	0.0040	mg/L		02/27/23 14:00	03/01/23 07:02	1
Lead	ND		0.050	0.0028	mg/L		02/27/23 14:00	03/01/23 07:02	1
Selenium	ND		0.050	0.0060	mg/L		02/27/23 14:00	03/01/23 07:02	1
Silver	ND		0.050	0.00062	mg/L		02/27/23 14:00	03/01/23 07:02	1

Lab Sample ID: 240-180954-6 MS
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: WC-TW-7 (2-4)
Prep Type: TCLP
Prep Batch: 563597

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Arsenic	0.0098	J	5.00	5.20		mg/L		104	75 - 125
Barium	0.89	B	50.0	49.8		mg/L		98	75 - 125
Cadmium	0.0033	J B	1.00	0.991		mg/L		99	75 - 125
Chromium	ND		5.00	4.99		mg/L		100	75 - 125
Lead	0.0084	J	5.00	4.76		mg/L		95	75 - 125
Selenium	0.012	J	1.00	1.08		mg/L		107	75 - 125
Silver	ND		1.00	1.01		mg/L		101	75 - 125

Lab Sample ID: 240-180954-6 MSD
Matrix: Solid
Analysis Batch: 563911

Client Sample ID: WC-TW-7 (2-4)
Prep Type: TCLP
Prep Batch: 563597

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
Arsenic	0.0098	J	5.00	5.12		mg/L		102	75 - 125	2	20
Barium	0.89	B	50.0	48.7		mg/L		96	75 - 125	2	20
Cadmium	0.0033	J B	1.00	0.974		mg/L		97	75 - 125	2	20
Chromium	ND		5.00	4.87		mg/L		97	75 - 125	3	20
Lead	0.0084	J	5.00	4.68		mg/L		93	75 - 125	2	20
Selenium	0.012	J	1.00	1.03		mg/L		102	75 - 125	5	20
Silver	ND		1.00	0.990		mg/L		99	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-563596/2-A
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563596

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 11:48	1

Lab Sample ID: LCS 240-563596/3-A
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563596

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Mercury	0.00500	0.00520		mg/L		104	80 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: MB 240-563598/2-A
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563598

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:17	1

Lab Sample ID: LCS 240-563598/3-A
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563598

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00517		mg/L		103	80 - 120

Lab Sample ID: LB 240-563462/1-C
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563598

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 11:46	1

Lab Sample ID: 240-180954-1 MS
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: WC-SB2325-PELLETS & SOIL
Prep Type: TCLP
Prep Batch: 563598

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00522		mg/L		104	80 - 120

Lab Sample ID: 240-180954-1 MSD
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: WC-SB2325-PELLETS & SOIL
Prep Type: TCLP
Prep Batch: 563598

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00486		mg/L		97	80 - 120	7	20

Lab Sample ID: LB 240-563463/1-C
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563598

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/27/23 14:00	02/28/23 12:15	1

Lab Sample ID: 240-180954-6 MS
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: WC-TW-7 (2-4)
Prep Type: TCLP
Prep Batch: 563598

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00517		mg/L		103	80 - 120

Lab Sample ID: 240-180954-6 MSD
Matrix: Solid
Analysis Batch: 563727

Client Sample ID: WC-TW-7 (2-4)
Prep Type: TCLP
Prep Batch: 563598

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00536		mg/L		107	80 - 120	4	20

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-180954-7 DU
Matrix: Solid
Analysis Batch: 563584

Client Sample ID: WC-TW-6 (2-4)
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Percent Solids	77.5		76.5		%			20
Percent Moisture	22.5		23.5		%			20

Lab Sample ID: 240-180954-16 DU
Matrix: Solid
Analysis Batch: 563584

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit
Percent Solids	73.7		78.5		%		6	20
Percent Moisture	26.3		21.5		%		20	20

- 1
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- 3
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- 15
- 16

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

GC/MS VOA

Composite Batch: 563455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	Composite	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	Composite	
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	Composite	

Leach Batch: 563461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	563455
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	1311	563455
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	1311	563455
LB 240-563461/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 563488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8260D	563461
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	8260D	563461
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	8260D	563461
LB 240-563461/1-A MB	Method Blank	TCLP	Solid	8260D	563461
LCS 240-563488/12	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 563638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	5035	
240-180954-2	WC-SB2636-PELLETS & SOIL	Total/NA	Solid	5035	
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	5035	
240-180954-4	WC-SB1252-PELLETS & SOIL	Total/NA	Solid	5035	
240-180954-5	WC-SB1841-PELLETS & SOIL	Total/NA	Solid	5035	
240-180954-6	WC-TW-7 (2-4)	Total/NA	Solid	5035	
240-180954-7	WC-TW-6 (2-4)	Total/NA	Solid	5035	
240-180954-8	WC-TW-5 (2-4)	Total/NA	Solid	5035	
240-180954-9	WC-TW-1 (4-6)	Total/NA	Solid	5035	
240-180954-10	WC-TW-9 (8-10)	Total/NA	Solid	5035	
240-180954-11	WC-TW-3 (2-4)	Total/NA	Solid	5035	
240-180954-12	WC-TW-8 (6-8)	Total/NA	Solid	5035	
240-180954-13	WC-TW-2 (2-4)	Total/NA	Solid	5035	
240-180954-14	WC-TW-4 (2-4)	Total/NA	Solid	5035	
240-180954-15	WC-TW-10 (6-8)	Total/NA	Solid	5035	
MB 240-563638/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-563638/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	5035	
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	5035	

Analysis Batch: 563775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	8260D	563638
240-180954-2	WC-SB2636-PELLETS & SOIL	Total/NA	Solid	8260D	563638
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	8260D	563638
240-180954-4	WC-SB1252-PELLETS & SOIL	Total/NA	Solid	8260D	563638
240-180954-5	WC-SB1841-PELLETS & SOIL	Total/NA	Solid	8260D	563638
240-180954-6	WC-TW-7 (2-4)	Total/NA	Solid	8260D	563638
240-180954-7	WC-TW-6 (2-4)	Total/NA	Solid	8260D	563638
240-180954-8	WC-TW-5 (2-4)	Total/NA	Solid	8260D	563638

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

GC/MS VOA (Continued)

Analysis Batch: 563775 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-9	WC-TW-1 (4-6)	Total/NA	Solid	8260D	563638
240-180954-10	WC-TW-9 (8-10)	Total/NA	Solid	8260D	563638
240-180954-11	WC-TW-3 (2-4)	Total/NA	Solid	8260D	563638
240-180954-12	WC-TW-8 (6-8)	Total/NA	Solid	8260D	563638
240-180954-13	WC-TW-2 (2-4)	Total/NA	Solid	8260D	563638
240-180954-14	WC-TW-4 (2-4)	Total/NA	Solid	8260D	563638
240-180954-15	WC-TW-10 (6-8)	Total/NA	Solid	8260D	563638
MB 240-563638/1-A	Method Blank	Total/NA	Solid	8260D	563638
LCS 240-563638/2-A	Lab Control Sample	Total/NA	Solid	8260D	563638
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	8260D	563638
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	8260D	563638

Prep Batch: 563777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	5035	
MB 240-563777/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 563784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	8260D	563777
MB 240-563777/1-A	Method Blank	Total/NA	Solid	8260D	563777
LCS 240-563784/4	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 563946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-10	WC-TW-9 (8-10)	Total/NA	Solid	8260D	563638
240-180954-12	WC-TW-8 (6-8)	Total/NA	Solid	8260D	563638
240-180954-13	WC-TW-2 (2-4)	Total/NA	Solid	8260D	563638

GC/MS Semi VOA

Composite Batch: 563455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	Composite	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	Composite	
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	Composite	

Leach Batch: 563462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	563455
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	1311	563455
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	1311	563455

Prep Batch: 563569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	3540C	
240-180954-2	WC-SB2636-PELLETS & SOIL	Total/NA	Solid	3540C	
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	3540C	
240-180954-4	WC-SB1252-PELLETS & SOIL	Total/NA	Solid	3540C	
240-180954-5	WC-SB1841-PELLETS & SOIL	Total/NA	Solid	3540C	
240-180954-6	WC-TW-7 (2-4)	Total/NA	Solid	3540C	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

GC/MS Semi VOA (Continued)

Prep Batch: 563569 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-7	WC-TW-6 (2-4)	Total/NA	Solid	3540C	
240-180954-8	WC-TW-5 (2-4)	Total/NA	Solid	3540C	
240-180954-9	WC-TW-1 (4-6)	Total/NA	Solid	3540C	
240-180954-10	WC-TW-9 (8-10)	Total/NA	Solid	3540C	
240-180954-11	WC-TW-3 (2-4)	Total/NA	Solid	3540C	
240-180954-12	WC-TW-8 (6-8)	Total/NA	Solid	3540C	
240-180954-13	WC-TW-2 (2-4)	Total/NA	Solid	3540C	
240-180954-14	WC-TW-4 (2-4)	Total/NA	Solid	3540C	
240-180954-15	WC-TW-10 (6-8)	Total/NA	Solid	3540C	
MB 240-563569/23-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-563569/24-A	Lab Control Sample	Total/NA	Solid	3540C	
LCS 240-563569/25-A	Lab Control Sample	Total/NA	Solid	3540C	

Prep Batch: 563671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	3510C	563462
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	3510C	563462
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	3510C	563462
MB 240-563671/6-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-563671/7-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 563825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	8270E	563569
240-180954-2	WC-SB2636-PELLETS & SOIL	Total/NA	Solid	8270E	563569
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	8270E	563569
240-180954-4	WC-SB1252-PELLETS & SOIL	Total/NA	Solid	8270E	563569
240-180954-5	WC-SB1841-PELLETS & SOIL	Total/NA	Solid	8270E	563569
240-180954-9	WC-TW-1 (4-6)	Total/NA	Solid	8270E	563569
240-180954-10	WC-TW-9 (8-10)	Total/NA	Solid	8270E	563569
240-180954-11	WC-TW-3 (2-4)	Total/NA	Solid	8270E	563569
MB 240-563569/23-A	Method Blank	Total/NA	Solid	8270E	563569
LCS 240-563569/24-A	Lab Control Sample	Total/NA	Solid	8270E	563569
LCS 240-563569/25-A	Lab Control Sample	Total/NA	Solid	8270E	563569

Analysis Batch: 563967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8270E	563671
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	8270E	563671
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	8270E	563671
MB 240-563671/6-A	Method Blank	Total/NA	Solid	8270E	563671
LCS 240-563671/7-A	Lab Control Sample	Total/NA	Solid	8270E	563671

Analysis Batch: 563984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-14	WC-TW-4 (2-4)	Total/NA	Solid	8270E	563569
240-180954-15	WC-TW-10 (6-8)	Total/NA	Solid	8270E	563569

Analysis Batch: 564110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-6	WC-TW-7 (2-4)	Total/NA	Solid	8270E	563569

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

GC/MS Semi VOA (Continued)

Analysis Batch: 564110 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-7	WC-TW-6 (2-4)	Total/NA	Solid	8270E	563569
240-180954-8	WC-TW-5 (2-4)	Total/NA	Solid	8270E	563569
240-180954-12	WC-TW-8 (6-8)	Total/NA	Solid	8270E	563569
240-180954-13	WC-TW-2 (2-4)	Total/NA	Solid	8270E	563569

GC Semi VOA

Leach Batch: 348685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	1311	
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	1311	
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	
240-180954-16 MSD	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	

Prep Batch: 349322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8151A	348685
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	8151A	348685
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	8151A	348685
MB 410-349322/2-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-349322/3-A	Lab Control Sample	Total/NA	Solid	8151A	
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8151A	348685
240-180954-16 MSD	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8151A	348685

Analysis Batch: 349396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8151A	349322
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	8151A	349322
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	8151A	349322
MB 410-349322/2-A	Method Blank	Total/NA	Solid	8151A	349322
LCS 410-349322/3-A	Lab Control Sample	Total/NA	Solid	8151A	349322
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8151A	349322
240-180954-16 MSD	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8151A	349322

Composite Batch: 563454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	Composite	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	Composite	
240-180954-18	WC-PELLETS & SOIL-COMP	Total/NA	Solid	Composite	

Composite Batch: 563455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	Composite	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	Composite	
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	Composite	
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	Composite	

Leach Batch: 563462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	563455

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

GC Semi VOA (Continued)

Leach Batch: 563462 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	1311	563455
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	1311	563455
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	1311	563455

Prep Batch: 563578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	3546	563454
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	3546	563454
240-180954-18	WC-PELLETS & SOIL-COMP	Total/NA	Solid	3546	563454
MB 240-563578/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-563578/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 563676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	3510C	563462
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	3510C	563462
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	3510C	563462
MB 240-563676/5-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-563676/6-A	Lab Control Sample	Total/NA	Solid	3510C	
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	3510C	563462

Analysis Batch: 563699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	8082A	563578
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	8082A	563578
240-180954-18	WC-PELLETS & SOIL-COMP	Total/NA	Solid	8082A	563578
MB 240-563578/1-A	Method Blank	Total/NA	Solid	8082A	563578
LCS 240-563578/2-A	Lab Control Sample	Total/NA	Solid	8082A	563578

Analysis Batch: 563710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8081B	563676
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	TCLP	Solid	8081B	563676
240-180954-18	WC-PELLETS & SOIL-COMP	TCLP	Solid	8081B	563676
MB 240-563676/5-A	Method Blank	Total/NA	Solid	8081B	563676
LCS 240-563676/6-A	Lab Control Sample	Total/NA	Solid	8081B	563676
240-180954-16 MS	WC-TW-COMP (TW-1 THRU TW-5)	TCLP	Solid	8081B	563676

LCMS

Prep Batch: 348895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	537 (mod)	
MB 410-348895/1-B	Method Blank	Total/NA	Solid	537 (mod)	
LCS 410-348895/2-B	Lab Control Sample	Total/NA	Solid	537 (mod)	
240-180954-17 MS	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	537 (mod)	
240-180954-17 MSD	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	537 (mod)	

Cleanup Batch: 348901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	Extract Aliquot	348895

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

LCMS (Continued)

Cleanup Batch: 348901 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-348895/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	348895
LCS 410-348895/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	348895
240-180954-17 MS	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	Extract Aliquot	348895
240-180954-17 MSD	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	Extract Aliquot	348895

Analysis Batch: 349425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	537 IDA	348901
MB 410-348895/1-B	Method Blank	Total/NA	Solid	537 IDA	348901
LCS 410-348895/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	348901
240-180954-17 MS	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	537 IDA	348901
240-180954-17 MSD	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	537 IDA	348901

Metals

Leach Batch: 563462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	TCLP	Solid	1311	
240-180954-2	WC-SB2636-PELLETS & SOIL	TCLP	Solid	1311	
240-180954-3	WC-SB1855-PELLETS & SOIL	TCLP	Solid	1311	
240-180954-4	WC-SB1252-PELLETS & SOIL	TCLP	Solid	1311	
240-180954-5	WC-SB1841-PELLETS & SOIL	TCLP	Solid	1311	
LB 240-563462/1-B	Method Blank	TCLP	Solid	1311	
LB 240-563462/1-C	Method Blank	TCLP	Solid	1311	
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	TCLP	Solid	1311	
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	TCLP	Solid	1311	

Leach Batch: 563463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-6	WC-TW-7 (2-4)	TCLP	Solid	1311	
240-180954-7	WC-TW-6 (2-4)	TCLP	Solid	1311	
240-180954-8	WC-TW-5 (2-4)	TCLP	Solid	1311	
240-180954-9	WC-TW-1 (4-6)	TCLP	Solid	1311	
240-180954-10	WC-TW-9 (8-10)	TCLP	Solid	1311	
240-180954-11	WC-TW-3 (2-4)	TCLP	Solid	1311	
240-180954-12	WC-TW-8 (6-8)	TCLP	Solid	1311	
240-180954-13	WC-TW-2 (2-4)	TCLP	Solid	1311	
240-180954-14	WC-TW-4 (2-4)	TCLP	Solid	1311	
240-180954-15	WC-TW-10 (6-8)	TCLP	Solid	1311	
LB 240-563463/1-B	Method Blank	TCLP	Solid	1311	
LB 240-563463/1-C	Method Blank	TCLP	Solid	1311	
240-180954-6 MS	WC-TW-7 (2-4)	TCLP	Solid	1311	
240-180954-6 MSD	WC-TW-7 (2-4)	TCLP	Solid	1311	

Prep Batch: 563594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	TCLP	Solid	3010A	563462
240-180954-2	WC-SB2636-PELLETS & SOIL	TCLP	Solid	3010A	563462
240-180954-3	WC-SB1855-PELLETS & SOIL	TCLP	Solid	3010A	563462
240-180954-4	WC-SB1252-PELLETS & SOIL	TCLP	Solid	3010A	563462
240-180954-5	WC-SB1841-PELLETS & SOIL	TCLP	Solid	3010A	563462

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Metals (Continued)

Prep Batch: 563594 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 240-563462/1-B	Method Blank	TCLP	Solid	3010A	563462
MB 240-563594/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-563594/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	TCLP	Solid	3010A	563462
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	TCLP	Solid	3010A	563462

Prep Batch: 563596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	TCLP	Solid	7470A	563462
240-180954-2	WC-SB2636-PELLETS & SOIL	TCLP	Solid	7470A	563462
240-180954-3	WC-SB1855-PELLETS & SOIL	TCLP	Solid	7470A	563462
240-180954-4	WC-SB1252-PELLETS & SOIL	TCLP	Solid	7470A	563462
240-180954-5	WC-SB1841-PELLETS & SOIL	TCLP	Solid	7470A	563462
LB 240-563462/1-C	Method Blank	TCLP	Solid	7470A	563462
MB 240-563596/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-563596/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	TCLP	Solid	7470A	563462
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	TCLP	Solid	7470A	563462

Prep Batch: 563597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-6	WC-TW-7 (2-4)	TCLP	Solid	3010A	563463
240-180954-7	WC-TW-6 (2-4)	TCLP	Solid	3010A	563463
240-180954-8	WC-TW-5 (2-4)	TCLP	Solid	3010A	563463
240-180954-9	WC-TW-1 (4-6)	TCLP	Solid	3010A	563463
240-180954-10	WC-TW-9 (8-10)	TCLP	Solid	3010A	563463
240-180954-11	WC-TW-3 (2-4)	TCLP	Solid	3010A	563463
240-180954-12	WC-TW-8 (6-8)	TCLP	Solid	3010A	563463
240-180954-13	WC-TW-2 (2-4)	TCLP	Solid	3010A	563463
240-180954-14	WC-TW-4 (2-4)	TCLP	Solid	3010A	563463
240-180954-15	WC-TW-10 (6-8)	TCLP	Solid	3010A	563463
LB 240-563463/1-B	Method Blank	TCLP	Solid	3010A	563463
MB 240-563597/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-563597/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-180954-6 MS	WC-TW-7 (2-4)	TCLP	Solid	3010A	563463
240-180954-6 MSD	WC-TW-7 (2-4)	TCLP	Solid	3010A	563463

Prep Batch: 563598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-6	WC-TW-7 (2-4)	TCLP	Solid	7470A	563463
240-180954-7	WC-TW-6 (2-4)	TCLP	Solid	7470A	563463
240-180954-8	WC-TW-5 (2-4)	TCLP	Solid	7470A	563463
240-180954-9	WC-TW-1 (4-6)	TCLP	Solid	7470A	563463
240-180954-10	WC-TW-9 (8-10)	TCLP	Solid	7470A	563463
240-180954-11	WC-TW-3 (2-4)	TCLP	Solid	7470A	563463
240-180954-12	WC-TW-8 (6-8)	TCLP	Solid	7470A	563463
240-180954-13	WC-TW-2 (2-4)	TCLP	Solid	7470A	563463
240-180954-14	WC-TW-4 (2-4)	TCLP	Solid	7470A	563463
240-180954-15	WC-TW-10 (6-8)	TCLP	Solid	7470A	563463
LB 240-563463/1-C	Method Blank	TCLP	Solid	7470A	563463
MB 240-563598/2-A	Method Blank	Total/NA	Solid	7470A	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Metals (Continued)

Prep Batch: 563598 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-563598/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-180954-6 MS	WC-TW-7 (2-4)	TCLP	Solid	7470A	563463
240-180954-6 MSD	WC-TW-7 (2-4)	TCLP	Solid	7470A	563463

Analysis Batch: 563727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-2	WC-SB2636-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-3	WC-SB1855-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-4	WC-SB1252-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-5	WC-SB1841-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-6	WC-TW-7 (2-4)	TCLP	Solid	7470A	563598
240-180954-7	WC-TW-6 (2-4)	TCLP	Solid	7470A	563598
240-180954-8	WC-TW-5 (2-4)	TCLP	Solid	7470A	563598
240-180954-9	WC-TW-1 (4-6)	TCLP	Solid	7470A	563598
240-180954-10	WC-TW-9 (8-10)	TCLP	Solid	7470A	563598
240-180954-11	WC-TW-3 (2-4)	TCLP	Solid	7470A	563598
240-180954-12	WC-TW-8 (6-8)	TCLP	Solid	7470A	563598
240-180954-13	WC-TW-2 (2-4)	TCLP	Solid	7470A	563598
240-180954-14	WC-TW-4 (2-4)	TCLP	Solid	7470A	563598
240-180954-15	WC-TW-10 (6-8)	TCLP	Solid	7470A	563598
LB 240-563462/1-C	Method Blank	TCLP	Solid	7470A	563596
LB 240-563463/1-C	Method Blank	TCLP	Solid	7470A	563598
MB 240-563596/2-A	Method Blank	Total/NA	Solid	7470A	563596
MB 240-563598/2-A	Method Blank	Total/NA	Solid	7470A	563598
LCS 240-563596/3-A	Lab Control Sample	Total/NA	Solid	7470A	563596
LCS 240-563598/3-A	Lab Control Sample	Total/NA	Solid	7470A	563598
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	TCLP	Solid	7470A	563596
240-180954-6 MS	WC-TW-7 (2-4)	TCLP	Solid	7470A	563598
240-180954-6 MSD	WC-TW-7 (2-4)	TCLP	Solid	7470A	563598

Analysis Batch: 563911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-2	WC-SB2636-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-3	WC-SB1855-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-4	WC-SB1252-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-5	WC-SB1841-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-6	WC-TW-7 (2-4)	TCLP	Solid	6010D	563597
240-180954-7	WC-TW-6 (2-4)	TCLP	Solid	6010D	563597
240-180954-8	WC-TW-5 (2-4)	TCLP	Solid	6010D	563597
240-180954-9	WC-TW-1 (4-6)	TCLP	Solid	6010D	563597
240-180954-10	WC-TW-9 (8-10)	TCLP	Solid	6010D	563597
240-180954-11	WC-TW-3 (2-4)	TCLP	Solid	6010D	563597
240-180954-12	WC-TW-8 (6-8)	TCLP	Solid	6010D	563597
240-180954-13	WC-TW-2 (2-4)	TCLP	Solid	6010D	563597
240-180954-14	WC-TW-4 (2-4)	TCLP	Solid	6010D	563597
240-180954-15	WC-TW-10 (6-8)	TCLP	Solid	6010D	563597
LB 240-563462/1-B	Method Blank	TCLP	Solid	6010D	563594
LB 240-563463/1-B	Method Blank	TCLP	Solid	6010D	563597

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Metals (Continued)

Analysis Batch: 563911 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-563594/2-A	Method Blank	Total/NA	Solid	6010D	563594
MB 240-563597/2-A	Method Blank	Total/NA	Solid	6010D	563597
LCS 240-563594/3-A	Lab Control Sample	Total/NA	Solid	6010D	563594
LCS 240-563597/3-A	Lab Control Sample	Total/NA	Solid	6010D	563597
240-180954-1 MS	WC-SB2325-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-1 MSD	WC-SB2325-PELLETS & SOIL	TCLP	Solid	6010D	563594
240-180954-6 MS	WC-TW-7 (2-4)	TCLP	Solid	6010D	563597
240-180954-6 MSD	WC-TW-7 (2-4)	TCLP	Solid	6010D	563597

General Chemistry

Analysis Batch: 380370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	1030	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	1030	
240-180954-18	WC-PELLETS & SOIL-COMP	Total/NA	Solid	1030	

Composite Batch: 563454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	Composite	
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	Composite	
240-180954-18	WC-PELLETS & SOIL-COMP	Total/NA	Solid	Composite	
240-180954-16 DU	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	Composite	

Analysis Batch: 563584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-1	WC-SB2325-PELLETS & SOIL	Total/NA	Solid	Moisture	
240-180954-2	WC-SB2636-PELLETS & SOIL	Total/NA	Solid	Moisture	
240-180954-3	WC-SB1855-PELLETS & SOIL	Total/NA	Solid	Moisture	
240-180954-4	WC-SB1252-PELLETS & SOIL	Total/NA	Solid	Moisture	
240-180954-5	WC-SB1841-PELLETS & SOIL	Total/NA	Solid	Moisture	
240-180954-6	WC-TW-7 (2-4)	Total/NA	Solid	Moisture	
240-180954-7	WC-TW-6 (2-4)	Total/NA	Solid	Moisture	
240-180954-8	WC-TW-5 (2-4)	Total/NA	Solid	Moisture	
240-180954-9	WC-TW-1 (4-6)	Total/NA	Solid	Moisture	
240-180954-10	WC-TW-9 (8-10)	Total/NA	Solid	Moisture	
240-180954-11	WC-TW-3 (2-4)	Total/NA	Solid	Moisture	
240-180954-12	WC-TW-8 (6-8)	Total/NA	Solid	Moisture	
240-180954-13	WC-TW-2 (2-4)	Total/NA	Solid	Moisture	
240-180954-14	WC-TW-4 (2-4)	Total/NA	Solid	Moisture	
240-180954-15	WC-TW-10 (6-8)	Total/NA	Solid	Moisture	
240-180954-16	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	Moisture	563454
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	Moisture	563454
240-180954-18	WC-PELLETS & SOIL-COMP	Total/NA	Solid	Moisture	563454
240-180954-7 DU	WC-TW-6 (2-4)	Total/NA	Solid	Moisture	
240-180954-16 DU	WC-TW-COMP (TW-1 THRU TW-5)	Total/NA	Solid	Moisture	563454

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Date Collected: 02/25/23 16:45

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563594	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 06:10
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563596	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 11:52
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-SB2325-PELLETS & SOIL

Lab Sample ID: 240-180954-1

Date Collected: 02/25/23 16:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 16:55
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		1	563825	JMG	EET CAN	03/01/23 16:11

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Date Collected: 02/25/23 17:30

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563594	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 06:32
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563596	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:04
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-SB2636-PELLETS & SOIL

Lab Sample ID: 240-180954-2

Date Collected: 02/25/23 17:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 18:03
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		1	563825	JMG	EET CAN	03/01/23 15:47

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Date Collected: 02/25/23 17:05

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563594	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 06:36
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563596	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:06
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-SB1855-PELLETS & SOIL

Lab Sample ID: 240-180954-3

Date Collected: 02/25/23 17:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563777	LAM	EET CAN	02/26/23 10:31
Total/NA	Analysis	8260D		1	563784	CS	EET CAN	02/28/23 19:10
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 18:25
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		1	563825	JMG	EET CAN	03/01/23 16:36

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Date Collected: 02/25/23 17:10

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563594	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 06:41
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563596	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:08
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-SB1252-PELLETS & SOIL

Lab Sample ID: 240-180954-4

Date Collected: 02/25/23 17:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 18:46
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		1	563825	JMG	EET CAN	03/01/23 17:00

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Date Collected: 02/25/23 17:20

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563594	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 06:54
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563596	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:11
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-SB1841-PELLETS & SOIL

Lab Sample ID: 240-180954-5

Date Collected: 02/25/23 17:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 19:07
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		1	563825	JMG	EET CAN	03/01/23 17:25

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Date Collected: 02/25/23 10:20

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 07:15
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:21
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-7 (2-4)

Lab Sample ID: 240-180954-6

Date Collected: 02/25/23 10:20

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 19:29
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		5	564110	JMG	EET CAN	03/03/23 13:48

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Date Collected: 02/25/23 10:15

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 07:45
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:33
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-6 (2-4)

Lab Sample ID: 240-180954-7

Date Collected: 02/25/23 10:15

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 19:50
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		10	564110	JMG	EET CAN	03/03/23 13:24

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Date Collected: 02/25/23 10:10

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 07:50
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:36
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-5 (2-4)

Lab Sample ID: 240-180954-8

Date Collected: 02/25/23 10:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 77.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 20:11
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		20	564110	JMG	EET CAN	03/03/23 11:11

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Date Collected: 02/25/23 09:30

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 07:54
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:38
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-1 (4-6)

Lab Sample ID: 240-180954-9

Date Collected: 02/25/23 09:30

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 20:32
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		10	563825	JMG	EET CAN	03/01/23 18:38

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Date Collected: 02/25/23 10:35

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 07:59
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:40
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-9 (8-10)

Lab Sample ID: 240-180954-10

Date Collected: 02/25/23 10:35

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 78.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563946	CS	EET CAN	03/02/23 00:56
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		50	563775	CS	EET CAN	02/28/23 20:54
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		5	563825	JMG	EET CAN	03/01/23 19:02

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Date Collected: 02/25/23 09:55

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 08:03
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:42
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-3 (2-4)

Lab Sample ID: 240-180954-11

Date Collected: 02/25/23 09:55

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 21:15
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		2.5	563825	JMG	EET CAN	03/01/23 18:14

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Date Collected: 02/25/23 10:25

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 08:08
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:44
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-8 (6-8)

Lab Sample ID: 240-180954-12

Date Collected: 02/25/23 10:25

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563946	CS	EET CAN	03/02/23 01:20
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		10	563775	CS	EET CAN	02/28/23 21:36
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		10	564110	JMG	EET CAN	03/03/23 12:59

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Date Collected: 02/25/23 09:45

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 08:12
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:46
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-2 (2-4)

Lab Sample ID: 240-180954-13

Date Collected: 02/25/23 09:45

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 86.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563946	CS	EET CAN	03/02/23 01:43
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		10	563775	CS	EET CAN	02/28/23 21:57
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		2	564110	JMG	EET CAN	03/03/23 14:13

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Date Collected: 02/25/23 10:05

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 08:17
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:48
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-4 (2-4)

Lab Sample ID: 240-180954-14

Date Collected: 02/25/23 10:05

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 75.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 22:19
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		5	563984	JMG	EET CAN	03/02/23 20:47

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Date Collected: 02/25/23 11:10

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3010A			563597	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	6010D		1	563911	RKT	EET CAN	03/01/23 08:22
TCLP	Leach	1311			563463	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	7470A			563598	AJC	EET CAN	02/27/23 14:00
TCLP	Analysis	7470A		1	563727	MRL	EET CAN	02/28/23 12:50
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-10 (6-8)

Lab Sample ID: 240-180954-15

Date Collected: 02/25/23 11:10

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			563638	LAM	EET CAN	02/27/23 17:21
Total/NA	Analysis	8260D		1	563775	CS	EET CAN	02/28/23 22:40
Total/NA	Prep	3540C			563569	BMB	EET CAN	02/27/23 11:53
Total/NA	Analysis	8270E		5	563984	JMG	EET CAN	03/02/23 21:11

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)

Lab Sample ID: 240-180954-16

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563461	DRJ	EET CAN	02/26/23 15:45 - 02/27/23 08:25 ¹
TCLP	Analysis	8260D		1	563488	AJS	EET CAN	02/27/23 13:38
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3510C			563671	SDE	EET CAN	02/28/23 07:25
TCLP	Analysis	8270E		1	563967	MRU	EET CAN	03/02/23 13:12
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3510C			563676	SDE	EET CAN	02/28/23 07:30
TCLP	Analysis	8081B		1	563710	BPM	EET CAN	02/28/23 14:14
TCLP	Leach	1311			348685	UNWS	ELLE	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	8151A			349322	K2IL	ELLE	03/01/23 19:30
TCLP	Analysis	8151A		1	349396	UAMZ	ELLE	03/02/23 07:04
Total/NA	Analysis	1030		1	380370	WZC8	EET CF	03/02/23 13:36
Total/NA	Composite	Composite			563454	DRJ	EET CAN	02/26/23 11:00
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-TW-COMP (TW-1 THRU TW-5)

Lab Sample ID: 240-180954-16

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 73.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			563454	DRJ	EET CAN	02/26/23 11:00
Total/NA	Prep	3546			563578	AJ	EET CAN	02/27/23 12:32
Total/NA	Analysis	8082A		1	563699	RR	EET CAN	02/28/23 19:16

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563461	DRJ	EET CAN	02/26/23 15:45 - 02/27/23 08:25 ¹
TCLP	Analysis	8260D		1	563488	AJS	EET CAN	02/27/23 14:01
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3510C			563671	SDE	EET CAN	02/28/23 07:25
TCLP	Analysis	8270E		1	563967	MRU	EET CAN	03/02/23 13:39
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3510C			563676	SDE	EET CAN	02/28/23 07:30
TCLP	Analysis	8081B		1	563710	BPM	EET CAN	02/28/23 14:49
TCLP	Leach	1311			348685	UNWS	ELLE	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	8151A			349322	K2IL	ELLE	03/01/23 19:30
TCLP	Analysis	8151A		1	349396	UAMZ	ELLE	03/02/23 07:32
Total/NA	Analysis	1030		1	380370	WZC8	EET CF	03/02/23 13:36
Total/NA	Composite	Composite			563454	DRJ	EET CAN	02/26/23 11:00
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			563454	DRJ	EET CAN	02/26/23 11:00
Total/NA	Prep	3546			563578	AJ	EET CAN	02/27/23 12:32
Total/NA	Analysis	8082A		1	563699	RR	EET CAN	02/28/23 19:32
Total/NA	Prep	537 (mod)			348895	U5HI	ELLE	02/28/23 19:41
Total/NA	Cleanup	Extract Aliquot			348901	U5HI	ELLE	02/28/23 20:02
Total/NA	Analysis	537 IDA		1	349425	PY4D	ELLE	03/02/23 21:12

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Client Sample ID: WC-PELLETS & SOIL-COMP

Lab Sample ID: 240-180954-18

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563461	DRJ	EET CAN	02/26/23 15:45 - 02/27/23 08:25 ¹
TCLP	Analysis	8260D		1	563488	AJS	EET CAN	02/27/23 14:25
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3510C			563671	SDE	EET CAN	02/28/23 07:25
TCLP	Analysis	8270E		1	563967	MRU	EET CAN	03/02/23 14:05
TCLP	Composite	Composite			563455	DRJ	EET CAN	02/26/23 11:00
TCLP	Leach	1311			563462	DRJ	EET CAN	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	3510C			563676	SDE	EET CAN	02/28/23 07:30
TCLP	Analysis	8081B		1	563710	BPM	EET CAN	02/28/23 15:06
TCLP	Leach	1311			348685	UNWS	ELLE	02/26/23 16:35 - 02/27/23 08:40 ¹
TCLP	Prep	8151A			349322	K2IL	ELLE	03/01/23 19:30
TCLP	Analysis	8151A		1	349396	UAMZ	ELLE	03/02/23 07:59
Total/NA	Analysis	1030		1	380370	WZC8	EET CF	03/02/23 13:36
Total/NA	Composite	Composite			563454	DRJ	EET CAN	02/26/23 11:00
Total/NA	Analysis	Moisture		1	563584	JMB	EET CAN	02/27/23 13:12

Client Sample ID: WC-PELLETS & SOIL-COMP

Lab Sample ID: 240-180954-18

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			563454	DRJ	EET CAN	02/26/23 11:00
Total/NA	Prep	3546			563578	AJ	EET CAN	02/27/23 12:32
Total/NA	Analysis	8082A		1	563699	RR	EET CAN	02/28/23 19:49

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Cedar Falls

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Colorado	Petroleum Storage Tank Program	IA100001 (OR)	09-29-23
Georgia	State	IA100001 (OR)	09-29-23
Illinois	NELAP	200024	11-29-23
Iowa	State	007	12-01-23
Kansas	NELAP	E-10341	01-31-24
Minnesota	NELAP	019-999-319	12-31-23
Minnesota (Petrofund)	State	3349	01-18-24
North Dakota	State	R-186	09-29-23
Oregon	NELAP	IA100001	09-29-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Address: Arcadis Cornwell Rd, Ste 200
Cincinnati, OH 45241

Chain of Custody Record

644926



Environment Testing
America

1.7 / 1.4

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact		Project Manager: Jason Artrip		Site Contact: Carolyn Grodzinski		COC No: 1 of 1 COCs		
Company Name: Arcadis		Tel/Email: Jason.Artrip@arcadis.com		Date: 2/25/23		Sampler:		
Address: 4145 Cornwell Rd, Ste 200		Analysis Turnaround Time		Contact: Michael DeBoer		For Lab Use Only:		
City/State/Zip: Cincinnati, OH 45241		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Lab Sampling:		Walk-in Client:		
Phone:		TAT if different from Below		Job / SDG No.:		Lab Sampling:		
Fax:		2 weeks						
Project Name: NS ER		1 week						
Site: East Parkstone		2 days						
P O # 240-35745		1 day						
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
WC-SB2325 - Pellets & Soil	2/25/23	1645	G	S	8	NN	XX	
WC-SB2636 - Pellets & Soil	2/25/23	1730	G	S	8	NN	XX	
WC-SB1855 - Pellets & Soil	2/25/23	1705	G	S	8	NN	XX	
WC-SB1252 - Pellets & Soil	2/25/23	1710	G	S	8	NN	XX	
WC-SB1841 - Pellets & Soil	2/25/23	1720	G	S	8	NN	XX	
WC-TW-7 (2-4)	2/25/23	1020	G	S	8	NN	XX	
WC-TW-6 (2-4)	2/25/23	1015	G	S	8	NN	XX	
WC-TW-5 (2-4)	2/25/23	1010	G	S	8	NN	XX	
WC-TW-1 (4-6)	2/25/23	0930	G	S	8	NN	XX	
WC-TW-9 (8-10)	2/25/23	1035	G	S	8	NN	XX	
WC-TW-3 (2-4)	2/25/23	0955	G	S	8	NN	XX	
WC-TW-8 (6-8)	2/25/23	1025	G	S	8	NN	XX	

240-180954 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazardous Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: See email from Justin Gaudi

Custody Seal No.: Yes No

Relinquished by: <i>Reyer</i>	Received by: Jason Umbrey	Company: COCO	Corr'd:	Therm ID No.:
Relinquished by: <i>Adam</i>	Received by: <i>Jason Umbrey</i>	Company: EETNC	<input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	Date/Time: 7-25-23 6:30
Relinquished by:	Received in Laboratory by:	Company:		Date/Time: 2-25-23 20:20



Chain of Custody Record

644927 

Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: Arcadis
 Address: 4065 Cornell Rd, Ste 200
 City/State/Zip: Cincinnati, OH 45241
 Phone: _____
 Fax: _____
 Project Name: NS ER
 Site: East Fairstone, OH
 P O #: 24030745

Project Manager: Jason Artrip
 Tell/Email: Jason.Artrip@arcadis.com
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below: RUSH
 2 weeks ASAP
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sample Specific Notes:
						Total VOCs	Total SVOCs	TCP Metals	PEAS/PFOA	
WC-TW-2(2-4)	2/25/23	0945	G	S	8	N	N	X	X	
WC-TW-4(2-4)	2/25/23	1005	G	S	8	N	N	X	X	
WC-TW-10(6-8)	2/25/23	1110	G	S	8	N	N	X	X	
WC-TW-COMP (TW-1 thro TW-5)	2/25/23		C	S				X	X	
WC-TW-COMP (TW-6 thro TW-10)	2/25/23		C	S				X	X	
WC Pellets & Soil - COMP	2/25/23		C	S				X	X	all pellets & soils grab

Site Contact: Carlynn Brown Date: 2/25/23 COC No.: 2 of 2 COCs
 Lab Contact: Michael Dalton Carrier: Lab/Other
 For Lab Use Only:
 Walk-in Client: _____
 Lab Sampling: _____
 Job / SDG No.: _____

Preservation Used: 1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other
 Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
See email from Justin Gaudin

Cooler Temp. (°C): Obs'd: _____ Corrd: _____
 Therm ID No.: _____

Relinquished by: Jason Artrip Date/Time: 2/25/23 6:30
 Relinquished by: Jason Artrip Date/Time: 2/25/23 6:30
 Relinquished by: _____ Date/Time: _____

Received by: Jason Artrip Date/Time: 2/25/23 6:30
 Received by: Jason Artrip Date/Time: 2/25/23 6:30
 Received by: _____ Date/Time: _____

Company: Arcadis
 Company: Arcadis
 Company: _____



Barberton Facility

Client Arundis Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-25-23 Opened on 2-26-23

JME

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt See Multiple Cooler Form
 - IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. 1.7 °C Corrected Cooler Temp. 1.4 °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
- 3. Shippers' packing slip attached to the cooler(s)? Yes No
- 4. Did custody papers accompany the sample(s)? Yes No
- 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- 7. Did all bottles arrive in good condition (Unbroken)? Yes No
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
- 10. Were correct bottle(s) used for the test(s) indicated? Yes No
- 11. Sufficient quantity received to perform indicated analyses? Yes No
- 12. Are these work share samples and all listed on the COC? Yes No
 - If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
- 14. Were VOAs on the COC? Yes No
- 15. Were air bubbles >6 mm in any VOA vials? Yes No NA larger than this.
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
- 17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by:

One 8oz bottle for sample WC-SB2636 - Pellets and Soil was broken during Unpacking. (JME) 2-26-23

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

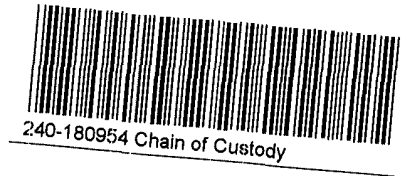
20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____



Environment Testing
America



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>Canton</u>			
City/State:	CITY	STATE	Project:
		<u>OH</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>2-28-23</u>	<u>930</u>	<u>ML</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>U</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): _____		Corrected Temp (°C): _____	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
	<u>40z jar</u>		
Uncorrected Temp (°C):	<u>3.1</u>		
Corrected Temp (°C):	<u>3.1</u>		
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			



Chain of Custody Record



Client Information (Sub Contract Lab)

Lab PM: DelMonico, Michael
 Center Tracking No(s): 240-164393 1
 E-Mail: Michael DelMonico@et.eurofins.com
 State of Origin: Ohio
 Shipping/Receiving: Michael DelMonico@et.eurofins.com
 Page 1 of 1
 Company: Eurofins Environment Testing North Center
 Job #: 240-180954-1
 Accreditations Required (See note):

Address: 3019 Venture Way,
 City: Cedar Falls
 State, Zip: IA, 50613
 Phone: 319-277-2401(Tel) 319-277-2425(Fax)
 Email:

Due Date Requested: 3/4/2023
 TAT Requested (days):

PO #:
 WO #:
 Project #: 24030745
 SSOW#:

Project Name: NSEP - Privileged & Confidential
 Site:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=volatile, BT=trace, A=air)	Preservation Code	Analysis Requested			Total Number of Containers	Special Instructions/Note:
						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1030/ Ignitability (Burn Rate)		
WC-TW-COMP (TW-1 THRU TW-5) (240-180954-16)	2/25/23	Eastern	Solid	Solid		X	X	X	1	
WC-TW-COMP (TW-6 THRU TW-10) (240-180954-17)	2/25/23	Eastern	Solid	Solid		X	X	X	1	
WC-PELLETS & SOIL-COMP (240-180954-18)	2/25/23	Eastern	Solid	Solid		X	X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/mainx being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other; instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification

Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements

Primary Deliverable Rank: 2

Relinquished by	Date	Company	Method of Shipment
Relinquished by: [Signature]	2/28/23	MC	Date/Time: 2-28-23 9:30
Relinquished by:			Date/Time:
Relinquished by:			Date/Time:
Relinquished by:			Date/Time:

Custody Seals Intact: Yes No

Custody Seal No

Cooler Temperature(s) °C and Other Remarks:

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler:	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-164386.1						
Client Contact: Shipping/Receiving		Phone:	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Ohio	Page: Page 1 of 1						
Company: Eurofins Lancaster Laboratories Environm			Accreditations Required (See note):		Job #: 240-180954-1						
Address: 2425 New Holland Pike,		Due Date Requested: 3/3/2023		Analysis Requested							
City: Lancaster		TAT Requested (days):									
State, Zip: PA, 17601		PO #:									
Phone: 717-656-2300(Tel)		WO #:									
Email:											
Project Name: NSEP - Privileged & Confidential		Project #: 24030745		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify) Other:							
Site:		SSOW#:									
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8151A/1311_T TCLP Analyte List	PFC_IDA/Shake_SonicBath PFOA, PFOS	Total Number of containers	Special Instructions/Note:
WC-TW-COMP (TW-1 THRU TW-5) (240-180954-16)		2/25/23	Eastern		Solid		X			1	
WC-TW-COMP (TW-6 THRU TW-10) (240-180954-17)		2/25/23	Eastern		Solid		X	X		1	Composite sample using plastic jars only
WC-PELLETS & SOIL-COMP (240-180954-18)		2/25/23	Eastern		Solid		X			1	
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:					
Relinquished by: <i>[Signature]</i>		Date/Time: 2/23/23 1:50		Company: EET/NC		Received by: <i>[Signature]</i>		Date/Time: <i>[Signature]</i>		Company:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:		Received by: <i>[Signature]</i>		Date/Time: 2/28/23 9:41		Company: EET/NC	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 1.0							

n3



Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180954-1

Login Number: 180954

List Number: 3

Creator: Costello, Mackenzie K

List Source: Eurofins Cedar Falls

List Creation: 02/28/23 10:09 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180954-1

Login Number: 180954

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/28/23 10:55 AM

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		C8PFOA (26-159)	C8PFOS (41-154)
240-180954-17	WC-TW-COMP (TW-6 THRU TV	85	88
240-180954-17 MS	WC-TW-COMP (TW-6 THRU TW-10)	92	95
240-180954-17 MSD	WC-TW-COMP (TW-6 THRU TW-10)	83	90
LCS 410-348895/2-B	Lab Control Sample	95	92
MB 410-348895/1-B	Method Blank	89	94

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/10/2023 9:33:55 AM Revision 1

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180954-2

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396

Generated
3/10/2023 9:33:55 AM
Revision 1



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Qualifiers

Dioxin

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Job ID: 240-180954-2

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-180954-2**

Receipt

The samples were received on 2/26/2023 8:20 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.4°C

Report revised on 3/10/2023 to report Total Dioxins calculations.

Dioxin

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

- 1
- 2
- 3
- 4
- 5
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- 7
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- 10
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Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Method	Method Description	Protocol	Laboratory
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Solid	02/25/23 00:00	02/26/23 20:20

1

2

3

4

5

6

7

8

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10

11

12

13

14

15

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-2

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	140		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	83		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	5.2	J	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	13		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	5.9	J	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	8.2		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	11		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	5.6	J I	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	7.8		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	5.1	J I	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	3.2	J	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	9.7		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	14		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	1.7		1.3	0.26	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	3.8		1.3	0.26	ng/Kg	1	✳	8290A	Total/NA
OCDD	1500		13	2.6	ng/Kg	1	✳	8290A	Total/NA
OCDF	110		13	2.6	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	83	I	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	130	I	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	310		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	180		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	34	I	6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	91		6.5	2.6	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	30	I	1.3	0.26	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	86	I	1.3	0.26	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.4

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	140		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,4,6,7,8-HpCDF	83		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,4,7,8-HxCDD	5.2	J	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,4,7,8-HxCDF	13		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,4,7,8,9-HpCDF	5.9	J	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,6,7,8-HxCDD	8.2		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,6,7,8-HxCDF	11		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,7,8-PeCDD	5.6	J I	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,7,8-PeCDF	7.8		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,7,8,9-HxCDD	5.1	J I	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
1,2,3,7,8,9-HxCDF	3.2	J	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
2,3,4,6,7,8-HxCDF	9.7		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
2,3,4,7,8-PeCDF	14		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
2,3,7,8-TCDD	1.7		1.3	0.26	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
2,3,7,8-TCDF	3.8		1.3	0.26	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
OCDD	1500		13	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
OCDF	110		13	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total HxCDD	83	I	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total HxCDF	130	I	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total HpCDD	310		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total HpCDF	180		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total PeCDD	34	I	6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total PeCDF	91		6.5	2.6	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total TCDD	30	I	1.3	0.26	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1
Total TCDF	86	I	1.3	0.26	ng/Kg	✳	03/06/23 12:43	03/08/23 03:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	49		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-OCDD	50		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-2,3,7,8-TCDF	54		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-2,3,7,8-TCDD	49		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-2,3,4,7,8-PeCDF	50		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-2,3,4,6,7,8-HxCDF	52		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,7,8,9-HxCDF	53		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,7,8,9-HxCDD	51		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,7,8-PeCDF	48		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,7,8-PeCDD	48		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,6,7,8-HxCDF	54		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,6,7,8-HxCDD	50		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,4,7,8,9-HpCDF	53		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,4,7,8-HxCDF	53		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,4,7,8-HxCDD	51		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,4,6,7,8-HpCDF	51		40 - 135	03/06/23 12:43	03/08/23 03:40	1
13C-1,2,3,4,6,7,8-HpCDD	53		40 - 135	03/06/23 12:43	03/08/23 03:40	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-350542/1-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 350542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,6,7,8-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,4,7,8,9-HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
1,2,3,7,8,9-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,6,7,8-HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,4,7,8-PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
2,3,7,8-TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDD	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
OCDF	ND		10	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HxCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total HpCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDD	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total PeCDF	ND		5.0	2.0	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDD	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1
Total TCDF	ND		1.0	0.20	ng/Kg		03/06/23 12:43	03/07/23 19:03	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	89		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-OCDD	88		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,7,8-TCDD	68		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,7,8-PeCDF	76		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-2,3,4,6,7,8-HxCDF	81		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDF	82		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8,9-HxCDD	83		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDF	72		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,7,8-PeCDD	69		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDF	84		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,6,7,8-HxCDD	80		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8,9-HpCDF	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,7,8-HxCDD	78		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDF	85		40 - 135	03/06/23 12:43	03/07/23 19:03	1
13C-1,2,3,4,6,7,8-HpCDD	86		40 - 135	03/06/23 12:43	03/07/23 19:03	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-350542/2-A
Matrix: Solid
Analysis Batch: 350921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 350542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3,4,6,7,8-HpCDD	100	93.6		ng/Kg		94	77 - 127
1,2,3,4,6,7,8-HpCDF	100	94.3		ng/Kg		94	77 - 127
1,2,3,4,7,8-HxCDD	100	98.7		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDF	100	97.8		ng/Kg		98	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.8		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	103		ng/Kg		103	76 - 127
1,2,3,6,7,8-HxCDF	100	97.3		ng/Kg		97	77 - 129
1,2,3,7,8-PeCDD	100	105		ng/Kg		105	77 - 127
1,2,3,7,8-PeCDF	100	101		ng/Kg		101	75 - 129
1,2,3,7,8,9-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,7,8,9-HxCDF	100	97.4		ng/Kg		97	76 - 126
2,3,4,6,7,8-HxCDF	100	94.2		ng/Kg		94	78 - 128
2,3,4,7,8-PeCDF	100	104		ng/Kg		104	75 - 131
2,3,7,8-TCDD	20.0	19.9		ng/Kg		99	68 - 142
2,3,7,8-TCDF	20.0	17.7		ng/Kg		88	70 - 133
OCDD	200	202		ng/Kg		101	77 - 125
OCDF	200	199		ng/Kg		99	75 - 128

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-OCDF	91		40 - 135
13C-OCDD	92		40 - 135
13C-2,3,7,8-TCDF	75		40 - 135
13C-2,3,7,8-TCDD	72		40 - 135
13C-2,3,4,7,8-PeCDF	77		40 - 135
13C-2,3,4,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDF	87		40 - 135
13C-1,2,3,7,8,9-HxCDD	89		40 - 135
13C-1,2,3,7,8-PeCDF	76		40 - 135
13C-1,2,3,7,8-PeCDD	70		40 - 135
13C-1,2,3,6,7,8-HxCDF	87		40 - 135
13C-1,2,3,6,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	92		40 - 135
13C-1,2,3,4,7,8-HxCDF	83		40 - 135
13C-1,2,3,4,7,8-HxCDD	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	91		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	90		40 - 135

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Specialty Organics

Prep Batch: 350542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-350542/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 350921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-350542/1-A	Method Blank	Total/NA	Solid	8290A	350542
LCS 410-350542/2-A	Lab Control Sample	Total/NA	Solid	8290A	350542

Analysis Batch: 351132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180954-17	WC-TW-COMP (TW-6 THRU TW-10)	Total/NA	Solid	8290A	350542

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Client Sample ID: WC-TW-COMP (TW-6 THRU TW-10)

Lab Sample ID: 240-180954-17

Date Collected: 02/25/23 00:00

Matrix: Solid

Date Received: 02/26/23 20:20

Percent Solids: 76.4

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	HRMS-Soxtherm			350542	RGA5	ELLE	03/06/23 12:43
Total/NA	Analysis	8290A		1	351132	DZ6A	ELLE	03/08/23 03:40

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

- 1
- 2
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- 5
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- 13
- 14
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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-180954-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	03-08-23
Arizona	State	AZ0780	03-11-23
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-23 *
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-23 *
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton



Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	0001.01	11-30-24

1

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Address: Arcadis Cornwell Rd, Ste 200
Cincinnati, OH 45241

Chain of Custody Record 644926
1.7 / 1.4

Environment Testing
America



TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: Jason Artrip		Site Contact: Carolyn Grogan		COC No: 1 of 1	
Company Name: Arcadis		Tel/Email: Jason.Artrip@arcadis.com		Address: 125123		Sampler: _____	
Address: 4125 Cornwell Rd, Ste 200		Analysis Turnaround Time		For Lab Use Only:		Walk-in Client:	
City/State/Zip: Cincinnati, OH 45241		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Lab Sampling:		Job / SDG No.:	
Phone: _____		TAT if different from Below		Job / SDG No.:		Sample Specific Notes:	
Fax: _____		2 weeks <input type="checkbox"/>		Total SVOCs			
Project Name: NS ER		1 week <input type="checkbox"/>		Total PCBs			
Site: East Parkstone		2 days <input type="checkbox"/>		Total Pesticides			
P O # 240-35745		1 day <input type="checkbox"/>		Total Pesticides/HRs			
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)
WC-SB2325 - Pellets & Soil	2/25/23	1645	G	S	8	NN	XX
WC-SB2636 - Pellets & Soil	2/25/23	1730	G	S	8	NN	XX
WC-SB1855 - Pellets & Soil	2/25/23	1705	G	S	8	NN	XX
WC-SB1252 - Pellets & Soil	2/25/23	1710	G	S	8	NN	XX
WC-SB1841 - Pellets & Soil	2/25/23	1720	G	S	8	NN	XX
WC-TW-7 (2-4)	2/25/23	1020	G	S	8	NN	XX
WC-TW-6 (2-4)	2/25/23	1015	G	S	8	NN	XX
WC-TW-5 (2-4)	2/25/23	1010	G	S	8	NN	XX
WC-TW-1 (4-6)	2/25/23	0930	G	S	8	NN	XX
WC-TW-9 (8-10)	2/25/23	1035	G	S	8	NN	XX
WC-TW-3 (2-4)	2/25/23	0955	G	S	8	NN	XX
WC-TW-8 (6-8)	2/25/23	1025	G	S	8	NN	XX
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							
<input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Poison B							
Special Instructions/QC Requirements & Comments: See email from Justin Gaudi							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Therm ID No.:	
Relinquished by: _____		Company: Arcadis		Received by: Jason Umbrey		Company: COTO	
Relinquished by: _____		Company: BBTNC		Received by: _____		Company: BBTNC	
Relinquished by: _____		Company: _____		Received in Laboratory by: _____		Company: _____	



Chain of Custody Record

644927



Environment Testing America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: Arcadis
 Address: 4065 Cornell Rd, Ste 200
 City/State/Zip: Cincinnati, OH 45241
 Phone:
 Fax:
 Project Name: NS ER
 Site: East Fairstone, OH
 P O #: 24030745

Project Manager: Jason Artrip
 Tell Email: Jason.Artrip@arcadis.com
 Analysis Turnaround Time:
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below:
 2 weeks RUSH
 1 week ASAP
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sample Specific Notes
						Total VOCs	Total SVOCs	TCP Metals	PEAS/PFOA	
WC-TW-2(2-4)	2/25/23	0945	G	S	8	N	N	X	X	
WC-TW-4(2-4)	2/25/23	1005	G	S	8	N	N	X	X	
WC-TW-10(6-8)	2/25/23	1110	G	S	8	N	N	X	X	
WC-TW-COMP (TW-1 thro TW-5)	2/25/23		C	S		X	X	X	X	
WC-TW-COMP (TW-6 thro TW-10)	2/25/23		C	S		X	X	X	X	
WC Pellets & Soil - COMP	2/25/23		C	S		X	X	X	X	all pellets & soils grab

Site Contact: Carolyn Brown Date: 2/25/23
 Lab Contact: Michael Dalton Carrier: Lab/Enviro
 COC No: 2 of 2 COCs
 Sampler:
 For Lab Use Only:
 Walk-in Client:
 Lab Sampling:
 Job / SDG No.:

Return to Client Disposal by Lab Archive for Months

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification: Please List any EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
 See email from Justin Gaudin

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Received by: Justin Gaudin Date/Time: 2/25/23 6:30
 Received by: Jason Artrip Date/Time: 2/25/23 6:30
 Received by: Michael Dalton Date/Time: 2/25/23 6:30

Company: Arcadis
 Company: Arcadis
 Company: EETNC



Barberton Facility

Client Arundis Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 2-25-23 Opened on 2-26-23

JME

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EC Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt See Multiple Cooler Form
 - IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 - IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. 1.7 °C Corrected Cooler Temp. 1.4 °C

- 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1
 - Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
- 3. Shippers' packing slip attached to the cooler(s)? Yes No
- 4. Did custody papers accompany the sample(s)? Yes No
- 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- 7. Did all bottles arrive in good condition (Unbroken)? Yes No
- 8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
- 9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Y/N
- 10. Were correct bottle(s) used for the test(s) indicated? Yes No
- 11. Sufficient quantity received to perform indicated analyses? Yes No
- 12. Are these work share samples and all listed on the COC? Yes No
- If yes, Questions 13-17 have been checked at the originating laboratory.
- 13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC203864
- 14. Were VOAs on the COC? Yes No
- 15. Were air bubbles >6 mm in any VOA vials? Yes NA Larger than this.
- 16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
- 17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by:

One 8oz bottle for sample WC-SB2636 - Pellets and Soil was broken during Unpacking. JME 2-26-23

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-180954-2

Login Number: 180954

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/28/23 10:55 AM

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-180954-2

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-180954-17	WC-TW-COMP (TW-6 THRU TV	49	50	54	49	50	52	53	51
LCS 410-350542/2-A	Lab Control Sample	91	92	75	72	77	87	87	89
MB 410-350542/1-A	Method Blank	89	88	72	68	76	81	82	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-180954-17	WC-TW-COMP (TW-6 THRU TV	48	48	54	50	53	53	51	51
LCS 410-350542/2-A	Lab Control Sample	76	70	87	84	92	83	84	91
MB 410-350542/1-A	Method Blank	72	69	84	80	86	79	78	85

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-180954-17	WC-TW-COMP (TW-6 THRU TV	53
LCS 410-350542/2-A	Lab Control Sample	90
MB 410-350542/1-A	Method Blank	86

Surrogate Legend

OCDF = 13C-OCDF
 OCDD = 13C-OCDD
 TCDF = 13C-2,3,7,8-TCDF
 TCDD = 13C-2,3,7,8-TCDD
 PeCF = 13C-2,3,4,7,8-PeCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/11/2023 1:53:26 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-181523-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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Authorized for release by
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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Job ID: 240-181523-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-181523-1

Receipt

The samples were received on 3/8/2023 12:25 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-564793 recovered above the upper control limit for Dichloro-difluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-251362 (240-181523-1), WC-537A (240-181523-2), WC-AL5679 (240-181523-3), WC-AL4944 (240-181523-4), WC-AL4216 (240-181523-5), WC-531A (240-181523-6), TRIP BLANK (240-181523-8), (CCV 240-564793/4), (CCVIS 240-564793/3), (LCS 240-564793/5), (LCS 240-564793/6), (MB 240-564793/8), (240-181229-B-11), (240-181229-B-11 MS) and (240-181229-B-11 MSD).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-564959 recovered above the upper control limit for Dichloro-difluoromethane and Bromomethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-251362 (240-181523-1), WC-537A (240-181523-2), WC-AL5679 (240-181523-3), WC-AL4944 (240-181523-4), WC-AL4216 (240-181523-5), WC-531A (240-181523-6), (CCV 240-564959/4), (CCVIS 240-564959/3), (LCS 240-564959/5), (LCS 240-564959/6), (MB 240-564959/8), (240-181229-D-9), (240-181229-D-9 MS) and (240-181229-D-9 MSD).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
1311	TCLP Extraction	SW846	EET CAN
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
Composite	Sample Compositing	None	EET CAN

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181523-1	WC-251362	Water	03/07/23 15:30	03/08/23 12:25
240-181523-2	WC-537A	Water	03/07/23 15:40	03/08/23 12:25
240-181523-3	WC-AL5679	Water	03/07/23 15:58	03/08/23 12:25
240-181523-4	WC-AL4944	Water	03/07/23 15:50	03/08/23 12:25
240-181523-5	WC-AL4216	Water	03/07/23 16:05	03/08/23 12:25
240-181523-6	WC-531A	Water	03/07/23 16:15	03/08/23 12:25
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	Solid	03/07/23 17:15	03/08/23 12:25
240-181523-8	TRIP BLANK	Water	03/07/23 00:00	03/08/23 12:25

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-251362

Lab Sample ID: 240-181523-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0015	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.0086	J	0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.00080	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Toluene	0.00074	J	0.0010	0.00044	mg/L	1		8260D	Total/NA
Vinyl chloride	0.016		0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.0024		0.0020	0.00042	mg/L	1		8260D	Total/NA

Client Sample ID: WC-537A

Lab Sample ID: 240-181523-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0027	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.036		0.010	0.0054	mg/L	1		8260D	Total/NA
Xylenes, Total	0.0014	J	0.0020	0.00042	mg/L	1		8260D	Total/NA

Client Sample ID: WC-AL5679

Lab Sample ID: 240-181523-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0075		0.0010	0.00045	mg/L	1		8260D	Total/NA

Client Sample ID: WC-AL4944

Lab Sample ID: 240-181523-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0035	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.012		0.010	0.0054	mg/L	1		8260D	Total/NA
Vinyl chloride	0.015		0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.0015	J	0.0020	0.00042	mg/L	1		8260D	Total/NA

Client Sample ID: WC-AL4216

Lab Sample ID: 240-181523-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0018	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.010		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.00043	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Vinyl chloride	0.0037		0.0010	0.00045	mg/L	1		8260D	Total/NA

Client Sample ID: WC-531A

Lab Sample ID: 240-181523-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0025	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.014		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.0021		0.0010	0.00042	mg/L	1		8260D	Total/NA
Tetrachloroethene	0.0029		0.0010	0.00044	mg/L	1		8260D	Total/NA
Toluene	0.00067	J	0.0010	0.00044	mg/L	1		8260D	Total/NA
Vinyl chloride	0.0014		0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.0026		0.0020	0.00042	mg/L	1		8260D	Total/NA

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418

Lab Sample ID: 240-181523-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.012	J	0.25	0.0012	mg/L	1		8260D	TCLP
Arsenic	0.0054	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.099	J	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00027	J	0.050	0.00020	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418 (Continued)

Lab Sample ID: 240-181523-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.0071	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00082	J	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-181523-8

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Canton



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-251362

Lab Sample ID: 240-181523-1

Date Collected: 03/07/23 15:30

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 16:53	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 16:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 16:53	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 16:53	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 16:53	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 16:53	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 16:53	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 16:53	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 16:53	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 16:53	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 16:53	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 16:53	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 16:53	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 16:53	1
2-Butanone (MEK)	0.0015	J	0.010	0.0012	mg/L			03/09/23 16:53	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 16:53	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 16:53	1
Acetone	0.0086	J	0.010	0.0054	mg/L			03/09/23 16:53	1
Benzene	0.00080	J	0.0010	0.00042	mg/L			03/09/23 16:53	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 16:53	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 16:53	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 16:53	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 16:53	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 16:53	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 16:53	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 16:53	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 16:53	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 16:53	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 16:53	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 16:53	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 16:53	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 16:53	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 16:53	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 16:53	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 16:53	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 16:53	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 16:53	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 16:53	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 16:53	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 16:53	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 16:53	1
Toluene	0.00074	J	0.0010	0.00044	mg/L			03/09/23 16:53	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 16:53	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 16:53	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 16:53	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 16:53	1
Vinyl chloride	0.016		0.0010	0.00045	mg/L			03/09/23 16:53	1
Xylenes, Total	0.0024		0.0020	0.00042	mg/L			03/09/23 16:53	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-251362

Lab Sample ID: 240-181523-1

Date Collected: 03/07/23 15:30

Matrix: Water

Date Received: 03/08/23 12:25

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	102		78 - 122		03/09/23 16:53	1
Toluene-d8 (Surr)	93		78 - 122		03/10/23 14:14	2
Dibromofluoromethane (Surr)	114		73 - 120		03/09/23 16:53	1
Dibromofluoromethane (Surr)	101		73 - 120		03/10/23 14:14	2
4-Bromofluorobenzene (Surr)	113		56 - 136		03/09/23 16:53	1
4-Bromofluorobenzene (Surr)	99		56 - 136		03/10/23 14:14	2
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		03/09/23 16:53	1
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		03/10/23 14:14	2

- 1
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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-537A

Lab Sample ID: 240-181523-2

Date Collected: 03/07/23 15:40

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 17:17	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 17:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 17:17	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 17:17	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 17:17	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 17:17	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 17:17	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 17:17	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 17:17	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 17:17	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 17:17	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 17:17	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 17:17	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 17:17	1
2-Butanone (MEK)	0.0027	J	0.010	0.0012	mg/L			03/09/23 17:17	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 17:17	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 17:17	1
Acetone	0.036		0.010	0.0054	mg/L			03/09/23 17:17	1
Benzene	ND		0.0010	0.00042	mg/L			03/09/23 17:17	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 17:17	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 17:17	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 17:17	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 17:17	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 17:17	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 17:17	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 17:17	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 17:17	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 17:17	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 17:17	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 17:17	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 17:17	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 17:17	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 17:17	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 17:17	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 17:17	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 17:17	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 17:17	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 17:17	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 17:17	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 17:17	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 17:17	1
Toluene	ND		0.0010	0.00044	mg/L			03/09/23 17:17	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 17:17	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 17:17	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 17:17	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 17:17	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/09/23 17:17	1
Xylenes, Total	0.0014	J	0.0020	0.00042	mg/L			03/09/23 17:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-537A

Lab Sample ID: 240-181523-2

Date Collected: 03/07/23 15:40

Matrix: Water

Date Received: 03/08/23 12:25

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	101		78 - 122		03/09/23 17:17	1
Toluene-d8 (Surr)	92		78 - 122		03/10/23 14:38	10
Dibromofluoromethane (Surr)	112		73 - 120		03/09/23 17:17	1
Dibromofluoromethane (Surr)	101		73 - 120		03/10/23 14:38	10
4-Bromofluorobenzene (Surr)	106		56 - 136		03/09/23 17:17	1
4-Bromofluorobenzene (Surr)	92		56 - 136		03/10/23 14:38	10
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		03/09/23 17:17	1
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		03/10/23 14:38	10

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-AL5679

Lab Sample ID: 240-181523-3

Date Collected: 03/07/23 15:58

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 17:41	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 17:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 17:41	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 17:41	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 17:41	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 17:41	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 17:41	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 17:41	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 17:41	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 17:41	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 17:41	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 17:41	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 17:41	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 17:41	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/09/23 17:41	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 17:41	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 17:41	1
Acetone	ND		0.010	0.0054	mg/L			03/09/23 17:41	1
Benzene	ND		0.0010	0.00042	mg/L			03/09/23 17:41	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 17:41	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 17:41	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 17:41	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 17:41	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 17:41	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 17:41	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 17:41	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 17:41	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 17:41	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 17:41	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 17:41	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 17:41	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 17:41	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 17:41	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 17:41	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 17:41	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 17:41	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 17:41	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 17:41	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 17:41	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 17:41	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 17:41	1
Toluene	ND		0.0010	0.00044	mg/L			03/09/23 17:41	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 17:41	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 17:41	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 17:41	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 17:41	1
Vinyl chloride	0.0075		0.0010	0.00045	mg/L			03/09/23 17:41	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/09/23 17:41	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-AL5679

Lab Sample ID: 240-181523-3

Date Collected: 03/07/23 15:58

Matrix: Water

Date Received: 03/08/23 12:25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	101		78 - 122		03/09/23 17:41	1
<i>Toluene-d8 (Surr)</i>	91		78 - 122		03/10/23 15:03	4
<i>Toluene-d8 (Surr)</i>	100		78 - 122		03/10/23 20:12	1
<i>Dibromofluoromethane (Surr)</i>	111		73 - 120		03/09/23 17:41	1
<i>Dibromofluoromethane (Surr)</i>	101		73 - 120		03/10/23 15:03	4
<i>Dibromofluoromethane (Surr)</i>	112		73 - 120		03/10/23 20:12	1
<i>4-Bromofluorobenzene (Surr)</i>	100		56 - 136		03/09/23 17:41	1
<i>4-Bromofluorobenzene (Surr)</i>	90		56 - 136		03/10/23 15:03	4
<i>4-Bromofluorobenzene (Surr)</i>	99		56 - 136		03/10/23 20:12	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	100		62 - 137		03/09/23 17:41	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	93		62 - 137		03/10/23 15:03	4
<i>1,2-Dichloroethane-d4 (Surr)</i>	104		62 - 137		03/10/23 20:12	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-AL4944

Lab Sample ID: 240-181523-4

Date Collected: 03/07/23 15:50

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 18:05	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 18:05	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 18:05	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 18:05	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 18:05	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 18:05	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 18:05	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 18:05	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 18:05	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 18:05	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 18:05	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 18:05	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 18:05	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 18:05	1
2-Butanone (MEK)	0.0035	J	0.010	0.0012	mg/L			03/09/23 18:05	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 18:05	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 18:05	1
Acetone	0.012		0.010	0.0054	mg/L			03/09/23 18:05	1
Benzene	ND		0.0010	0.00042	mg/L			03/09/23 18:05	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 18:05	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 18:05	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 18:05	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 18:05	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 18:05	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 18:05	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 18:05	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 18:05	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 18:05	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 18:05	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 18:05	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 18:05	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 18:05	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 18:05	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 18:05	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 18:05	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 18:05	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 18:05	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 18:05	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 18:05	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 18:05	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 18:05	1
Toluene	ND		0.0010	0.00044	mg/L			03/09/23 18:05	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 18:05	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 18:05	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 18:05	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 18:05	1
Vinyl chloride	0.015		0.0010	0.00045	mg/L			03/09/23 18:05	1
Xylenes, Total	0.0015	J	0.0020	0.00042	mg/L			03/09/23 18:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-AL4944

Lab Sample ID: 240-181523-4

Date Collected: 03/07/23 15:50

Matrix: Water

Date Received: 03/08/23 12:25

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	101		78 - 122		03/09/23 18:05	1
Toluene-d8 (Surr)	92		78 - 122		03/10/23 15:27	50
Dibromofluoromethane (Surr)	111		73 - 120		03/09/23 18:05	1
Dibromofluoromethane (Surr)	99		73 - 120		03/10/23 15:27	50
4-Bromofluorobenzene (Surr)	106		56 - 136		03/09/23 18:05	1
4-Bromofluorobenzene (Surr)	89		56 - 136		03/10/23 15:27	50
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		03/09/23 18:05	1
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		03/10/23 15:27	50

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-AL4216

Lab Sample ID: 240-181523-5

Date Collected: 03/07/23 16:05

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 18:28	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 18:28	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 18:28	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 18:28	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 18:28	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 18:28	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 18:28	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 18:28	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 18:28	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 18:28	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 18:28	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 18:28	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 18:28	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 18:28	1
2-Butanone (MEK)	0.0018	J	0.010	0.0012	mg/L			03/09/23 18:28	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 18:28	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 18:28	1
Acetone	0.010		0.010	0.0054	mg/L			03/09/23 18:28	1
Benzene	0.00043	J	0.0010	0.00042	mg/L			03/09/23 18:28	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 18:28	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 18:28	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 18:28	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 18:28	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 18:28	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 18:28	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 18:28	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 18:28	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 18:28	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 18:28	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 18:28	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 18:28	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 18:28	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 18:28	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 18:28	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 18:28	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 18:28	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 18:28	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 18:28	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 18:28	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 18:28	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 18:28	1
Toluene	ND		0.0010	0.00044	mg/L			03/09/23 18:28	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 18:28	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 18:28	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 18:28	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 18:28	1
Vinyl chloride	0.0037		0.0010	0.00045	mg/L			03/09/23 18:28	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/09/23 18:28	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-AL4216

Lab Sample ID: 240-181523-5

Date Collected: 03/07/23 16:05

Matrix: Water

Date Received: 03/08/23 12:25

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	98		78 - 122		03/09/23 18:28	1
Toluene-d8 (Surr)	90		78 - 122		03/10/23 15:51	20
Dibromofluoromethane (Surr)	110		73 - 120		03/09/23 18:28	1
Dibromofluoromethane (Surr)	101		73 - 120		03/10/23 15:51	20
4-Bromofluorobenzene (Surr)	102		56 - 136		03/09/23 18:28	1
4-Bromofluorobenzene (Surr)	86		56 - 136		03/10/23 15:51	20
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		03/09/23 18:28	1
1,2-Dichloroethane-d4 (Surr)	95		62 - 137		03/10/23 15:51	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-531A

Lab Sample ID: 240-181523-6

Date Collected: 03/07/23 16:15

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 18:52	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 18:52	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 18:52	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 18:52	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 18:52	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 18:52	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 18:52	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 18:52	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 18:52	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 18:52	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 18:52	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 18:52	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 18:52	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 18:52	1
2-Butanone (MEK)	0.0025	J	0.010	0.0012	mg/L			03/09/23 18:52	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 18:52	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 18:52	1
Acetone	0.014		0.010	0.0054	mg/L			03/09/23 18:52	1
Benzene	0.0021		0.0010	0.00042	mg/L			03/09/23 18:52	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 18:52	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 18:52	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 18:52	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 18:52	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 18:52	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 18:52	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 18:52	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 18:52	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 18:52	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 18:52	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 18:52	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 18:52	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 18:52	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 18:52	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 18:52	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 18:52	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 18:52	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 18:52	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 18:52	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 18:52	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 18:52	1
Tetrachloroethene	0.0029		0.0010	0.00044	mg/L			03/09/23 18:52	1
Toluene	0.00067	J	0.0010	0.00044	mg/L			03/09/23 18:52	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 18:52	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 18:52	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 18:52	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 18:52	1
Vinyl chloride	0.0014		0.0010	0.00045	mg/L			03/09/23 18:52	1
Xylenes, Total	0.0026		0.0020	0.00042	mg/L			03/09/23 18:52	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-531A

Lab Sample ID: 240-181523-6

Date Collected: 03/07/23 16:15

Matrix: Water

Date Received: 03/08/23 12:25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		78 - 122		03/09/23 18:52	1
Toluene-d8 (Surr)	89		78 - 122		03/10/23 16:16	20
Dibromofluoromethane (Surr)	107		73 - 120		03/09/23 18:52	1
Dibromofluoromethane (Surr)	99		73 - 120		03/10/23 16:16	20
4-Bromofluorobenzene (Surr)	110		56 - 136		03/09/23 18:52	1
4-Bromofluorobenzene (Surr)	91		56 - 136		03/10/23 16:16	20
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		03/09/23 18:52	1
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		03/10/23 16:16	20



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418

Lab Sample ID: 240-181523-7

Date Collected: 03/07/23 17:15

Matrix: Solid

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/09/23 15:31	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/09/23 15:31	1
2-Butanone (MEK)	0.012	J	0.25	0.0012	mg/L			03/09/23 15:31	1
Benzene	ND		0.025	0.00042	mg/L			03/09/23 15:31	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/09/23 15:31	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/09/23 15:31	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/09/23 15:31	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/09/23 15:31	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/09/23 15:31	1
Chloroform	ND		0.025	0.00047	mg/L			03/09/23 15:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	108		80 - 120		03/09/23 15:31	1
<i>Dibromofluoromethane (Surr)</i>	106		71 - 121		03/09/23 15:31	1
<i>4-Bromofluorobenzene (Surr)</i>	103		80 - 120		03/09/23 15:31	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	105		76 - 120		03/09/23 15:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/10/23 07:43	03/11/23 10:48	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/10/23 07:43	03/11/23 10:48	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/10/23 07:43	03/11/23 10:48	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/10/23 07:43	03/11/23 10:48	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/10/23 07:43	03/11/23 10:48	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/10/23 07:43	03/11/23 10:48	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/10/23 07:43	03/11/23 10:48	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/10/23 07:43	03/11/23 10:48	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/10/23 07:43	03/11/23 10:48	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/10/23 07:43	03/11/23 10:48	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/10/23 07:43	03/11/23 10:48	1
Pyridine	ND		0.0040	0.00036	mg/L		03/10/23 07:43	03/11/23 10:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	91		46 - 137	03/10/23 07:43	03/11/23 10:48	1
<i>Phenol-d5 (Surr)</i>	68		26 - 120	03/10/23 07:43	03/11/23 10:48	1
<i>Nitrobenzene-d5 (Surr)</i>	75		24 - 120	03/10/23 07:43	03/11/23 10:48	1
<i>2-Fluorophenol (Surr)</i>	71		19 - 120	03/10/23 07:43	03/11/23 10:48	1
<i>2-Fluorobiphenyl (Surr)</i>	102		33 - 120	03/10/23 07:43	03/11/23 10:48	1
<i>2,4,6-Tribromophenol (Surr)</i>	95		10 - 120	03/10/23 07:43	03/11/23 10:48	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0054	J	0.050	0.0041	mg/L		03/09/23 14:00	03/10/23 11:27	1
Barium	0.099	J	0.50	0.0013	mg/L		03/09/23 14:00	03/10/23 11:27	1
Cadmium	0.00027	J	0.050	0.00020	mg/L		03/09/23 14:00	03/10/23 11:27	1
Chromium	ND		0.050	0.0040	mg/L		03/09/23 14:00	03/10/23 11:27	1
Lead	0.0071	J	0.050	0.0028	mg/L		03/09/23 14:00	03/10/23 11:27	1
Selenium	ND		0.050	0.0060	mg/L		03/09/23 14:00	03/10/23 11:27	1
Silver	0.00082	J	0.050	0.00062	mg/L		03/09/23 14:00	03/10/23 11:27	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418

Lab Sample ID: 240-181523-7

Date Collected: 03/07/23 17:15

Matrix: Solid

Date Received: 03/08/23 12:25

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/09/23 14:00	03/10/23 14:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-181523-8

Date Collected: 03/07/23 00:00

Matrix: Water

Date Received: 03/08/23 12:25

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 14:54	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 14:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 14:54	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 14:54	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 14:54	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 14:54	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 14:54	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 14:54	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 14:54	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 14:54	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 14:54	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 14:54	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 14:54	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 14:54	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/09/23 14:54	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 14:54	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 14:54	1
Acetone	ND		0.010	0.0054	mg/L			03/09/23 14:54	1
Benzene	ND		0.0010	0.00042	mg/L			03/09/23 14:54	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 14:54	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 14:54	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 14:54	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 14:54	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 14:54	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 14:54	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 14:54	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 14:54	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 14:54	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 14:54	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 14:54	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 14:54	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 14:54	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 14:54	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 14:54	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 14:54	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 14:54	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 14:54	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 14:54	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 14:54	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 14:54	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 14:54	1
Toluene	ND		0.0010	0.00044	mg/L			03/09/23 14:54	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 14:54	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 14:54	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 14:54	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 14:54	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/09/23 14:54	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/09/23 14:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-181523-8

Date Collected: 03/07/23 00:00

Matrix: Water

Date Received: 03/08/23 12:25

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Toluene-d8 (Surr)	100		78 - 122		03/09/23 14:54	1
Dibromofluoromethane (Surr)	115		73 - 120		03/09/23 14:54	1
4-Bromofluorobenzene (Surr)	93		56 - 136		03/09/23 14:54	1
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		03/09/23 14:54	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-564830/10	Lab Control Sample	98	100	100	95

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-181523-7	WC-SB1833, SB1450, SB2446,	108	106	103	105
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	95	95	97	92
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	95	96	93	91
LB 240-564696/1-A MB	Method Blank	100	101	96	100

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (78-122)	DBFM (73-120)	BFB (56-136)	DCA (62-137)
240-181523-1	WC-251362	102	114	113	106
240-181523-1	WC-251362	93	101	99	93
240-181523-2	WC-537A	101	112	106	104
240-181523-2	WC-537A	92	101	92	94
240-181523-3	WC-AL5679	101	111	100	100
240-181523-3	WC-AL5679	91	101	90	93
240-181523-3	WC-AL5679	100	112	99	104
240-181523-4	WC-AL4944	101	111	106	105
240-181523-4	WC-AL4944	92	99	89	93
240-181523-5	WC-AL4216	98	110	102	103
240-181523-5	WC-AL4216	90	101	86	95
240-181523-6	WC-531A	98	107	110	99
240-181523-6	WC-531A	89	99	91	93
240-181523-8	TRIP BLANK	100	115	93	110
LCS 240-564793/5	Lab Control Sample	107	106	103	101
LCS 240-564793/6	Lab Control Sample	100	109	102	105
LCS 240-564959/5	Lab Control Sample	97	94	94	91
LCS 240-564959/6	Lab Control Sample	90	97	91	92
MB 240-564793/8	Method Blank	102	113	94	106

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TOL (78-122)	DBFM (73-120)	BFB (56-136)	DCA (62-137)
MB 240-564959/8	Method Blank	89	99	81	94

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-564907/4-A	Lab Control Sample	91	61	80	66	84	93
MB 240-564907/3-A	Method Blank	97	64	77	69	87	94

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-181523-7	WC-SB1833, SB1450, SB2446,	91	68	75	71	102	95
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	95	64	80	68	89	113

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-564793/8
Matrix: Water
Analysis Batch: 564793

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 12:55	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/09/23 12:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/09/23 12:55	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/09/23 12:55	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/09/23 12:55	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/09/23 12:55	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/09/23 12:55	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/09/23 12:55	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/09/23 12:55	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/09/23 12:55	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/09/23 12:55	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/09/23 12:55	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/09/23 12:55	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/09/23 12:55	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/09/23 12:55	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/09/23 12:55	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/09/23 12:55	1
Acetone	ND		0.010	0.0054	mg/L			03/09/23 12:55	1
Benzene	ND		0.0010	0.00042	mg/L			03/09/23 12:55	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/09/23 12:55	1
Bromoform	ND		0.0010	0.00076	mg/L			03/09/23 12:55	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/09/23 12:55	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/09/23 12:55	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/09/23 12:55	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/09/23 12:55	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/09/23 12:55	1
Chloroform	ND		0.0010	0.00047	mg/L			03/09/23 12:55	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/09/23 12:55	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/09/23 12:55	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/09/23 12:55	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/09/23 12:55	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/09/23 12:55	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/09/23 12:55	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/09/23 12:55	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/09/23 12:55	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/09/23 12:55	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/09/23 12:55	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/09/23 12:55	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/09/23 12:55	1
Styrene	ND		0.0010	0.00045	mg/L			03/09/23 12:55	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/09/23 12:55	1
Toluene	ND		0.0010	0.00044	mg/L			03/09/23 12:55	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/09/23 12:55	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/09/23 12:55	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/09/23 12:55	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/09/23 12:55	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/09/23 12:55	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/09/23 12:55	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-564793/8
Matrix: Water
Analysis Batch: 564793

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	102		78 - 122		03/09/23 12:55	1
Dibromofluoromethane (Surr)	113		73 - 120		03/09/23 12:55	1
4-Bromofluorobenzene (Surr)	94		56 - 136		03/09/23 12:55	1
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		03/09/23 12:55	1

Lab Sample ID: LCS 240-564793/5
Matrix: Water
Analysis Batch: 564793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	0.0250	0.0248		mg/L		99	64 - 131
1,1,1,2-Tetrachloroethane	0.0250	0.0264		mg/L		106	58 - 157
1,1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0262		mg/L		105	51 - 146
1,1,2-Trichloroethane	0.0250	0.0260		mg/L		104	70 - 138
1,1-Dichloroethane	0.0250	0.0232		mg/L		93	72 - 127
1,1-Dichloroethene	0.0250	0.0254		mg/L		102	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0274		mg/L		110	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0244		mg/L		98	53 - 135
Ethylene Dibromide	0.0250	0.0249		mg/L		100	71 - 134
1,2-Dichlorobenzene	0.0250	0.0264		mg/L		105	78 - 120
1,2-Dichloroethane	0.0250	0.0239		mg/L		96	66 - 128
1,2-Dichloropropane	0.0250	0.0244		mg/L		98	75 - 133
1,3-Dichlorobenzene	0.0250	0.0261		mg/L		104	80 - 120
1,4-Dichlorobenzene	0.0250	0.0260		mg/L		104	80 - 120
2-Butanone (MEK)	0.0500	0.0486		mg/L		97	54 - 156
2-Hexanone	0.0500	0.0538		mg/L		108	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0546		mg/L		109	46 - 158
Acetone	0.0500	0.0464		mg/L		93	50 - 149
Benzene	0.0250	0.0252		mg/L		101	77 - 123
Dichlorobromomethane	0.0250	0.0239		mg/L		96	69 - 126
Bromoform	0.0250	0.0255		mg/L		102	57 - 129
Bromomethane	0.0125	0.0115		mg/L		92	36 - 142
Carbon disulfide	0.0250	0.0247		mg/L		99	43 - 140
Carbon tetrachloride	0.0250	0.0249		mg/L		100	55 - 137
Chlorobenzene	0.0250	0.0256		mg/L		103	80 - 121
Chloroethane	0.0125	0.0109		mg/L		87	38 - 152
Chloroform	0.0250	0.0241		mg/L		96	74 - 122
Chloromethane	0.0125	0.0124		mg/L		99	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0243		mg/L		97	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0246		mg/L		98	64 - 130
Cyclohexane	0.0250	0.0272		mg/L		109	58 - 146
Chlorodibromomethane	0.0250	0.0245		mg/L		98	70 - 124
Dichlorodifluoromethane	0.0125	0.0117		mg/L		94	34 - 153
Ethylbenzene	0.0250	0.0258		mg/L		103	80 - 121
Isopropylbenzene	0.0250	0.0271		mg/L		109	74 - 128
Methyl acetate	0.0500	0.0426		mg/L		85	42 - 169
Methyl tert-butyl ether	0.0250	0.0244		mg/L		98	65 - 126
Methylcyclohexane	0.0250	0.0283		mg/L		113	62 - 136

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-564793/5
Matrix: Water
Analysis Batch: 564793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	0.0250	0.0259		mg/L		104	71 - 125
Styrene	0.0250	0.0272		mg/L		109	80 - 135
Tetrachloroethene	0.0250	0.0266		mg/L		106	76 - 123
Toluene	0.0250	0.0259		mg/L		104	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0245		mg/L		98	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0248		mg/L		99	57 - 129
Trichloroethene	0.0250	0.0248		mg/L		99	70 - 122
Trichlorofluoromethane	0.0125	0.0113		mg/L		90	30 - 170
Vinyl chloride	0.0125	0.0116		mg/L		93	60 - 144
Xylenes, Total	0.0500	0.0526		mg/L		105	80 - 121
m-Xylene & p-Xylene	0.0250	0.0264		mg/L		106	80 - 120
o-Xylene	0.0250	0.0262		mg/L		105	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	106		73 - 120
4-Bromofluorobenzene (Surr)	103		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: LCS 240-564793/6
Matrix: Water
Analysis Batch: 564793

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	109		73 - 120
4-Bromofluorobenzene (Surr)	102		56 - 136
1,2-Dichloroethane-d4 (Surr)	105		62 - 137

Lab Sample ID: LCS 240-564830/10
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	1.05		mg/L		105	74 - 127
1,2-Dichloroethane	1.00	0.934		mg/L		93	72 - 120
2-Butanone (MEK)	2.00	2.18		mg/L		109	68 - 130
Benzene	1.00	1.04		mg/L		104	80 - 121
Carbon tetrachloride	1.00	0.914		mg/L		91	69 - 120
Chlorobenzene	1.00	0.992		mg/L		99	80 - 120
Chloroform	1.00	1.01		mg/L		101	75 - 120
Tetrachloroethene	1.00	1.03		mg/L		103	74 - 120
Trichloroethene	1.00	0.954		mg/L		95	75 - 120
Vinyl chloride	1.00	0.684		mg/L		68	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	100		71 - 121

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-564830/10
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

<i>Surrogate</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
4-Bromofluorobenzene (Surr)	100		80 - 120
1,2-Dichloroethane-d4 (Surr)	95		76 - 120

Lab Sample ID: MB 240-564959/8
Matrix: Water
Analysis Batch: 564959

Client Sample ID: Method Blank
Prep Type: Total/NA

<i>Analyte</i>	<i>MB</i>	<i>MB</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/10/23 13:50	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/10/23 13:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/10/23 13:50	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/10/23 13:50	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/10/23 13:50	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/10/23 13:50	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/10/23 13:50	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/10/23 13:50	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/10/23 13:50	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/10/23 13:50	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/10/23 13:50	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/10/23 13:50	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/10/23 13:50	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/10/23 13:50	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/10/23 13:50	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/10/23 13:50	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/10/23 13:50	1
Acetone	ND		0.010	0.0054	mg/L			03/10/23 13:50	1
Benzene	ND		0.0010	0.00042	mg/L			03/10/23 13:50	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/10/23 13:50	1
Bromoform	ND		0.0010	0.00076	mg/L			03/10/23 13:50	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/10/23 13:50	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/10/23 13:50	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/10/23 13:50	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/10/23 13:50	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/10/23 13:50	1
Chloroform	ND		0.0010	0.00047	mg/L			03/10/23 13:50	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/10/23 13:50	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/10/23 13:50	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/10/23 13:50	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/10/23 13:50	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/10/23 13:50	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/10/23 13:50	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/10/23 13:50	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/10/23 13:50	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/10/23 13:50	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/10/23 13:50	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/10/23 13:50	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/10/23 13:50	1
Styrene	ND		0.0010	0.00045	mg/L			03/10/23 13:50	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-564959/8
Matrix: Water
Analysis Batch: 564959

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/10/23 13:50	1
Toluene	ND		0.0010	0.00044	mg/L			03/10/23 13:50	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/10/23 13:50	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/10/23 13:50	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/10/23 13:50	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/10/23 13:50	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/10/23 13:50	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/10/23 13:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		78 - 122		03/10/23 13:50	1
Dibromofluoromethane (Surr)	99		73 - 120		03/10/23 13:50	1
4-Bromofluorobenzene (Surr)	81		56 - 136		03/10/23 13:50	1
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		03/10/23 13:50	1

Lab Sample ID: LCS 240-564959/5
Matrix: Water
Analysis Batch: 564959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0250	0.0242		mg/L		97	64 - 131
1,1,1,2-Tetrachloroethane	0.0250	0.0264		mg/L		105	58 - 157
1,1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0264		mg/L		106	51 - 146
1,1,2-Trichloroethane	0.0250	0.0256		mg/L		102	70 - 138
1,1-Dichloroethane	0.0250	0.0229		mg/L		91	72 - 127
1,1-Dichloroethene	0.0250	0.0251		mg/L		101	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0268		mg/L		107	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0232		mg/L		93	53 - 135
Ethylene Dibromide	0.0250	0.0246		mg/L		99	71 - 134
1,2-Dichlorobenzene	0.0250	0.0260		mg/L		104	78 - 120
1,2-Dichloroethane	0.0250	0.0232		mg/L		93	66 - 128
1,2-Dichloropropane	0.0250	0.0237		mg/L		95	75 - 133
1,3-Dichlorobenzene	0.0250	0.0260		mg/L		104	80 - 120
1,4-Dichlorobenzene	0.0250	0.0257		mg/L		103	80 - 120
2-Butanone (MEK)	0.0500	0.0473		mg/L		95	54 - 156
2-Hexanone	0.0500	0.0542		mg/L		108	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0542		mg/L		108	46 - 158
Acetone	0.0500	0.0468		mg/L		94	50 - 149
Benzene	0.0250	0.0247		mg/L		99	77 - 123
Dichlorobromomethane	0.0250	0.0235		mg/L		94	69 - 126
Bromoform	0.0250	0.0249		mg/L		100	57 - 129
Bromomethane	0.0125	0.0137		mg/L		110	36 - 142
Carbon disulfide	0.0250	0.0243		mg/L		97	43 - 140
Carbon tetrachloride	0.0250	0.0246		mg/L		98	55 - 137
Chlorobenzene	0.0250	0.0252		mg/L		101	80 - 121
Chloroethane	0.0125	0.0106		mg/L		85	38 - 152
Chloroform	0.0250	0.0234		mg/L		94	74 - 122
Chloromethane	0.0125	0.0121		mg/L		97	47 - 143

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-564959/5
Matrix: Water
Analysis Batch: 564959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
cis-1,2-Dichloroethene	0.0250	0.0238		mg/L		95	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0240		mg/L		96	64 - 130
Cyclohexane	0.0250	0.0276		mg/L		111	58 - 146
Chlorodibromomethane	0.0250	0.0241		mg/L		96	70 - 124
Dichlorodifluoromethane	0.0125	0.0116		mg/L		93	34 - 153
Ethylbenzene	0.0250	0.0259		mg/L		104	80 - 121
Isopropylbenzene	0.0250	0.0270		mg/L		108	74 - 128
Methyl acetate	0.0500	0.0418		mg/L		84	42 - 169
Methyl tert-butyl ether	0.0250	0.0238		mg/L		95	65 - 126
Methylcyclohexane	0.0250	0.0289		mg/L		116	62 - 136
Methylene Chloride	0.0250	0.0250		mg/L		100	71 - 125
Styrene	0.0250	0.0269		mg/L		108	80 - 135
Tetrachloroethene	0.0250	0.0265		mg/L		106	76 - 123
Toluene	0.0250	0.0256		mg/L		102	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0241		mg/L		97	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0248		mg/L		99	57 - 129
Trichloroethene	0.0250	0.0241		mg/L		97	70 - 122
Trichlorofluoromethane	0.0125	0.0112		mg/L		90	30 - 170
Vinyl chloride	0.0125	0.0116		mg/L		93	60 - 144
Xylenes, Total	0.0500	0.0517		mg/L		103	80 - 121
m-Xylene & p-Xylene	0.0250	0.0260		mg/L		104	80 - 120
o-Xylene	0.0250	0.0257		mg/L		103	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120
4-Bromofluorobenzene (Surr)	94		56 - 136
1,2-Dichloroethane-d4 (Surr)	91		62 - 137

Lab Sample ID: LCS 240-564959/6
Matrix: Water
Analysis Batch: 564959

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	90		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120
4-Bromofluorobenzene (Surr)	91		56 - 136
1,2-Dichloroethane-d4 (Surr)	92		62 - 137

Lab Sample ID: LB 240-564696/1-A MB
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/09/23 14:21	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/09/23 14:21	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/09/23 14:21	1
Benzene	ND		0.025	0.00042	mg/L			03/09/23 14:21	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 240-564696/1-A MB
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/09/23 14:21	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/09/23 14:21	1
Chloroform	ND		0.025	0.00047	mg/L			03/09/23 14:21	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/09/23 14:21	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/09/23 14:21	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/09/23 14:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	100		80 - 120		03/09/23 14:21	1
<i>Dibromofluoromethane (Surr)</i>	101		71 - 121		03/09/23 14:21	1
<i>4-Bromofluorobenzene (Surr)</i>	96		80 - 120		03/09/23 14:21	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	100		76 - 120		03/09/23 14:21	1

Lab Sample ID: 240-181523-7 MS
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	ND		1.00	1.06		mg/L		106	72 - 127
1,2-Dichloroethane	ND		1.00	0.937		mg/L		94	70 - 120
2-Butanone (MEK)	0.012	J	2.00	2.31		mg/L		115	76 - 127
Benzene	ND		1.00	1.03		mg/L		103	80 - 124
Carbon tetrachloride	ND		1.00	0.890		mg/L		89	63 - 120
Chlorobenzene	ND		1.00	0.991		mg/L		99	80 - 120
Chloroform	ND		1.00	0.981		mg/L		98	75 - 121
Tetrachloroethene	ND		1.00	1.03		mg/L		103	68 - 120
Trichloroethene	ND		1.00	0.975		mg/L		97	70 - 120
Vinyl chloride	ND		1.00	0.657		mg/L		66	55 - 144

Surrogate	MS %Recovery	MS Qualifier	Limits
<i>Toluene-d8 (Surr)</i>	95		80 - 120
<i>Dibromofluoromethane (Surr)</i>	95		71 - 121
<i>4-Bromofluorobenzene (Surr)</i>	97		80 - 120
<i>1,2-Dichloroethane-d4 (Surr)</i>	92		76 - 120

Lab Sample ID: 240-181523-7 MSD
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		1.00	1.03		mg/L		103	72 - 127	2	11
1,2-Dichloroethane	ND		1.00	0.924		mg/L		92	70 - 120	1	10
2-Butanone (MEK)	0.012	J	2.00	2.23		mg/L		111	76 - 127	3	17
Benzene	ND		1.00	1.04		mg/L		104	80 - 124	0	10
Carbon tetrachloride	ND		1.00	0.901		mg/L		90	63 - 120	1	11
Chlorobenzene	ND		1.00	0.977		mg/L		98	80 - 120	1	10
Chloroform	ND		1.00	0.978		mg/L		98	75 - 121	0	10
Tetrachloroethene	ND		1.00	1.01		mg/L		101	68 - 120	2	10

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181523-7 MSD
Matrix: Solid
Analysis Batch: 564830

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichloroethene	ND		1.00	0.938		mg/L		94	70 - 120	4	10
Vinyl chloride	ND		1.00	0.704		mg/L		70	55 - 144	7	11
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
Toluene-d8 (Surr)	95		80 - 120								
Dibromofluoromethane (Surr)	96		71 - 121								
4-Bromofluorobenzene (Surr)	93		80 - 120								
1,2-Dichloroethane-d4 (Surr)	91		76 - 120								

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-564907/3-A
Matrix: Solid
Analysis Batch: 565032

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564907

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/10/23 07:43	03/11/23 09:13	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/10/23 07:43	03/11/23 09:13	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/10/23 07:43	03/11/23 09:13	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/10/23 07:43	03/11/23 09:13	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/10/23 07:43	03/11/23 09:13	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/10/23 07:43	03/11/23 09:13	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/10/23 07:43	03/11/23 09:13	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/10/23 07:43	03/11/23 09:13	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/10/23 07:43	03/11/23 09:13	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/10/23 07:43	03/11/23 09:13	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/10/23 07:43	03/11/23 09:13	1
Pyridine	ND		0.0040	0.00036	mg/L		03/10/23 07:43	03/11/23 09:13	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	97		46 - 137				03/10/23 07:43	03/11/23 09:13	1
Phenol-d5 (Surr)	64		26 - 120				03/10/23 07:43	03/11/23 09:13	1
Nitrobenzene-d5 (Surr)	77		24 - 120				03/10/23 07:43	03/11/23 09:13	1
2-Fluorophenol (Surr)	69		19 - 120				03/10/23 07:43	03/11/23 09:13	1
2-Fluorobiphenyl (Surr)	87		33 - 120				03/10/23 07:43	03/11/23 09:13	1
2,4,6-Tribromophenol (Surr)	94		10 - 120				03/10/23 07:43	03/11/23 09:13	1

Lab Sample ID: LCS 240-564907/4-A
Matrix: Solid
Analysis Batch: 565032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	0.0800	0.0562		mg/L		70	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0665		mg/L		83	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0681		mg/L		85	51 - 120
2,4-Dinitrotoluene	0.0800	0.0743		mg/L		93	58 - 125
Hexachlorobenzene	0.0800	0.0538		mg/L		67	55 - 120
Hexachlorobutadiene	0.0800	0.0571		mg/L		71	41 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-564907/4-A
Matrix: Solid
Analysis Batch: 565032

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachloroethane	0.0800	0.0579		mg/L		72	39 - 120
2-Methylphenol	0.0800	0.0564		mg/L		71	45 - 120
3 & 4 Methylphenol	0.0800	0.0536		mg/L		67	40 - 120
Nitrobenzene	0.0800	0.0609		mg/L		76	47 - 120
Pentachlorophenol	0.160	0.134		mg/L		84	19 - 132
Pyridine	0.160	0.0857		mg/L		54	10 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	91		46 - 137
Phenol-d5 (Surr)	61		26 - 120
Nitrobenzene-d5 (Surr)	80		24 - 120
2-Fluorophenol (Surr)	66		19 - 120
2-Fluorobiphenyl (Surr)	84		33 - 120
2,4,6-Tribromophenol (Surr)	93		10 - 120

Lab Sample ID: 240-181523-7 MS
Matrix: Solid
Analysis Batch: 565032

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP
Prep Batch: 564907

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	ND		0.0800	0.0629		mg/L		79	37 - 120
2,4,5-Trichlorophenol	ND		0.0800	0.0718		mg/L		90	25 - 128
2,4,6-Trichlorophenol	ND		0.0800	0.0642		mg/L		80	23 - 122
2,4-Dinitrotoluene	ND		0.0800	0.0861		mg/L		108	27 - 127
Hexachlorobenzene	ND		0.0800	0.0574		mg/L		72	18 - 123
Hexachlorobutadiene	ND		0.0800	0.0576		mg/L		72	10 - 120
Hexachloroethane	ND		0.0800	0.0596		mg/L		75	10 - 120
2-Methylphenol	ND		0.0800	0.0591		mg/L		74	22 - 120
3 & 4 Methylphenol	ND		0.0800	0.0601		mg/L		75	16 - 123
Nitrobenzene	ND		0.0800	0.0610		mg/L		76	26 - 120
Pentachlorophenol	ND		0.160	0.137		mg/L		86	10 - 132
Pyridine	ND		0.160	0.0906		mg/L		57	10 - 120

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	95		46 - 137
Phenol-d5 (Surr)	64		26 - 120
Nitrobenzene-d5 (Surr)	80		24 - 120
2-Fluorophenol (Surr)	68		19 - 120
2-Fluorobiphenyl (Surr)	89		33 - 120
2,4,6-Tribromophenol (Surr)	113		10 - 120

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-564744/2-A
Matrix: Solid
Analysis Batch: 564983

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564744

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/09/23 14:00	03/10/23 11:19	1
Barium	ND		0.50	0.0013	mg/L		03/09/23 14:00	03/10/23 11:19	1
Cadmium	ND		0.050	0.00020	mg/L		03/09/23 14:00	03/10/23 11:19	1
Chromium	ND		0.050	0.0040	mg/L		03/09/23 14:00	03/10/23 11:19	1
Lead	ND		0.050	0.0028	mg/L		03/09/23 14:00	03/10/23 11:19	1
Selenium	ND		0.050	0.0060	mg/L		03/09/23 14:00	03/10/23 11:19	1
Silver	ND		0.050	0.00062	mg/L		03/09/23 14:00	03/10/23 11:19	1

Lab Sample ID: LCS 240-564744/3-A
Matrix: Solid
Analysis Batch: 564983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564744

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	2.00	1.91		mg/L		95	50 - 150
Cadmium	1.00	1.02		mg/L		102	50 - 150
Chromium	1.00	1.00		mg/L		100	50 - 150
Lead	1.00	0.919		mg/L		92	50 - 150
Selenium	2.00	2.14		mg/L		107	50 - 150
Silver	0.100	0.108		mg/L		108	50 - 150

Lab Sample ID: LB 240-564694/1-B
Matrix: Solid
Analysis Batch: 564983

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 564744

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/09/23 14:00	03/10/23 11:14	1
Barium	ND		0.50	0.0013	mg/L		03/09/23 14:00	03/10/23 11:14	1
Cadmium	ND		0.050	0.00020	mg/L		03/09/23 14:00	03/10/23 11:14	1
Chromium	ND		0.050	0.0040	mg/L		03/09/23 14:00	03/10/23 11:14	1
Lead	ND		0.050	0.0028	mg/L		03/09/23 14:00	03/10/23 11:14	1
Selenium	ND		0.050	0.0060	mg/L		03/09/23 14:00	03/10/23 11:14	1
Silver	ND		0.050	0.00062	mg/L		03/09/23 14:00	03/10/23 11:14	1

Lab Sample ID: 240-181523-7 MS
Matrix: Solid
Analysis Batch: 564983

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP
Prep Batch: 564744

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Arsenic	0.0054	J	5.00	5.06		mg/L		101	75 - 125
Barium	0.099	J	50.0	47.7		mg/L		95	75 - 125
Cadmium	0.00027	J	1.00	0.982		mg/L		98	75 - 125
Chromium	ND		5.00	4.90		mg/L		98	75 - 125
Lead	0.0071	J	5.00	4.71		mg/L		94	75 - 125
Selenium	ND		1.00	1.02		mg/L		102	75 - 125
Silver	0.00082	J	1.00	0.991		mg/L		99	75 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-181523-7 MSD
Matrix: Solid
Analysis Batch: 564983

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP
Prep Batch: 564744

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Arsenic	0.0054	J	5.00	5.15		mg/L		103	75 - 125	2	20
Barium	0.099	J	50.0	48.3		mg/L		96	75 - 125	1	20
Cadmium	0.00027	J	1.00	0.999		mg/L		100	75 - 125	2	20
Chromium	ND		5.00	5.00		mg/L		100	75 - 125	2	20
Lead	0.0071	J	5.00	4.78		mg/L		95	75 - 125	1	20
Selenium	ND		1.00	1.03		mg/L		103	75 - 125	1	20
Silver	0.00082	J	1.00	1.01		mg/L		101	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-564745/2-A
Matrix: Solid
Analysis Batch: 565010

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564745

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/09/23 14:00	03/10/23 14:13	1

Lab Sample ID: LCS 240-564745/3-A
Matrix: Solid
Analysis Batch: 565010

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564745

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier				Limits	
Mercury	0.00500	0.00533		mg/L		107	80 - 120	

Lab Sample ID: LB 240-564694/1-C
Matrix: Solid
Analysis Batch: 565010

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 564745

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/09/23 14:00	03/10/23 14:11	1

Lab Sample ID: 240-181523-7 MS
Matrix: Solid
Analysis Batch: 565010

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP
Prep Batch: 564745

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier				Limits	
Mercury	ND		0.00500	0.00458		mg/L		92	80 - 120	

Lab Sample ID: 240-181523-7 MSD
Matrix: Solid
Analysis Batch: 565010

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418
Prep Type: TCLP
Prep Batch: 564745

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits		
Mercury	ND		0.00500	0.00510		mg/L		102	80 - 120	11	20

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

GC/MS VOA

Composite Batch: 564683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	

Leach Batch: 564696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683
LB 240-564696/1-A MB	Method Blank	TCLP	Solid	1311	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683

Analysis Batch: 564793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-1	WC-251362	Total/NA	Water	8260D	
240-181523-2	WC-537A	Total/NA	Water	8260D	
240-181523-3	WC-AL5679	Total/NA	Water	8260D	
240-181523-4	WC-AL4944	Total/NA	Water	8260D	
240-181523-5	WC-AL4216	Total/NA	Water	8260D	
240-181523-6	WC-531A	Total/NA	Water	8260D	
240-181523-8	TRIP BLANK	Total/NA	Water	8260D	
MB 240-564793/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564793/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-564793/6	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 564830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	8260D	564696
LB 240-564696/1-A MB	Method Blank	TCLP	Solid	8260D	564696
LCS 240-564830/10	Lab Control Sample	Total/NA	Solid	8260D	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	8260D	564696
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	8260D	564696

Analysis Batch: 564959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-1	WC-251362	Total/NA	Water	8260D	
240-181523-2	WC-537A	Total/NA	Water	8260D	
240-181523-3	WC-AL5679	Total/NA	Water	8260D	
240-181523-3	WC-AL5679	Total/NA	Water	8260D	
240-181523-4	WC-AL4944	Total/NA	Water	8260D	
240-181523-5	WC-AL4216	Total/NA	Water	8260D	
240-181523-6	WC-531A	Total/NA	Water	8260D	
MB 240-564959/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564959/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-564959/6	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Composite Batch: 564683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

GC/MS Semi VOA

Leach Batch: 564694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683

Prep Batch: 564907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	3510C	564694
MB 240-564907/3-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-564907/4-A	Lab Control Sample	Total/NA	Solid	3510C	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	3510C	564694

Analysis Batch: 565032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	8270E	564907
MB 240-564907/3-A	Method Blank	Total/NA	Solid	8270E	564907
LCS 240-564907/4-A	Lab Control Sample	Total/NA	Solid	8270E	564907
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	8270E	564907

Metals

Composite Batch: 564683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	Composite	

Leach Batch: 564694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683
LB 240-564694/1-B	Method Blank	TCLP	Solid	1311	
LB 240-564694/1-C	Method Blank	TCLP	Solid	1311	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	1311	564683

Prep Batch: 564744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	3010A	564694
LB 240-564694/1-B	Method Blank	TCLP	Solid	3010A	564694
MB 240-564744/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-564744/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	3010A	564694
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	3010A	564694

Prep Batch: 564745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	7470A	564694
LB 240-564694/1-C	Method Blank	TCLP	Solid	7470A	564694
MB 240-564745/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-564745/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	7470A	564694
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	7470A	564694

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Metals

Analysis Batch: 564983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	6010D	564744
LB 240-564694/1-B	Method Blank	TCLP	Solid	6010D	564744
MB 240-564744/2-A	Method Blank	Total/NA	Solid	6010D	564744
LCS 240-564744/3-A	Lab Control Sample	Total/NA	Solid	6010D	564744
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	6010D	564744
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	6010D	564744

Analysis Batch: 565010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181523-7	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	7470A	564745
LB 240-564694/1-C	Method Blank	TCLP	Solid	7470A	564745
MB 240-564745/2-A	Method Blank	Total/NA	Solid	7470A	564745
LCS 240-564745/3-A	Lab Control Sample	Total/NA	Solid	7470A	564745
240-181523-7 MS	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	7470A	564745
240-181523-7 MSD	WC-SB1833, SB1450, SB2446, SB1905, SB2418	TCLP	Solid	7470A	564745

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-251362

Lab Sample ID: 240-181523-1

Date Collected: 03/07/23 15:30

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 16:53
Total/NA	Analysis	8260D		2	564959	SAM	EET CAN	03/10/23 14:14

Client Sample ID: WC-537A

Lab Sample ID: 240-181523-2

Date Collected: 03/07/23 15:40

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 17:17
Total/NA	Analysis	8260D		10	564959	SAM	EET CAN	03/10/23 14:38

Client Sample ID: WC-AL5679

Lab Sample ID: 240-181523-3

Date Collected: 03/07/23 15:58

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 17:41
Total/NA	Analysis	8260D		4	564959	SAM	EET CAN	03/10/23 15:03
Total/NA	Analysis	8260D		1	564959	SAM	EET CAN	03/10/23 20:12

Client Sample ID: WC-AL4944

Lab Sample ID: 240-181523-4

Date Collected: 03/07/23 15:50

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 18:05
Total/NA	Analysis	8260D		50	564959	SAM	EET CAN	03/10/23 15:27

Client Sample ID: WC-AL4216

Lab Sample ID: 240-181523-5

Date Collected: 03/07/23 16:05

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 18:28
Total/NA	Analysis	8260D		20	564959	SAM	EET CAN	03/10/23 15:51

Client Sample ID: WC-531A

Lab Sample ID: 240-181523-6

Date Collected: 03/07/23 16:15

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 18:52
Total/NA	Analysis	8260D		20	564959	SAM	EET CAN	03/10/23 16:16

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181523-1

Client Sample ID: WC-SB1833, SB1450, SB2446, SB1905, SB2418

Lab Sample ID: 240-181523-7

Date Collected: 03/07/23 17:15

Matrix: Solid

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			564683	DRJ	EET CAN	03/08/23 14:40
TCLP	Leach	1311			564696	DRJ	EET CAN	03/08/23 15:45 - 03/09/23 09:00 ¹
TCLP	Analysis	8260D		1	564830	AJS	EET CAN	03/09/23 15:31
TCLP	Composite	Composite			564683	DRJ	EET CAN	03/08/23 14:40
TCLP	Leach	1311			564694	DRJ	EET CAN	03/08/23 16:20 - 03/09/23 08:45 ¹
TCLP	Prep	3510C			564907	MDH	EET CAN	03/10/23 07:43
TCLP	Analysis	8270E		1	565032	MRU	EET CAN	03/11/23 10:48
TCLP	Composite	Composite			564683	DRJ	EET CAN	03/08/23 14:40
TCLP	Leach	1311			564694	DRJ	EET CAN	03/08/23 16:20 - 03/09/23 08:45 ¹
TCLP	Prep	3010A			564744	MRL	EET CAN	03/09/23 14:00
TCLP	Analysis	6010D		1	564983	RKT	EET CAN	03/10/23 11:27
TCLP	Composite	Composite			564683	DRJ	EET CAN	03/08/23 14:40
TCLP	Leach	1311			564694	DRJ	EET CAN	03/08/23 16:20 - 03/09/23 08:45 ¹
TCLP	Prep	7470A			564745	MRL	EET CAN	03/09/23 14:00
TCLP	Analysis	7470A		1	565010	DSH	EET CAN	03/10/23 14:17

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-181523-8

Date Collected: 03/07/23 00:00

Matrix: Water

Date Received: 03/08/23 12:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564793	SAM	EET CAN	03/09/23 14:54

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181523-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

TAL-8210
 Regulatory Program: DW NPDES RCRA Other: _____
 Project Manager: Jason Acker
 Tel/Email: Jason.acker@eurofins.com

Client Contact
 Company Name: Arcadis
 Address: 111 Saunders Ln
 City/State/Zip: Billerica MA 01820
 Phone: _____
 Fax: _____
 Project Name: _____
 Site: _____
 P O #: _____

Site Contact: Michelle Uytend
 Date: 3/17/23
 Carrier: _____
 Lab Contact: _____
 COC No: _____ of _____ COCs

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below **PUSH**
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
WC-251362	3/17/23	1530	G	WW	3			
WC-537A	3/17/23	1540	G	WW	3			
WC-AL5679	3/17/23	1558	G	WW	3			
WC-AL4944	3/17/23	1550	G	WW	3			
WC-AL4216	3/17/23	1605	G	WW	3			
WC-531A	3/17/23	1615	G	WW	3			
WC-SB1833	3/17/23	1654	G	S	1			
WC-SB1450	3/17/23	1650	G	S	1			
WC-SB2446	3/17/23	1750	G	S	1			
WC-SB1905	3/17/23	1710	G	S	1			
WC-SB2418	3/17/23	1715	G	S	1			
WC	3/17/23							



Preservation Used: (1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other) **HCL**
 Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.: _____
 Relinquished by: **Wanda Ashley Harris**
 Relinquished by: **Wanda Ashley Harris**
 Relinquished by: _____

Received by: **Jason Ambush**
 Received by: **Jason Ambush**
 Received in Laboratory by: _____

Company: **Arcadis**
 Company: **Arcadis**
 Company: _____

Date/Time: **3/17/2023**
 Date/Time: **3/17/2023**
 Date/Time: _____

Therm ID No.: _____
 Date/Time: **3-23**
 Date/Time: **3-23**
 Date/Time: _____



Eurofins - Canton Sample Receipt Form/Narrative Login # : 181523
Barberton Facility

Client Arcadis Site Name NSRR-ER Cooler unpacked by: [Signature]
Cooler Received on 3-8-23 Opened on 3-8-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

Eurofins Cooler # EC Foam Box Client Cooler Box Other _____
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None _____

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. 2.8 °C Corrected Cooler Temp. 2.6 °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N) # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? [Signature] Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? [Signature] Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 0104201G Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____
TB included. Not on COC. Logged last. [Signature] 3-8-23

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/17/2023 4:12:25 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-181838-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Michael DeMonico, Project Manager I
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(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*.	LCS and/or LCSD is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Job ID: 240-181838-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-181838-1

Receipt

The samples were received on 3/13/2023 7:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 5.3°C, 5.3°C and 9.6°C

GC/MS VOA

Method 8260D: The following sample(s) were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-S. TRK-EAST-07 (4-6) (240-181838-7).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 8270E: The laboratory control sample (LCS) for preparation batch 240-565464 and analytical batch 240-565783 recovered outside control limits for the following analyte: 4,6-Dinitro-2-methylphenol. This has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified for the following sample: WC-S. TRK-EAST-07 (4-6) (240-181838-7).

Method 8270E: The following sample was diluted to bring the concentration of target analytes within the calibration range: WC-S. TRK-EAST-07 (4-6) (240-181838-7). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
3010A	Preparation, Total Metals	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181838-7	WC-S. TRK-EAST-07 (4-6)	Solid	03/13/23 13:55	03/13/23 19:30

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181838-1

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.028		0.024	0.020	mg/Kg	1	✳	8260D	Total/NA
Cyclohexane	0.0016	J	0.0096	0.0013	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.0030	J	0.0096	0.0012	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	3.4		1.9	0.25	mg/Kg	100	✳	8270E	Total/NA
Chrysene	1.5	J	1.9	0.19	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	1.8	J	1.9	0.56	mg/Kg	100	✳	8270E	Total/NA
Naphthalene	2.2		1.9	0.30	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	2.8		1.9	0.28	mg/Kg	100	✳	8270E	Total/NA
Pyrene	2.2		1.9	0.27	mg/Kg	100	✳	8270E	Total/NA
2-Butoxyethanol	140		8.8	8.2	mg/Kg	100	✳	8270E	Total/NA
Barium	0.29	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0075	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.00079	J B	0.050	0.00062	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Date Collected: 03/13/23 13:55

Matrix: Solid

Date Received: 03/13/23 19:30

Percent Solids: 79.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0048	0.0017	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,1,2,2-Tetrachloroethane	ND		0.0048	0.0014	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0048	0.0012	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,1,2-Trichloroethane	ND		0.0048	0.0011	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,1-Dichloroethane	ND		0.0048	0.00067	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,1-Dichloroethene	ND		0.0048	0.0018	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,2,4-Trichlorobenzene	ND		0.0048	0.0024	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,2-Dibromo-3-Chloropropane	ND		0.0096	0.0035	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Ethylene Dibromide	ND		0.0048	0.00074	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,2-Dichlorobenzene	ND		0.0048	0.0011	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,2-Dichloroethane	ND		0.0048	0.00074	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,2-Dichloropropane	ND		0.0048	0.00082	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,3-Dichlorobenzene	ND		0.0048	0.00079	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
1,4-Dichlorobenzene	ND		0.0048	0.00085	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
2-Butanone (MEK)	ND		0.019	0.0034	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
2-Hexanone	ND		0.019	0.0039	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
4-Methyl-2-pentanone (MIBK)	ND		0.019	0.0036	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Acetone	0.028		0.024	0.020	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Benzene	ND		0.0048	0.00067	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Dichlorobromomethane	ND		0.0048	0.0014	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Bromoform	ND		0.0048	0.0023	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Bromomethane	ND		0.0048	0.0040	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Carbon disulfide	ND		0.0048	0.0011	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Carbon tetrachloride	ND		0.0048	0.0031	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Chlorobenzene	ND		0.0048	0.00088	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Chloroethane	ND		0.0048	0.0026	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Chloroform	ND		0.0048	0.00076	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Chloromethane	ND		0.0048	0.0022	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
cis-1,2-Dichloroethene	ND		0.0048	0.0014	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
cis-1,3-Dichloropropene	ND		0.0048	0.0028	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Cyclohexane	0.0016	J	0.0096	0.0013	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Chlorodibromomethane	ND		0.0048	0.0027	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Dichlorodifluoromethane	ND		0.0048	0.00091	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Ethylbenzene	ND		0.0048	0.0010	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Isopropylbenzene	ND		0.0048	0.0019	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Methyl acetate	ND		0.024	0.0033	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Methyl tert-butyl ether	ND		0.0048	0.0019	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Methylcyclohexane	0.0030	J	0.0096	0.0012	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Methylene Chloride	ND		0.024	0.012	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Styrene	ND		0.0048	0.0011	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Tetrachloroethene	ND		0.0048	0.00070	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Toluene	ND		0.0048	0.00075	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
trans-1,2-Dichloroethene	ND		0.0048	0.0014	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
trans-1,3-Dichloropropene	ND		0.0048	0.0036	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Trichloroethene	ND		0.0048	0.00061	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Trichlorofluoromethane	ND		0.0048	0.0026	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Vinyl chloride	ND		0.0048	0.0017	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Xylenes, Total	ND		0.0096	0.0015	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1
Butyl acrylate	ND		0.048	0.019	mg/Kg	✳	03/13/23 20:47	03/16/23 13:31	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Date Collected: 03/13/23 13:55

Matrix: Solid

Date Received: 03/13/23 19:30

Percent Solids: 79.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0096	0.0030	mg/Kg	☼	03/13/23 20:47	03/16/23 13:31	1
2-Ethylhexyl acrylate	ND		0.048	0.023	mg/Kg	☼	03/13/23 20:47	03/16/23 13:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		56 - 125				03/13/23 20:47	03/16/23 13:31	1
Dibromofluoromethane (Surr)	77		41 - 138				03/13/23 20:47	03/16/23 13:31	1
4-Bromofluorobenzene (Surr)	73		41 - 143				03/13/23 20:47	03/16/23 13:31	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				03/13/23 20:47	03/16/23 13:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.3	2.1	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
bis (2-chloroisopropyl) ether	ND		13	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,4,5-Trichlorophenol	ND		19	8.7	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,4,6-Trichlorophenol	ND		19	8.1	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,4-Dichlorophenol	ND		19	5.5	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,4-Dimethylphenol	ND		19	5.0	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,4-Dinitrophenol	ND		42	18	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,4-Dinitrotoluene	ND		25	7.8	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2,6-Dinitrotoluene	ND		25	7.1	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2-Chloronaphthalene	ND		6.3	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2-Chlorophenol	ND		6.3	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2-Methylnaphthalene	3.4		1.9	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2-Methylphenol	ND		25	3.9	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2-Nitroaniline	ND		25	5.0	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
2-Nitrophenol	ND		6.3	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
3,3'-Dichlorobenzidine	ND		13	5.4	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
3-Nitroaniline	ND		25	6.2	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4,6-Dinitro-2-methylphenol	ND	*	42	10	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4-Bromophenyl phenyl ether	ND		6.3	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4-Chloro-3-methylphenol	ND		19	5.7	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4-Chloroaniline	ND		19	3.8	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4-Chlorophenyl phenyl ether	ND		6.3	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4-Nitroaniline	ND		25	7.6	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
4-Nitrophenol	ND		42	12	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Acenaphthene	ND		1.9	0.36	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Acenaphthylene	ND		1.9	0.50	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Acetophenone	ND		13	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Anthracene	ND		1.9	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Atrazine	ND		25	4.5	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Benzaldehyde	ND		13	2.9	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Benzo[a]anthracene	ND		1.9	0.43	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Benzo[a]pyrene	ND		1.9	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Benzo[b]fluoranthene	ND		1.9	0.82	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Benzo[g,h,i]perylene	ND		1.9	0.89	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Benzo[k]fluoranthene	ND		1.9	0.87	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Bis(2-chloroethoxy)methane	ND		13	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Bis(2-chloroethyl)ether	ND		13	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Bis(2-ethylhexyl) phthalate	ND		8.8	6.4	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100
Butyl benzyl phthalate	ND		8.8	2.8	mg/Kg	☼	03/15/23 09:31	03/17/23 13:30	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Date Collected: 03/13/23 13:55

Matrix: Solid

Date Received: 03/13/23 19:30

Percent Solids: 79.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		42	9.4	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Carbazole	ND		6.3	2.4	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Chrysene	1.5	J	1.9	0.19	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Dibenz(a,h)anthracene	ND		1.9	0.87	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Dibenzofuran	ND		6.3	1.6	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Diethyl phthalate	ND		8.8	3.9	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Dimethyl phthalate	ND		8.8	1.8	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Di-n-butyl phthalate	ND		8.8	6.4	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Di-n-octyl phthalate	ND		8.8	3.5	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Fluoranthene	1.8	J	1.9	0.56	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Fluorene	ND		1.9	0.35	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Hexachlorobenzene	ND		1.9	0.36	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Hexachlorobutadiene	ND		6.3	1.5	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Hexachlorocyclopentadiene	ND		42	7.8	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Hexachloroethane	ND		6.3	1.1	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Indeno[1,2,3-cd]pyrene	ND		1.9	0.93	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Isophorone	ND		6.3	1.5	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
N-Nitrosodi-n-propylamine	ND		6.3	1.4	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
N-Nitrosodiphenylamine	ND		6.3	1.5	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Naphthalene	2.2		1.9	0.30	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Nitrobenzene	ND		13	1.6	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Pentachlorophenol	ND		19	7.3	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Phenanthrene	2.8		1.9	0.28	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Phenol	ND		6.3	1.0	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
Pyrene	2.2		1.9	0.27	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
3 & 4 Methylphenol	ND		50	3.7	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100
2-Butoxyethanol	140		8.8	8.2	mg/Kg	☆	03/15/23 09:31	03/17/23 13:30	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	101		46 - 137	03/15/23 09:31	03/17/23 13:30	100
<i>Phenol-d5 (Surr)</i>	62		26 - 120	03/15/23 09:31	03/17/23 13:30	100
<i>Nitrobenzene-d5 (Surr)</i>	50		25 - 120	03/15/23 09:31	03/17/23 13:30	100
<i>2-Fluorophenol (Surr)</i>	54		20 - 120	03/15/23 09:31	03/17/23 13:30	100
<i>2-Fluorobiphenyl (Surr)</i>	75		34 - 120	03/15/23 09:31	03/17/23 13:30	100
<i>2,4,6-Tribromophenol (Surr)</i>	54		10 - 120	03/15/23 09:31	03/17/23 13:30	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/15/23 14:00	03/16/23 15:36	1
Barium	0.29	J B	0.50	0.0013	mg/L		03/15/23 14:00	03/16/23 15:36	1
Cadmium	0.0011	J	0.050	0.00020	mg/L		03/15/23 14:00	03/16/23 15:36	1
Chromium	ND		0.050	0.0040	mg/L		03/15/23 14:00	03/16/23 15:36	1
Lead	0.0075	J	0.050	0.0028	mg/L		03/15/23 14:00	03/16/23 15:36	1
Selenium	ND		0.050	0.0060	mg/L		03/15/23 14:00	03/16/23 15:36	1
Silver	0.00079	J B	0.050	0.00062	mg/L		03/15/23 14:00	03/16/23 15:36	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/15/23 16:00	03/16/23 16:50	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Date Collected: 03/13/23 13:55

Matrix: Solid

Date Received: 03/13/23 19:30

Percent Solids: 79.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.9		0.1	0.1	%			03/14/23 12:45	1
Percent Moisture (EPA Moisture)	20.1		0.1	0.1	%			03/14/23 12:45	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TOL	DBFM	BFB	DCA
		(56-125)	(41-138)	(41-143)	(58-125)
240-181838-7	WC-S. TRK-EAST-07 (4-6)	91	77	73	84
LCS 240-565563/6	Lab Control Sample	83	81	79	82
MB 240-565546/1-A	Method Blank	80	76	73	83
MB 240-565563/7	Method Blank	81	74	73	83

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TPHL	PHL	NBZ	2FP	FBP	TBP
		(46-137)	(26-120)	(25-120)	(20-120)	(34-120)	(10-120)
240-181838-7	WC-S. TRK-EAST-07 (4-6)	101	62	50	54	75	54
LCS 240-565464/2-A	Lab Control Sample	94	86	69	83	77	74
MB 240-565464/1-A	Method Blank	106	67	76	54	83	34

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-565546/1-A
Matrix: Solid
Analysis Batch: 565563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565546

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Acetone	ND		0.025	0.021	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/15/23 18:20	03/16/23 12:46	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-565546/1-A
Matrix: Solid
Analysis Batch: 565563

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565546

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Butyl acrylate	ND		0.050	0.019	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Methyl acrylate	ND		0.010	0.0031	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
2-Ethylhexyl acrylate	ND		0.050	0.024	mg/Kg		03/15/23 18:20	03/16/23 12:46	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
%Recovery	Qualifier								
Toluene-d8 (Surr)	80		56 - 125			03/15/23 18:20	03/16/23 12:46	1	
Dibromofluoromethane (Surr)	76		41 - 138			03/15/23 18:20	03/16/23 12:46	1	
4-Bromofluorobenzene (Surr)	73		41 - 143			03/15/23 18:20	03/16/23 12:46	1	
1,2-Dichloroethane-d4 (Surr)	83		58 - 125			03/15/23 18:20	03/16/23 12:46	1	

Lab Sample ID: MB 240-565563/7
Matrix: Solid
Analysis Batch: 565563

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg			03/16/23 04:15	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg			03/16/23 04:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg			03/16/23 04:15	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg			03/16/23 04:15	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg			03/16/23 04:15	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg			03/16/23 04:15	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg			03/16/23 04:15	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg			03/16/23 04:15	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg			03/16/23 04:15	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg			03/16/23 04:15	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg			03/16/23 04:15	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg			03/16/23 04:15	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg			03/16/23 04:15	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg			03/16/23 04:15	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg			03/16/23 04:15	1
2-Hexanone	ND		0.020	0.0041	mg/Kg			03/16/23 04:15	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg			03/16/23 04:15	1
Acetone	ND		0.025	0.021	mg/Kg			03/16/23 04:15	1
Benzene	ND		0.0050	0.00070	mg/Kg			03/16/23 04:15	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg			03/16/23 04:15	1
Bromoform	ND		0.0050	0.0024	mg/Kg			03/16/23 04:15	1
Bromomethane	ND		0.0050	0.0042	mg/Kg			03/16/23 04:15	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg			03/16/23 04:15	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg			03/16/23 04:15	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg			03/16/23 04:15	1
Chloroethane	ND		0.0050	0.0027	mg/Kg			03/16/23 04:15	1
Chloroform	ND		0.0050	0.00079	mg/Kg			03/16/23 04:15	1
Chloromethane	ND		0.0050	0.0023	mg/Kg			03/16/23 04:15	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg			03/16/23 04:15	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg			03/16/23 04:15	1
Cyclohexane	ND		0.010	0.0014	mg/Kg			03/16/23 04:15	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg			03/16/23 04:15	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg			03/16/23 04:15	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-565563/7
Matrix: Solid
Analysis Batch: 565563

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0050	0.0010	mg/Kg			03/16/23 04:15	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg			03/16/23 04:15	1
Methyl acetate	ND		0.025	0.0034	mg/Kg			03/16/23 04:15	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg			03/16/23 04:15	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg			03/16/23 04:15	1
Methylene Chloride	ND		0.025	0.012	mg/Kg			03/16/23 04:15	1
Styrene	ND		0.0050	0.0012	mg/Kg			03/16/23 04:15	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg			03/16/23 04:15	1
Toluene	ND		0.0050	0.00077	mg/Kg			03/16/23 04:15	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg			03/16/23 04:15	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg			03/16/23 04:15	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg			03/16/23 04:15	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg			03/16/23 04:15	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg			03/16/23 04:15	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg			03/16/23 04:15	1
Butyl acrylate	ND		0.050	0.019	mg/Kg			03/16/23 04:15	1
Methyl acrylate	ND		0.010	0.0031	mg/Kg			03/16/23 04:15	1
2-Ethylhexyl acrylate	0.0310	J	0.050	0.024	mg/Kg			03/16/23 04:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	81		56 - 125		03/16/23 04:15	1
Dibromofluoromethane (Surr)	74		41 - 138		03/16/23 04:15	1
4-Bromofluorobenzene (Surr)	73		41 - 143		03/16/23 04:15	1
1,2-Dichloroethane-d4 (Surr)	83		58 - 125		03/16/23 04:15	1

Lab Sample ID: LCS 240-565563/6
Matrix: Solid
Analysis Batch: 565563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0250	0.0276		mg/Kg		111	74 - 136
1,1,2,2-Tetrachloroethane	0.0250	0.0264		mg/Kg		106	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0298		mg/Kg		119	64 - 148
1,1,2-Trichloroethane	0.0250	0.0259		mg/Kg		104	79 - 120
1,1-Dichloroethane	0.0250	0.0259		mg/Kg		104	74 - 121
1,1-Dichloroethene	0.0250	0.0286		mg/Kg		114	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0245		mg/Kg		98	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0186		mg/Kg		74	52 - 133
Ethylene Dibromide	0.0250	0.0255		mg/Kg		102	80 - 121
1,2-Dichlorobenzene	0.0250	0.0255		mg/Kg		102	73 - 120
1,2-Dichloroethane	0.0250	0.0259		mg/Kg		104	71 - 123
1,2-Dichloropropane	0.0250	0.0252		mg/Kg		101	76 - 126
1,3-Dichlorobenzene	0.0250	0.0247		mg/Kg		99	73 - 120
1,4-Dichlorobenzene	0.0250	0.0246		mg/Kg		98	74 - 120
2-Butanone (MEK)	0.0500	0.0592		mg/Kg		118	63 - 142
2-Hexanone	0.0500	0.0542		mg/Kg		108	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0495		mg/Kg		99	62 - 142
Acetone	0.0500	0.0729		mg/Kg		146	58 - 160

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565563/6
Matrix: Solid
Analysis Batch: 565563

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0250	0.0261		mg/Kg		104	76 - 121
Dichlorobromomethane	0.0250	0.0249		mg/Kg		100	71 - 138
Bromoform	0.0250	0.0220		mg/Kg		88	57 - 140
Bromomethane	0.0250	0.0265		mg/Kg		106	10 - 171
Carbon disulfide	0.0250	0.0249		mg/Kg		100	43 - 152
Carbon tetrachloride	0.0250	0.0284		mg/Kg		113	64 - 144
Chlorobenzene	0.0250	0.0250		mg/Kg		100	80 - 120
Chloroethane	0.0250	0.0254		mg/Kg		102	11 - 164
Chloroform	0.0250	0.0271		mg/Kg		108	78 - 120
Chloromethane	0.0250	0.0218		mg/Kg		87	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0264		mg/Kg		106	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0228		mg/Kg		91	70 - 133
Cyclohexane	0.0250	0.0292		mg/Kg		117	65 - 137
Chlorodibromomethane	0.0250	0.0239		mg/Kg		96	68 - 131
Dichlorodifluoromethane	0.0250	0.0215		mg/Kg		86	21 - 150
Ethylbenzene	0.0250	0.0259		mg/Kg		104	80 - 120
Isopropylbenzene	0.0250	0.0281		mg/Kg		112	80 - 130
Methyl acetate	0.0500	0.0529		mg/Kg		106	60 - 133
Methyl tert-butyl ether	0.0250	0.0240		mg/Kg		96	70 - 130
Methylcyclohexane	0.0250	0.0291		mg/Kg		116	70 - 138
Methylene Chloride	0.0250	0.0225	J	mg/Kg		90	71 - 124
Styrene	0.0250	0.0272		mg/Kg		109	75 - 140
Tetrachloroethene	0.0250	0.0272		mg/Kg		109	76 - 127
Toluene	0.0250	0.0269		mg/Kg		108	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0268		mg/Kg		107	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0229		mg/Kg		92	61 - 121
Trichloroethene	0.0250	0.0252		mg/Kg		101	74 - 130
Trichlorofluoromethane	0.0250	0.0267		mg/Kg		107	50 - 154
Vinyl chloride	0.0250	0.0274		mg/Kg		110	49 - 146
Xylenes, Total	0.0500	0.0542		mg/Kg		108	80 - 122
m-Xylene & p-Xylene	0.0250	0.0265		mg/Kg		106	80 - 122
o-Xylene	0.0250	0.0277		mg/Kg		111	80 - 124
Butyl acrylate	0.100	0.0881		mg/Kg		88	10 - 120
Methyl acrylate	0.100	0.0891		mg/Kg		89	10 - 120
2-Ethylhexyl acrylate	0.100	0.103		mg/Kg		103	10 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	83		56 - 125
Dibromofluoromethane (Surr)	81		41 - 138
4-Bromofluorobenzene (Surr)	79		41 - 143
1,2-Dichloroethane-d4 (Surr)	82		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-565464/1-A
Matrix: Solid
Analysis Batch: 565783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565464

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Atrazine	ND		0.20	0.036	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Carbazole	ND		0.050	0.019	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/15/23 09:31	03/17/23 12:41	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-565464/1-A
Matrix: Solid
Analysis Batch: 565783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565464

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Isophorone	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Phenol	ND		0.050	0.0080	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Butoxyethanol	ND		0.070	0.066	mg/Kg		03/15/23 09:31	03/17/23 12:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137	03/15/23 09:31	03/17/23 12:41	1
Phenol-d5 (Surr)	67		26 - 120	03/15/23 09:31	03/17/23 12:41	1
Nitrobenzene-d5 (Surr)	76		25 - 120	03/15/23 09:31	03/17/23 12:41	1
2-Fluorophenol (Surr)	54		20 - 120	03/15/23 09:31	03/17/23 12:41	1
2-Fluorobiphenyl (Surr)	83		34 - 120	03/15/23 09:31	03/17/23 12:41	1
2,4,6-Tribromophenol (Surr)	34		10 - 120	03/15/23 09:31	03/17/23 12:41	1

Lab Sample ID: LCS 240-565464/2-A
Matrix: Solid
Analysis Batch: 565783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565464

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.485		mg/Kg		73	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.509		mg/Kg		76	38 - 120
2,4,5-Trichlorophenol	0.667	0.492		mg/Kg		74	50 - 120
2,4,6-Trichlorophenol	0.667	0.451		mg/Kg		68	50 - 120
2,4-Dichlorophenol	0.667	0.485		mg/Kg		73	50 - 120
2,4-Dimethylphenol	0.667	0.419		mg/Kg		63	24 - 120
2,4-Dinitrophenol	1.33	0.317	J	mg/Kg		24	19 - 132
2,4-Dinitrotoluene	0.667	0.568		mg/Kg		85	64 - 120
2,6-Dinitrotoluene	0.667	0.545		mg/Kg		82	62 - 120
2-Chloronaphthalene	0.667	0.474		mg/Kg		71	51 - 120
2-Chlorophenol	0.667	0.510		mg/Kg		76	47 - 120
2-Methylnaphthalene	0.667	0.465		mg/Kg		70	38 - 120
2-Methylphenol	0.667	0.517		mg/Kg		78	45 - 120
2-Nitroaniline	0.667	0.562		mg/Kg		84	57 - 120
2-Nitrophenol	0.667	0.450		mg/Kg		68	51 - 120
3,3'-Dichlorobenzidine	1.33	0.994		mg/Kg		75	27 - 199

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-565464/2-A
Matrix: Solid
Analysis Batch: 565783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565464

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
3-Nitroaniline	0.667	0.452		mg/Kg		68	41 - 120
4,6-Dinitro-2-methylphenol	1.33	0.552	*	mg/Kg		41	46 - 126
4-Bromophenyl phenyl ether	0.667	0.530		mg/Kg		80	65 - 120
4-Chloro-3-methylphenol	0.667	0.511		mg/Kg		77	51 - 120
4-Chloroaniline	0.667	0.345		mg/Kg		52	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.505		mg/Kg		76	59 - 120
4-Nitroaniline	0.667	0.530		mg/Kg		79	48 - 128
4-Nitrophenol	1.33	1.07		mg/Kg		81	43 - 120
Acenaphthene	0.667	0.505		mg/Kg		76	52 - 120
Acenaphthylene	0.667	0.483		mg/Kg		72	52 - 120
Acetophenone	0.667	0.501		mg/Kg		75	47 - 120
Anthracene	0.667	0.528		mg/Kg		79	64 - 120
Atrazine	1.33	1.27		mg/Kg		96	71 - 125
Benzaldehyde	1.33	1.04		mg/Kg		78	42 - 120
Benzo[a]anthracene	0.667	0.574		mg/Kg		86	70 - 120
Benzo[a]pyrene	0.667	0.500		mg/Kg		75	63 - 125
Benzo[b]fluoranthene	0.667	0.513		mg/Kg		77	64 - 121
Benzo[g,h,i]perylene	0.667	0.478		mg/Kg		72	62 - 120
Benzo[k]fluoranthene	0.667	0.508		mg/Kg		76	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.479		mg/Kg		72	50 - 120
Bis(2-chloroethyl)ether	0.667	0.477		mg/Kg		72	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.606		mg/Kg		91	63 - 133
Butyl benzyl phthalate	0.667	0.604		mg/Kg		91	66 - 127
Caprolactam	1.33	1.16		mg/Kg		87	67 - 120
Carbazole	0.667	0.559		mg/Kg		84	61 - 129
Chrysene	0.667	0.551		mg/Kg		83	67 - 120
Dibenz(a,h)anthracene	0.667	0.491		mg/Kg		74	62 - 120
Dibenzofuran	0.667	0.502		mg/Kg		75	55 - 120
Diethyl phthalate	0.667	0.552		mg/Kg		83	61 - 120
Dimethyl phthalate	0.667	0.535		mg/Kg		80	64 - 120
Di-n-butyl phthalate	0.667	0.578		mg/Kg		87	70 - 129
Di-n-octyl phthalate	0.667	0.539		mg/Kg		81	64 - 129
Fluoranthene	0.667	0.547		mg/Kg		82	71 - 124
Fluorene	0.667	0.510		mg/Kg		76	58 - 120
Hexachlorobenzene	0.667	0.493		mg/Kg		74	59 - 120
Hexachlorobutadiene	0.667	0.436		mg/Kg		65	45 - 120
Hexachlorocyclopentadiene	0.667	0.122	J	mg/Kg		18	10 - 120
Hexachloroethane	0.667	0.402		mg/Kg		60	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.527		mg/Kg		79	65 - 122
Isophorone	0.667	0.486		mg/Kg		73	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.515		mg/Kg		77	48 - 120
N-Nitrosodiphenylamine	0.667	0.543		mg/Kg		81	64 - 120
Naphthalene	0.667	0.445		mg/Kg		67	34 - 120
Nitrobenzene	0.667	0.466		mg/Kg		70	48 - 120
Pentachlorophenol	1.33	0.694		mg/Kg		52	10 - 120
Phenanthrene	0.667	0.523		mg/Kg		78	60 - 120
Phenol	0.667	0.511		mg/Kg		77	48 - 120
Pyrene	0.667	0.576		mg/Kg		86	67 - 120
3 & 4 Methylphenol	0.667	0.526		mg/Kg		79	49 - 120

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-565464/2-A
Matrix: Solid
Analysis Batch: 565783

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565464

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butoxyethanol	0.667	0.515		mg/Kg		77	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	94		46 - 137
Phenol-d5 (Surr)	86		26 - 120
Nitrobenzene-d5 (Surr)	69		25 - 120
2-Fluorophenol (Surr)	83		20 - 120
2-Fluorobiphenyl (Surr)	77		34 - 120
2,4,6-Tribromophenol (Surr)	74		10 - 120

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-565534/2-A
Matrix: Solid
Analysis Batch: 565757

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565534

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/15/23 14:00	03/16/23 13:38	1
Barium	ND		0.50	0.0013	mg/L		03/15/23 14:00	03/16/23 13:38	1
Cadmium	ND		0.050	0.00020	mg/L		03/15/23 14:00	03/16/23 13:38	1
Chromium	ND		0.050	0.0040	mg/L		03/15/23 14:00	03/16/23 13:38	1
Lead	ND		0.050	0.0028	mg/L		03/15/23 14:00	03/16/23 13:38	1
Selenium	ND		0.050	0.0060	mg/L		03/15/23 14:00	03/16/23 13:38	1
Silver	0.000772	J	0.050	0.00062	mg/L		03/15/23 14:00	03/16/23 13:38	1

Lab Sample ID: LCS 240-565534/3-A
Matrix: Solid
Analysis Batch: 565757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565534

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.14		mg/L		107	50 - 150
Barium	2.00	1.92		mg/L		96	50 - 150
Cadmium	1.00	1.01		mg/L		101	50 - 150
Chromium	1.00	0.996		mg/L		100	50 - 150
Lead	1.00	0.918		mg/L		92	50 - 150
Selenium	2.00	2.16		mg/L		108	50 - 150
Silver	0.100	0.109		mg/L		109	50 - 150

Lab Sample ID: LB 240-565373/20-B
Matrix: Solid
Analysis Batch: 565757

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565534

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/15/23 14:00	03/16/23 13:34	1
Barium	0.00213	J	0.50	0.0013	mg/L		03/15/23 14:00	03/16/23 13:34	1
Cadmium	ND		0.050	0.00020	mg/L		03/15/23 14:00	03/16/23 13:34	1
Chromium	ND		0.050	0.0040	mg/L		03/15/23 14:00	03/16/23 13:34	1
Lead	ND		0.050	0.0028	mg/L		03/15/23 14:00	03/16/23 13:34	1
Selenium	ND		0.050	0.0060	mg/L		03/15/23 14:00	03/16/23 13:34	1

Eurofins Canton

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 240-565373/20-B
Matrix: Solid
Analysis Batch: 565757

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565534

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	0.000805	J	0.050	0.00062	mg/L		03/15/23 14:00	03/16/23 13:34	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-565536/2-A
Matrix: Solid
Analysis Batch: 565701

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565536

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/15/23 16:00	03/16/23 16:01	1

Lab Sample ID: LCS 240-565536/3-A
Matrix: Solid
Analysis Batch: 565701

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565536

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00517		mg/L		103	80 - 120

Lab Sample ID: LB 240-565373/20-C
Matrix: Solid
Analysis Batch: 565701

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565536

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/15/23 16:00	03/16/23 15:59	1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-181838-D-4 DU
Matrix: Solid
Analysis Batch: 565330

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	76.8		82.4		%		7	20
Percent Moisture	23.2		17.6	F3	%		28	20

Lab Sample ID: 240-181838-D-13 DU
Matrix: Solid
Analysis Batch: 565330

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	80.7		83.6		%		4	20
Percent Moisture	19.3		16.4		%		16	20

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

GC/MS VOA

Prep Batch: 565546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	Total/NA	Solid	5035	
MB 240-565546/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 565563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	Total/NA	Solid	8260D	565546
MB 240-565546/1-A	Method Blank	Total/NA	Solid	8260D	565546
MB 240-565563/7	Method Blank	Total/NA	Solid	8260D	
LCS 240-565563/6	Lab Control Sample	Total/NA	Solid	8260D	

GC/MS Semi VOA

Prep Batch: 565464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	Total/NA	Solid	3540C	
MB 240-565464/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-565464/2-A	Lab Control Sample	Total/NA	Solid	3540C	

Analysis Batch: 565783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	Total/NA	Solid	8270E	565464
MB 240-565464/1-A	Method Blank	Total/NA	Solid	8270E	565464
LCS 240-565464/2-A	Lab Control Sample	Total/NA	Solid	8270E	565464

Metals

Leach Batch: 565373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	TCLP	Solid	1311	
LB 240-565373/20-B	Method Blank	TCLP	Solid	1311	
LB 240-565373/20-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 565534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	TCLP	Solid	3010A	565373
LB 240-565373/20-B	Method Blank	TCLP	Solid	3010A	565373
MB 240-565534/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-565534/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 565536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	TCLP	Solid	7470A	565373
LB 240-565373/20-C	Method Blank	TCLP	Solid	7470A	565373
MB 240-565536/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-565536/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 565701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	TCLP	Solid	7470A	565536
LB 240-565373/20-C	Method Blank	TCLP	Solid	7470A	565536
MB 240-565536/2-A	Method Blank	Total/NA	Solid	7470A	565536
LCS 240-565536/3-A	Lab Control Sample	Total/NA	Solid	7470A	565536

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181838-1

Metals

Analysis Batch: 565757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	TCLP	Solid	6010D	565534
LB 240-565373/20-B	Method Blank	TCLP	Solid	6010D	565534
MB 240-565534/2-A	Method Blank	Total/NA	Solid	6010D	565534
LCS 240-565534/3-A	Lab Control Sample	Total/NA	Solid	6010D	565534

General Chemistry

Analysis Batch: 565330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181838-7	WC-S. TRK-EAST-07 (4-6)	Total/NA	Solid	Moisture	
240-181838-D-4 DU	Duplicate	Total/NA	Solid	Moisture	
240-181838-D-13 DU	Duplicate	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181838-1

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Date Collected: 03/13/23 13:55

Matrix: Solid

Date Received: 03/13/23 19:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565373	KLE	EET CAN	03/14/23 15:55 - 03/15/23 08:20 ¹
TCLP	Prep	3010A			565534	MRL	EET CAN	03/15/23 14:00
TCLP	Analysis	6010D		1	565757	RKT	EET CAN	03/16/23 15:36
TCLP	Leach	1311			565373	KLE	EET CAN	03/14/23 15:55 - 03/15/23 08:20 ¹
TCLP	Prep	7470A			565536	MRL	EET CAN	03/15/23 16:00
TCLP	Analysis	7470A		1	565701	DSH	EET CAN	03/16/23 16:50
Total/NA	Analysis	Moisture		1	565330	MS	EET CAN	03/14/23 12:45

Client Sample ID: WC-S. TRK-EAST-07 (4-6)

Lab Sample ID: 240-181838-7

Date Collected: 03/13/23 13:55

Matrix: Solid

Date Received: 03/13/23 19:30

Percent Solids: 79.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565546	LAM	EET CAN	03/13/23 20:47
Total/NA	Analysis	8260D		1	565563	CS	EET CAN	03/16/23 13:31
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		100	565783	JMG	EET CAN	03/17/23 13:30

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181838-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-23 *
Ohio VAP	State	CL0024	02-27-23 *
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.



Regulatory Program: DW NPDES RCRA Other: _____

Project Manager: Jason Artrip Jason.Artrip@arcadis.com

Site Contact: Michelle Grayton Michelle.Grayton@arcadis.com

Lab Contact: Mike DeMonico Mike.DeMonico@arcadis.com

Carrier: 0313123 Date: 0313123

COG No: 1 of 2 COCs

Sampler: Carlie Ward

For Lab Use Only:

Walk-in Client: _____

Lab Sampling: _____

Job / SDG No.: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
WC-S.Trk-East-01(2-4)	3/13/23	1245	G	S	9	N	N	Total SVOC
WC-S.Trk-East-02(2-4)	3/13/23	1255	G	S	9	N	N	Total SVOC
WC-S.Trk-East-03(2-4)	3/13/23	1310	G	S	9	N	N	Total SVOC
WC-S.Trk-East-04(2-4)	3/13/23	1320	G	S	9	N	N	Total SVOC
WC-S.Trk-East-05(4-6)	3/13/23	1335	G	S	9	N	N	Total SVOC
WC-S.Trk-East-06(4-6)	3/13/23	1345	G	S	9	N	N	Total SVOC
WC-S.Trk-East-07(4-6)	3/13/23	1355	G	S	9	N	N	Total SVOC
WC-S.Trk-East-08(4-6)	3/13/23	1410	G	S	9	N	N	Total SVOC
WC-S.Trk-East-09(6-8)	3/13/23	1420	G	S	9	N	N	Total SVOC
WC-S.Trk-East-10(6-8)	3/13/23	1430	G	S	9	N	N	Total SVOC
WC-S.Trk-East-11(6-8)	3/13/23	1445	G	S	9	N	N	Total SVOC
WC-S.Trk-East-12(8-10)	3/13/23	1500	G	S	9	N	N	Total SVOC



Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification: _____

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. **NONE, BUYI ACCIATE**

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: _____

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.: _____

Company: _____

Relinquished by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____

Received in Laboratory by: Jason Artrip Date/Time: 3-13-23 1930

Company: EETNC



Address: EUROFINS

Chain of Custody Record

644933



Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: ARCADIS
 Address: 95 Management Circle Ste 300B
 City/State/Zip: Indianapolis, IN 46203
 Phone: _____
 Fax: _____

Project Name: NORFOLK Southern
 Site: E. PALESTINE OH
 PO # 24030746

Project Manager: Jason Artrip
 Tel/Email: jason.artrip@arcadis.com
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below RUSH
 2 weeks
 1 week
 2 days
 1 day

Site Contact: Michele Crayton
 Lab Contact: MIKE DEMMICO
 Date: 3/13/23
 Carrier: _____
 COC No.: _____ of 2 COCs
 Sampler: CORIE WARD
 For Lab Use Only:
 Walk-in Client:
 Lab Sampling:
 Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Total VOC	Total SVOC	TCLP Metals	TCLP VOC	TCLP SVOC	TCLP Herb	TCLP Pest	Total PCBs	Sample Specific Notes
WC-S-TRK-EAST-13 (8-10)	3/13/23	1520	G	S	9	N	N	X	X	X	X	X	X	X	X	
WC-S-TRK-EAST-14 (8-10)	3/13/23	1535	G	S	9	N	N	X	X	X	X	X	X	X	X	
WC-S-TRK-EAST-COMP (01-07)	3/13/23	X	LAB COMP	S	X	N	N	X	X	X	X	X	X	X	X	lab to generate composite
WC-S-TRK-EAST-COMP (08-14)	3/13/23	X	LAB COMP	S	X	N	N	X	X	X	X	X	X	X	X	lab to generate composite
																lab to generate composite

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other
 Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. None, Butyl Acrylate
 Non-Hazard Flammable Skin Irritant Poison B Unknown
 Special Instructions/QC Requirements & Comments:
lab to generate composite samples each containing 5 grab samples

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.: _____
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Received in Laboratory by: Jason Artrip Date/Time: 3-13-23 1930
 Company: EETNC



Client Arcadis Site Name NSRR-ER Cooler unpacked by: JMR
 Cooler Received on 3-13-23 Opened on 3-13-23
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # CC Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
 IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea
- Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 - Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
 - Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N) # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
- If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
 Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
 Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____
 VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 181838

Eurofins - Canton Sample Receipt Multiple Cooler Form

Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>5.5</u>	<u>5.3</u>	<u>Wet Ice</u> Blue Ice Water None	Dry Ice
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>5.5</u>	<u>5.3</u>	<u>Wet Ice</u> Blue Ice Water None	Dry Ice
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>9.8</u>	<u>9.6</u>	<u>Wet Ice</u> Blue Ice Water None	Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
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EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice
EC Client	Box	Other	IR GUN #: _____			Wet Ice Water	Blue Ice None Dry Ice

See Temperature Excursion Form

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ANALYTICAL REPORT

Preliminary Data

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/21/2023 12:39:07 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-181894-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Preliminary Data



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Preliminary Data

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Job ID: 240-181894-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-181894-1

Receipt

The samples were received on 3/14/2023 7:20 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.5°C, 3.8°C and 4.0°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-565827 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8260D: The following sample(s) were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-S. TRK-WEST-01 (2-4) (240-181894-1), WC-S. TRK-WEST-02 (6-8) (240-181894-2), WC-S. TRK-WEST-03 (2-4) (240-181894-3), WC-S. TRK-WEST-04 (4-6) (240-181894-4), WC-S. TRK-WEST-05 (4-6) (240-181894-5), WC-S. TRK-WEST-06 (6-8) (240-181894-6), WC-S. TRK-WEST-07 (8-10) (240-181894-7), WC-S. TRK-WEST-08 (8-10) (240-181894-9), WC-S. TRK-WEST-09 (10-12) (240-181894-10), WC-S. TRK-WEST-10 (10-12) (240-181894-11), WC-S. TRK-WEST-11 (12-14) (240-181894-12), WC-S. TRK-WEST-12 (12-14) (240-181894-13), WC-S. TRK-WEST-13 (14-16) (240-181894-14), WC-S. TRK-WEST-14 (14-16) (240-181894-15), (240-181894-C-15 MS) and (240-181894-C-15 MSD).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-565699 recovered above the upper control limit for Bromomethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The MS/MSD for preparation batch 240-565503 and analytical batch 240-565878 is not reported because it was analyzed in another batch.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-565878 recovered above the upper control limit for Bromomethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: A MS/MSD was prepared for batch 240-565503, but was analyzed in a different analytical batch. WC-S. TRK-WEST-07 (8-10) (240-181894-7)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-565910 recovered outside acceptance criteria, low biased, for Pentachlorophenol. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for the analyte, the data are reported. The following samples were impacted: WC-S. TRK-WEST-COMP (01-07) (240-181894-8), WC-S. TRK-WEST-COMP (08-14) (240-181894-16) and (240-181902-A-1-J).

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-S. TRK-WEST-01 (2-4) (240-181894-1), WC-S. TRK-WEST-02 (6-8) (240-181894-2) and WC-S. TRK-WEST-04 (4-6) (240-181894-4). Elevated reporting limits (RLs) are provided.

Method 8270E: The following samples were diluted to bring the concentration of target analytes within the calibration range: WC-S. TRK-WEST-03 (2-4) (240-181894-3), WC-S. TRK-WEST-05 (4-6) (240-181894-5), WC-S. TRK-WEST-06 (6-8) (240-181894-6), WC-S. TRK-WEST-07 (8-10) (240-181894-7), WC-S. TRK-WEST-08 (8-10) (240-181894-9), WC-S. TRK-WEST-09 (10-12) (240-181894-10), WC-S. TRK-WEST-10 (10-12) (240-181894-11), WC-S. TRK-WEST-11 (12-14) (240-181894-12), WC-S. TRK-WEST-12 (12-14) (240-181894-13), WC-S. TRK-WEST-13 (14-16) (240-181894-14) and WC-S. TRK-WEST-14 (14-16) (240-181894-15). Elevated reporting limits (RLs) are provided.

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Job ID: 240-181894-1 (Continued)

Laboratory: Eurofins Canton (Continued)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-S. TRK-WEST-COMP (01-07) (240-181894-8) and WC-S. TRK-WEST-COMP (08-14) (240-181894-16).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Solid	03/14/23 10:44	03/14/23 19:20
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Solid	03/14/23 11:15	03/14/23 19:20
240-181894-3	WC-S. TRK-WEST-03 (2-4)	Solid	03/14/23 11:45	03/14/23 19:20
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Solid	03/14/23 12:00	03/14/23 19:20
240-181894-5	WC-S. TRK-WEST-05 (4-6)	Solid	03/14/23 12:15	03/14/23 19:20
240-181894-6	WC-S. TRK-WEST-06 (6-8)	Solid	03/14/23 12:50	03/14/23 19:20
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Solid	03/14/23 13:10	03/14/23 19:20
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Solid	03/14/23 00:00	03/14/23 19:20
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Solid	03/14/23 14:15	03/14/23 19:20
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Solid	03/14/23 14:35	03/14/23 19:20
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Solid	03/14/23 15:30	03/14/23 19:20
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Solid	03/14/23 15:51	03/14/23 19:20
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Solid	03/14/23 15:51	03/14/23 19:20
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Solid	03/14/23 16:10	03/14/23 19:20
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Solid	03/14/23 16:30	03/14/23 19:20
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Solid	03/14/23 00:00	03/14/23 19:20

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Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.34	J	0.54	0.071	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.78		0.27	0.13	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.21	J	0.54	0.098	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	680		180	97	mg/Kg	66.6666	✳	8260D	Total/NA
2-Ethylhexyl acrylate	170	J	180	130	mg/Kg	66.6666	✳	8260D	Total/NA
2-Methylnaphthalene	0.52		0.18	0.024	mg/Kg	10	✳	8270E	Total/NA
Acenaphthene	0.14	J	0.18	0.035	mg/Kg	10	✳	8270E	Total/NA
Acenaphthylene	0.067	J	0.18	0.048	mg/Kg	10	✳	8270E	Total/NA
Anthracene	0.23		0.18	0.029	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.40		0.18	0.041	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	0.29		0.18	0.11	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.45		0.18	0.079	mg/Kg	10	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.21		0.18	0.086	mg/Kg	10	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.19		0.18	0.084	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.52		0.18	0.018	mg/Kg	10	✳	8270E	Total/NA
Dibenzofuran	0.24	J	0.60	0.16	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.98		0.18	0.054	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.11	J	0.18	0.033	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.18		0.18	0.089	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.36		0.18	0.029	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.83		0.18	0.027	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.80		0.18	0.026	mg/Kg	10	✳	8270E	Total/NA
2-Butoxyethanol	4.3		0.85	0.79	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.47	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.42	J	0.79	0.26	mg/Kg	1	✳	8260D	Total/NA
Ethylbenzene	0.14	J	0.40	0.075	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.11	J	0.40	0.060	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.68	J	2.0	0.27	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	1.6		0.79	0.10	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	1.3		0.79	0.14	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	11		7.9	4.3	mg/Kg	2	✳	8260D	Total/NA
2-Ethylhexyl acrylate	40		9.9	7.4	mg/Kg	2.5	✳	8260D	Total/NA
1,1'-Biphenyl	0.22	J	0.63	0.21	mg/Kg	10	✳	8270E	Total/NA
2-Methylnaphthalene	2.1		0.19	0.025	mg/Kg	10	✳	8270E	Total/NA
Acenaphthene	0.70		0.19	0.036	mg/Kg	10	✳	8270E	Total/NA
Acenaphthylene	0.55		0.19	0.050	mg/Kg	10	✳	8270E	Total/NA
Anthracene	1.2		0.19	0.030	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	2.6		0.19	0.043	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	2.8		0.19	0.12	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	5.0		0.19	0.082	mg/Kg	10	✳	8270E	Total/NA
Benzo[g,h,i]perylene	2.3		0.19	0.089	mg/Kg	10	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.8		0.19	0.087	mg/Kg	10	✳	8270E	Total/NA
Carbazole	0.39	J	0.63	0.24	mg/Kg	10	✳	8270E	Total/NA
Chrysene	4.1		0.19	0.019	mg/Kg	10	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.51		0.19	0.087	mg/Kg	10	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-02 (6-8) (Continued)

Lab Sample ID: 240-181894-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibenzofuran	0.93		0.63	0.16	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	5.1		0.19	0.056	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.65		0.19	0.034	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	2.0		0.19	0.092	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	1.7		0.19	0.030	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	3.7		0.19	0.028	mg/Kg	10	✳	8270E	Total/NA
Pyrene	4.6		0.19	0.027	mg/Kg	10	✳	8270E	Total/NA
2-Butoxyethanol	2.4		0.88	0.82	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.0084	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.43	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0016	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.017	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.47	J	0.68	0.22	mg/Kg	1	✳	8260D	Total/NA
Ethylbenzene	0.095	J	0.34	0.064	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.094	J	0.34	0.052	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	1.6		0.68	0.090	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	1.0		0.68	0.12	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.29	J	0.31	0.11	mg/Kg	5	✳	8270E	Total/NA
2-Methylnaphthalene	3.2		0.094	0.012	mg/Kg	5	✳	8270E	Total/NA
Acenaphthene	0.34		0.094	0.018	mg/Kg	5	✳	8270E	Total/NA
Acenaphthylene	0.51		0.094	0.025	mg/Kg	5	✳	8270E	Total/NA
Anthracene	0.97		0.094	0.015	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]anthracene	2.3		0.094	0.021	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]pyrene	2.4		0.094	0.058	mg/Kg	5	✳	8270E	Total/NA
Benzo[b]fluoranthene	4.7		0.094	0.041	mg/Kg	5	✳	8270E	Total/NA
Benzo[g,h,i]perylene	2.2		0.094	0.044	mg/Kg	5	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.3		0.094	0.043	mg/Kg	5	✳	8270E	Total/NA
Carbazole	0.26	J	0.31	0.12	mg/Kg	5	✳	8270E	Total/NA
Chrysene	3.9		0.094	0.0093	mg/Kg	5	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.59		0.094	0.043	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	1.1		0.31	0.081	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	3.7		0.094	0.028	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.31		0.094	0.017	mg/Kg	5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.8		0.094	0.046	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	2.6		0.094	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	2.3		0.094	0.014	mg/Kg	5	✳	8270E	Total/NA
Pyrene	3.9		0.094	0.013	mg/Kg	5	✳	8270E	Total/NA
2-Butoxyethanol	0.83		0.44	0.41	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.54	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0017	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0066	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.077	J	0.30	0.056	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	1.5		1.5	0.20	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-04 (4-6) (Continued)

Lab Sample ID: 240-181894-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.31	J	0.59	0.078	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.52	J	0.59	0.11	mg/Kg	1	✳	8260D	Total/NA
Methyl acrylate	53		2.4	0.56	mg/Kg	4	✳	8260D	Total/NA
2-Ethylhexyl acrylate	28		12	8.8	mg/Kg	4	✳	8260D	Total/NA
2-Methylnaphthalene	0.39		0.16	0.021	mg/Kg	10	✳	8270E	Total/NA
Acenaphthene	0.067	J	0.16	0.031	mg/Kg	10	✳	8270E	Total/NA
Acenaphthylene	0.058	J	0.16	0.044	mg/Kg	10	✳	8270E	Total/NA
Anthracene	0.10	J	0.16	0.026	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.23		0.16	0.037	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	0.19		0.16	0.10	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.47		0.16	0.071	mg/Kg	10	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.11	J	0.16	0.075	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.36		0.16	0.016	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.51		0.16	0.048	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.055	J	0.16	0.030	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.13	J	0.16	0.080	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.29		0.16	0.026	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.37		0.16	0.024	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.47		0.16	0.023	mg/Kg	10	✳	8270E	Total/NA
2-Butoxyethanol	3.0		0.76	0.71	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.34	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00027	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.19		0.050	0.0040	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.29	J	1.2	0.28	mg/Kg	1	✳	8260D	Total/NA
Cyclohexane	0.29	J	0.58	0.19	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	1.0		0.58	0.076	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.56	J	0.58	0.11	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	9.0		2.9	1.6	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.13	J	0.25	0.084	mg/Kg	4	✳	8270E	Total/NA
2-Methylnaphthalene	1.2		0.074	0.0097	mg/Kg	4	✳	8270E	Total/NA
Acenaphthene	0.15		0.074	0.014	mg/Kg	4	✳	8270E	Total/NA
Acenaphthylene	0.17		0.074	0.020	mg/Kg	4	✳	8270E	Total/NA
Anthracene	1.4		0.074	0.012	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	1.2		0.074	0.017	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.74		0.074	0.046	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.4		0.074	0.032	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.52		0.074	0.035	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.47		0.074	0.034	mg/Kg	4	✳	8270E	Total/NA
Carbazole	0.18	J	0.25	0.094	mg/Kg	4	✳	8270E	Total/NA
Chrysene	1.8		0.074	0.0074	mg/Kg	4	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.13		0.074	0.034	mg/Kg	4	✳	8270E	Total/NA
Dibenzofuran	0.53		0.25	0.064	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	3.0		0.074	0.022	mg/Kg	4	✳	8270E	Total/NA
Fluorene	0.16		0.074	0.014	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.44		0.074	0.036	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.66		0.074	0.012	mg/Kg	4	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-05 (4-6) (Continued)

Lab Sample ID: 240-181894-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phenanthrene	1.8		0.074	0.011	mg/Kg	4	☼	8270E	Total/NA
Pyrene	2.5		0.074	0.011	mg/Kg	4	☼	8270E	Total/NA
2-Butoxyethanol	2.9		0.35	0.32	mg/Kg	4	☼	8270E	Total/NA
Arsenic	0.013	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.73	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0016	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.012	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.12	J	0.68	0.090	mg/Kg	1	☼	8260D	Total/NA
Butyl acrylate	11		3.4	1.8	mg/Kg	1	☼	8260D	Total/NA
Methyl acrylate	0.17	J	0.68	0.16	mg/Kg	1	☼	8260D	Total/NA
2-Ethylhexyl acrylate	6.0		3.4	2.5	mg/Kg	1	☼	8260D	Total/NA
1,1'-Biphenyl	0.042	J	0.062	0.021	mg/Kg	1	☼	8270E	Total/NA
2-Methylnaphthalene	0.61		0.019	0.0024	mg/Kg	1	☼	8270E	Total/NA
Acenaphthene	0.060		0.019	0.0036	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.029		0.019	0.0050	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.090		0.019	0.0030	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.13		0.019	0.0042	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.099		0.019	0.012	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.21		0.019	0.0081	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.084		0.019	0.0088	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.066		0.019	0.0086	mg/Kg	1	☼	8270E	Total/NA
Carbazole	0.038	J	0.062	0.024	mg/Kg	1	☼	8270E	Total/NA
Chrysene	0.20		0.019	0.0019	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.15		0.062	0.016	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.28		0.019	0.0055	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.050		0.019	0.0034	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.062		0.019	0.0091	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.33		0.019	0.0030	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.48		0.019	0.0028	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.26		0.019	0.0027	mg/Kg	1	☼	8270E	Total/NA
2-Butoxyethanol	0.68		0.087	0.081	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.012	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.82	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0084	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1,2-Trichloroethane	0.061	J	0.26	0.059	mg/Kg	1	☼	8260D	Total/NA
Benzene	0.19	J	0.26	0.043	mg/Kg	1	☼	8260D	Total/NA
Cyclohexane	0.18	J	0.51	0.17	mg/Kg	1	☼	8260D	Total/NA
Ethylbenzene	0.053	J	0.26	0.048	mg/Kg	1	☼	8260D	Total/NA
Isopropylbenzene	0.055	J	0.26	0.039	mg/Kg	1	☼	8260D	Total/NA
Methylcyclohexane	0.67		0.51	0.068	mg/Kg	1	☼	8260D	Total/NA
Xylenes, Total	0.40	J	0.51	0.094	mg/Kg	1	☼	8260D	Total/NA
Butyl acrylate	1200		260	140	mg/Kg	100	☼	8260D	Total/NA
2-Methylnaphthalene	0.69	J	0.94	0.12	mg/Kg	50	☼	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-07 (8-10) (Continued)

Lab Sample ID: 240-181894-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	0.23	J	0.94	0.15	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]anthracene	0.67	J	0.94	0.21	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.82	J	0.94	0.41	mg/Kg	50	✳	8270E	Total/NA
Chrysene	0.96		0.94	0.094	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	1.3		0.94	0.28	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	0.90	J	0.94	0.14	mg/Kg	50	✳	8270E	Total/NA
Pyrene	1.2		0.94	0.13	mg/Kg	50	✳	8270E	Total/NA
2-Butoxyethanol	67		4.4	4.1	mg/Kg	50	✳	8270E	Total/NA
Arsenic	0.014	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.52	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.028	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.049	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-COMP (01-07)

Lab Sample ID: 240-181894-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.023	J B	0.25	0.0012	mg/L	1		8260D	TCLP
1,2,3,4,6,7,8-HpCDD	140	B	6.0	0.17	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	25	B	6.0	0.078	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	6.0	B	6.0	0.050	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	7.1		6.0	0.094	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	5.3	J B	6.0	0.10	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	7.4	B	6.0	0.045	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	5.5	J B	6.0	0.087	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	4.1	J I B	6.0	0.052	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	3.9	J I B	6.0	0.077	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	5.4	J B	6.0	0.044	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	5.1	J B	6.0	0.11	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	5.8	J B	6.0	0.088	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	6.6	B	6.0	0.060	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	1.9		1.2	0.058	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	1.9	B	1.2	0.20	ng/Kg	1	✳	8290A	Total/NA
OCDD	1100	B	12	0.22	ng/Kg	1	✳	8290A	Total/NA
OCDF	81	B	12	0.089	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	72	I B	6.0	0.046	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	57	I B	6.0	0.094	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	140	B	6.0	0.17	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	75	B	6.0	0.091	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	14	I B	6.0	0.052	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	47	I B	6.0	0.068	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	7.3	I B	1.2	0.058	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	13	I B	1.2	0.20	ng/Kg	1	✳	8290A	Total/NA

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.084	J	0.40	0.076	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.098	J	0.40	0.061	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.38	J	2.0	0.27	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.91		0.80	0.11	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.80		0.80	0.15	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10) (Continued)

Lab Sample ID: 240-181894-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Butyl acrylate	25		21	11	mg/Kg	5.26315	✱	8260D	Total/NA
						789			
2-Ethylhexyl acrylate	98		21	16	mg/Kg	5.26315	✱	8260D	Total/NA
						789			
1,1'-Biphenyl	0.072	J	0.16	0.054	mg/Kg	2.5	✱	8270E	Total/NA
2-Methylnaphthalene	0.68		0.048	0.0062	mg/Kg	2.5	✱	8270E	Total/NA
Acenaphthene	0.16		0.048	0.0091	mg/Kg	2.5	✱	8270E	Total/NA
Acenaphthylene	0.18		0.048	0.013	mg/Kg	2.5	✱	8270E	Total/NA
Anthracene	0.39		0.048	0.0076	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[a]anthracene	0.98		0.048	0.011	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[a]pyrene	0.67		0.048	0.030	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[b]fluoranthene	1.5		0.048	0.021	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[g,h,i]perylene	0.43		0.048	0.022	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[k]fluoranthene	0.45		0.048	0.022	mg/Kg	2.5	✱	8270E	Total/NA
Carbazole	0.15	J	0.16	0.060	mg/Kg	2.5	✱	8270E	Total/NA
Chrysene	1.3		0.048	0.0047	mg/Kg	2.5	✱	8270E	Total/NA
Dibenz(a,h)anthracene	0.13		0.048	0.022	mg/Kg	2.5	✱	8270E	Total/NA
Dibenzofuran	0.31		0.16	0.041	mg/Kg	2.5	✱	8270E	Total/NA
Fluoranthene	1.7		0.048	0.014	mg/Kg	2.5	✱	8270E	Total/NA
Fluorene	0.17		0.048	0.0087	mg/Kg	2.5	✱	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.42		0.048	0.023	mg/Kg	2.5	✱	8270E	Total/NA
Naphthalene	0.41		0.048	0.0076	mg/Kg	2.5	✱	8270E	Total/NA
Phenanthrene	1.1		0.048	0.0071	mg/Kg	2.5	✱	8270E	Total/NA
Pyrene	1.7		0.048	0.0068	mg/Kg	2.5	✱	8270E	Total/NA
2-Butoxyethanol	2.4		0.22	0.21	mg/Kg	2.5	✱	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.60	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Isopropylbenzene	0.055	J	0.34	0.052	mg/Kg	1	✱	8260D	Total/NA
Methylcyclohexane	0.69		0.69	0.091	mg/Kg	1	✱	8260D	Total/NA
Xylenes, Total	0.42	J	0.69	0.13	mg/Kg	1	✱	8260D	Total/NA
Butyl acrylate	41		17	9.3	mg/Kg	5	✱	8260D	Total/NA
2-Ethylhexyl acrylate	99		34	26	mg/Kg	10	✱	8260D	Total/NA
1,1'-Biphenyl	0.074	J	0.15	0.052	mg/Kg	2.5	✱	8270E	Total/NA
2-Methylnaphthalene	0.55		0.046	0.0060	mg/Kg	2.5	✱	8270E	Total/NA
Acenaphthene	0.11		0.046	0.0088	mg/Kg	2.5	✱	8270E	Total/NA
Acenaphthylene	0.10		0.046	0.012	mg/Kg	2.5	✱	8270E	Total/NA
Anthracene	0.28		0.046	0.0074	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[a]anthracene	0.83		0.046	0.010	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[a]pyrene	0.55		0.046	0.029	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[b]fluoranthene	1.0		0.046	0.020	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[g,h,i]perylene	0.31		0.046	0.022	mg/Kg	2.5	✱	8270E	Total/NA
Benzo[k]fluoranthene	0.41		0.046	0.021	mg/Kg	2.5	✱	8270E	Total/NA
Carbazole	0.15		0.15	0.058	mg/Kg	2.5	✱	8270E	Total/NA
Chrysene	1.1		0.046	0.0046	mg/Kg	2.5	✱	8270E	Total/NA
Dibenz(a,h)anthracene	0.092		0.046	0.021	mg/Kg	2.5	✱	8270E	Total/NA
Dibenzofuran	0.30		0.15	0.040	mg/Kg	2.5	✱	8270E	Total/NA
Fluoranthene	1.7		0.046	0.014	mg/Kg	2.5	✱	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12) (Continued)

Lab Sample ID: 240-181894-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluorene	0.17		0.046	0.0084	mg/Kg	2.5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.27		0.046	0.023	mg/Kg	2.5	✳	8270E	Total/NA
Naphthalene	0.35		0.046	0.0074	mg/Kg	2.5	✳	8270E	Total/NA
Phenanthrene	1.0		0.046	0.0069	mg/Kg	2.5	✳	8270E	Total/NA
Pyrene	1.6		0.046	0.0066	mg/Kg	2.5	✳	8270E	Total/NA
2-Butoxyethanol	2.5		0.22	0.20	mg/Kg	2.5	✳	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.50	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.26	J	0.68	0.22	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.058	J	0.34	0.052	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.99		0.68	0.090	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.52	J	0.68	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	3.3	J	3.4	1.8	mg/Kg	1	✳	8260D	Total/NA
2-Ethylhexyl acrylate	11		3.4	2.5	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.0	J	1.8	0.24	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	1.1	J	1.8	0.55	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	0.91	J	1.8	0.27	mg/Kg	100	✳	8270E	Total/NA
Pyrene	1.0	J	1.8	0.26	mg/Kg	100	✳	8270E	Total/NA
2-Butoxyethanol	130		8.6	8.1	mg/Kg	100	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.36	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.62	J	0.73	0.097	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.24	J	0.37	0.18	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.41	J	0.73	0.13	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	40		31	17	mg/Kg	8.3333	✳	8260D	Total/NA
2-Ethylhexyl acrylate	130		31	23	mg/Kg	8.3333	✳	8260D	Total/NA
2-Methylnaphthalene	0.76		0.096	0.013	mg/Kg	5	✳	8270E	Total/NA
Acenaphthene	0.074	J	0.096	0.018	mg/Kg	5	✳	8270E	Total/NA
Acenaphthylene	0.12		0.096	0.026	mg/Kg	5	✳	8270E	Total/NA
Anthracene	0.17		0.096	0.015	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]anthracene	0.40		0.096	0.022	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]pyrene	0.35		0.096	0.060	mg/Kg	5	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.82		0.096	0.042	mg/Kg	5	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.26		0.096	0.046	mg/Kg	5	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.21		0.096	0.045	mg/Kg	5	✳	8270E	Total/NA
Chrysene	0.63		0.096	0.0096	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	0.28	J	0.32	0.084	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	0.69		0.096	0.029	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.079	J	0.096	0.018	mg/Kg	5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.25		0.096	0.047	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.49		0.096	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.71		0.096	0.014	mg/Kg	5	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14) (Continued)

Lab Sample ID: 240-181894-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Pyrene	0.68		0.096	0.014	mg/Kg	5	✳	8270E	Total/NA
2-Butoxyethanol	5.0		0.45	0.42	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.012	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.86	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.12	J	0.29	0.049	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.62	J	1.5	0.20	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.28	J	0.58	0.077	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	2.2		0.29	0.14	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.19	J	0.58	0.11	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	67		49	26	mg/Kg	16.6666	✳	8260D	Total/NA
2-Ethylhexyl acrylate	190		49	36	mg/Kg	16.6666	✳	8260D	Total/NA
2-Methylnaphthalene	0.41		0.37	0.049	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.11	J	0.37	0.10	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.28	J	0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	1.4		0.37	0.085	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.53		0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.1		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.34	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.54		0.37	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	2.0		0.37	0.037	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	2.4		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.11	J	0.37	0.068	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.34	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	0.27	J	0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	0.78		0.37	0.055	mg/Kg	20	✳	8270E	Total/NA
Pyrene	2.1		0.37	0.053	mg/Kg	20	✳	8270E	Total/NA
2-Butoxyethanol	18		1.7	1.6	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.48	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl acetate	0.23	J	1.6	0.22	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.41	J	0.65	0.086	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.31	J	0.65	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	61		54	29	mg/Kg	16.6666	✳	8260D	Total/NA
2-Ethylhexyl acrylate	160		54	40	mg/Kg	16.6666	✳	8260D	Total/NA
1,1'-Biphenyl	0.068	J	0.15	0.052	mg/Kg	2.5	✳	8270E	Total/NA
2-Methylnaphthalene	0.70		0.046	0.0060	mg/Kg	2.5	✳	8270E	Total/NA
Acenaphthene	0.12		0.046	0.0088	mg/Kg	2.5	✳	8270E	Total/NA
Acenaphthylene	0.16		0.046	0.012	mg/Kg	2.5	✳	8270E	Total/NA
Anthracene	0.28		0.046	0.0074	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[a]anthracene	0.62		0.046	0.010	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[a]pyrene	0.51		0.046	0.029	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.2		0.046	0.020	mg/Kg	2.5	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16) (Continued)

Lab Sample ID: 240-181894-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[g,h,i]perylene	0.35		0.046	0.022	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.32		0.046	0.021	mg/Kg	2.5	✳	8270E	Total/NA
Carbazole	0.14	J	0.15	0.058	mg/Kg	2.5	✳	8270E	Total/NA
Chrysene	0.98		0.046	0.0046	mg/Kg	2.5	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.12		0.046	0.021	mg/Kg	2.5	✳	8270E	Total/NA
Dibenzofuran	0.28		0.15	0.040	mg/Kg	2.5	✳	8270E	Total/NA
Fluoranthene	1.2		0.046	0.014	mg/Kg	2.5	✳	8270E	Total/NA
Fluorene	0.14		0.046	0.0084	mg/Kg	2.5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.37		0.046	0.023	mg/Kg	2.5	✳	8270E	Total/NA
Naphthalene	0.43		0.046	0.0074	mg/Kg	2.5	✳	8270E	Total/NA
Phenanthrene	0.91		0.046	0.0069	mg/Kg	2.5	✳	8270E	Total/NA
Pyrene	1.2		0.046	0.0066	mg/Kg	2.5	✳	8270E	Total/NA
2-Butoxyethanol	3.0		0.22	0.20	mg/Kg	2.5	✳	8270E	Total/NA
Arsenic	0.013	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.53	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0036	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.35	J	1.4	0.33	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.068	J	0.34	0.058	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.059	J	0.34	0.052	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.71		0.69	0.091	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.25	J	0.34	0.17	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.55	J	0.69	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	340		340	190	mg/Kg	100	✳	8260D	Total/NA
2-Ethylhexyl acrylate	720		340	260	mg/Kg	100	✳	8260D	Total/NA
2-Methylnaphthalene	0.74	J	2.0	0.26	mg/Kg	100	✳	8270E	Total/NA
Anthracene	0.49	J	2.0	0.32	mg/Kg	100	✳	8270E	Total/NA
Benzo[a]anthracene	1.6	J	2.0	0.45	mg/Kg	100	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.8	J	2.0	0.85	mg/Kg	100	✳	8270E	Total/NA
Chrysene	1.8	J	2.0	0.19	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	3.8		2.0	0.58	mg/Kg	100	✳	8270E	Total/NA
Naphthalene	0.58	J	2.0	0.32	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	1.5	J	2.0	0.29	mg/Kg	100	✳	8270E	Total/NA
Pyrene	3.8		2.0	0.28	mg/Kg	100	✳	8270E	Total/NA
2-Butoxyethanol	120		9.2	8.6	mg/Kg	100	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.44	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0016	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.013	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Sample Analysis Not Complete.

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Date Collected: 03/14/23 10:44

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 83.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.27	0.084	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,1,2,2-Tetrachloroethane	ND		0.27	0.16	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.27	0.072	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,1,2-Trichloroethane	ND		0.27	0.061	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,1-Dichloroethane	ND		0.27	0.052	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,1-Dichloroethene	ND		0.27	0.088	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,2,4-Trichlorobenzene	ND		0.27	0.14	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,2-Dibromo-3-Chloropropane	ND		0.54	0.24	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Ethylene Dibromide	ND		0.27	0.085	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,2-Dichlorobenzene	ND		0.27	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,2-Dichloroethane	ND		0.27	0.051	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,2-Dichloropropane	ND		0.27	0.040	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,3-Dichlorobenzene	ND		0.27	0.049	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
1,4-Dichlorobenzene	ND		0.27	0.059	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
2-Butanone (MEK)	ND		1.1	0.17	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
2-Hexanone	ND		1.1	0.28	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
4-Methyl-2-pentanone (MIBK)	ND		1.1	0.26	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Acetone	ND		1.1	0.26	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Benzene	ND		0.27	0.045	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Dichlorobromomethane	ND		0.27	0.065	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Bromoform	ND		0.27	0.25	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Bromomethane	ND		0.27	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Carbon disulfide	ND		0.27	0.12	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Carbon tetrachloride	ND		0.27	0.11	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Chlorobenzene	ND		0.27	0.038	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Chloroethane	ND		0.27	0.16	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Chloroform	ND		0.27	0.058	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Chloromethane	ND		0.27	0.071	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
cis-1,2-Dichloroethene	ND		0.27	0.043	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
cis-1,3-Dichloropropene	ND		0.27	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Cyclohexane	ND		0.54	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Chlorodibromomethane	ND		0.27	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Dichlorodifluoromethane	ND		0.27	0.057	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Ethylbenzene	ND		0.27	0.051	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Isopropylbenzene	ND		0.27	0.041	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Methyl acetate	ND		1.3	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Methyl tert-butyl ether	ND		0.27	0.040	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Methylcyclohexane	0.34	J	0.54	0.071	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Methylene Chloride	ND		0.54	0.41	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Styrene	ND		0.27	0.056	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Tetrachloroethene	ND		0.27	0.10	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Toluene	ND		0.27	0.26	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
trans-1,2-Dichloroethene	ND		0.27	0.067	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
trans-1,3-Dichloropropene	ND		0.27	0.11	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Trichloroethene	ND		0.27	0.15	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Trichlorofluoromethane	ND		0.27	0.15	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Vinyl chloride	0.78		0.27	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Xylenes, Total	0.21	J	0.54	0.098	mg/Kg	✳	03/15/23 13:01	03/17/23 10:07	1
Butyl acrylate	680		180	97	mg/Kg	✳	03/15/23 13:01	03/16/23 20:50	66.6666

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Date Collected: 03/14/23 10:44

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 83.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		36	8.5	mg/Kg	✳	03/15/23 13:01	03/16/23 20:50	66.6666
2-Ethylhexyl acrylate	170	J	180	130	mg/Kg	✳	03/15/23 13:01	03/16/23 20:50	66.6666

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	113		56 - 125				03/15/23 13:01	03/16/23 20:50	66.6666
Toluene-d8 (Surr)	97		56 - 125				03/15/23 13:01	03/17/23 10:07	1
Dibromofluoromethane (Surr)	96		41 - 138				03/15/23 13:01	03/16/23 20:50	66.6666
Dibromofluoromethane (Surr)	81		41 - 138				03/15/23 13:01	03/17/23 10:07	1
4-Bromofluorobenzene (Surr)	118		41 - 143				03/15/23 13:01	03/16/23 20:50	66.6666
4-Bromofluorobenzene (Surr)	89		41 - 143				03/15/23 13:01	03/17/23 10:07	1
1,2-Dichloroethane-d4 (Surr)	107		58 - 125				03/15/23 13:01	03/16/23 20:50	66.6666
1,2-Dichloroethane-d4 (Surr)	79		58 - 125				03/15/23 13:01	03/17/23 10:07	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.60	0.21	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
bis (2-chloroisopropyl) ether	ND		1.2	0.12	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,4,5-Trichlorophenol	ND		1.8	0.83	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,4,6-Trichlorophenol	ND		1.8	0.77	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,4-Dichlorophenol	ND		1.8	0.53	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,4-Dimethylphenol	ND		1.8	0.48	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,4-Dinitrophenol	ND		4.0	1.7	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,4-Dinitrotoluene	ND		2.4	0.75	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2,6-Dinitrotoluene	ND		2.4	0.68	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2-Chloronaphthalene	ND		0.60	0.17	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2-Chlorophenol	ND		0.60	0.12	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2-Methylnaphthalene	0.52		0.18	0.024	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2-Methylphenol	ND		2.4	0.37	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2-Nitroaniline	ND		2.4	0.48	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
2-Nitrophenol	ND		0.60	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
3,3'-Dichlorobenzidine	ND		1.2	0.52	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
3-Nitroaniline	ND		2.4	0.59	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4,6-Dinitro-2-methylphenol	ND		4.0	0.97	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4-Bromophenyl phenyl ether	ND		0.60	0.17	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4-Chloro-3-methylphenol	ND		1.8	0.54	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4-Chloroaniline	ND		1.8	0.36	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4-Chlorophenyl phenyl ether	ND		0.60	0.17	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4-Nitroaniline	ND		2.4	0.72	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
4-Nitrophenol	ND		4.0	1.1	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Acenaphthene	0.14	J	0.18	0.035	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Acenaphthylene	0.067	J	0.18	0.048	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Acetophenone	ND		1.2	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Anthracene	0.23		0.18	0.029	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Atrazine	ND		2.4	0.43	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Benzaldehyde	ND		1.2	0.28	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Benzo[a]anthracene	0.40		0.18	0.041	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Benzo[a]pyrene	0.29		0.18	0.11	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Benzo[b]fluoranthene	0.45		0.18	0.079	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Benzo[g,h,i]perylene	0.21		0.18	0.086	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10
Benzo[k]fluoranthene	0.19		0.18	0.084	mg/Kg	✳	03/15/23 09:31	03/17/23 19:37	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Date Collected: 03/14/23 10:44

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 83.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		1.2	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Bis(2-chloroethyl)ether	ND		1.2	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Bis(2-ethylhexyl) phthalate	ND		0.85	0.62	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Butyl benzyl phthalate	ND		0.85	0.27	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Caprolactam	ND		4.0	0.91	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Carbazole	ND		0.60	0.23	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Chrysene	0.52		0.18	0.018	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Dibenz(a,h)anthracene	ND		0.18	0.084	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Dibenzofuran	0.24	J	0.60	0.16	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Diethyl phthalate	ND		0.85	0.37	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Dimethyl phthalate	ND		0.85	0.17	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Di-n-butyl phthalate	ND		0.85	0.61	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Di-n-octyl phthalate	ND		0.85	0.34	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Fluoranthene	0.98		0.18	0.054	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Fluorene	0.11	J	0.18	0.033	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Hexachlorobenzene	ND		0.18	0.034	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Hexachlorobutadiene	ND		0.60	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Hexachlorocyclopentadiene	ND		4.0	0.75	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Hexachloroethane	ND		0.60	0.11	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Indeno[1,2,3-cd]pyrene	0.18		0.18	0.089	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Isophorone	ND		0.60	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
N-Nitrosodi-n-propylamine	ND		0.60	0.13	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
N-Nitrosodiphenylamine	ND		0.60	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Naphthalene	0.36		0.18	0.029	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Nitrobenzene	ND		1.2	0.16	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Pentachlorophenol	ND		1.8	0.70	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Phenanthrene	0.83		0.18	0.027	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Phenol	ND		0.60	0.097	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
Pyrene	0.80		0.18	0.026	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
3 & 4 Methylphenol	ND		4.8	0.35	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10
2-Butoxyethanol	4.3		0.85	0.79	mg/Kg	✱	03/15/23 09:31	03/17/23 19:37	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	44	S1-	46 - 137	03/15/23 09:31	03/17/23 19:37	10
Phenol-d5 (Surr)	52		26 - 120	03/15/23 09:31	03/17/23 19:37	10
Nitrobenzene-d5 (Surr)	39		25 - 120	03/15/23 09:31	03/17/23 19:37	10
2-Fluorophenol (Surr)	44		20 - 120	03/15/23 09:31	03/17/23 19:37	10
2-Fluorobiphenyl (Surr)	43		34 - 120	03/15/23 09:31	03/17/23 19:37	10
2,4,6-Tribromophenol (Surr)	33		10 - 120	03/15/23 09:31	03/17/23 19:37	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:10	1
Barium	0.47	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:10	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:10	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:10	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:10	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:10	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:10	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Date Collected: 03/14/23 10:44

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 83.3

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.3		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	16.7		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Date Collected: 03/14/23 11:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.40	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,1,2-Trichloroethane	ND		0.40	0.090	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,1-Dichloroethane	ND		0.40	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,1-Dichloroethene	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,2,4-Trichlorobenzene	ND		0.40	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,2-Dibromo-3-Chloropropane	ND		0.79	0.35	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Ethylene Dibromide	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,2-Dichlorobenzene	ND		0.40	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,2-Dichloroethane	ND		0.40	0.075	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,2-Dichloropropane	ND		0.40	0.059	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,3-Dichlorobenzene	ND		0.40	0.073	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
1,4-Dichlorobenzene	ND		0.40	0.087	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
2-Butanone (MEK)	ND		1.6	0.25	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
2-Hexanone	ND		1.6	0.42	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.38	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Acetone	ND		1.6	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Benzene	ND		0.40	0.067	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Dichlorobromomethane	ND		0.40	0.097	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Bromoform	ND		0.40	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Bromomethane	ND		0.40	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Carbon disulfide	ND		0.40	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Carbon tetrachloride	ND		0.40	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Chlorobenzene	ND		0.40	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Chloroethane	ND		0.40	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Chloroform	ND		0.40	0.086	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Chloromethane	ND		0.40	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
cis-1,2-Dichloroethene	ND		0.40	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
cis-1,3-Dichloropropene	ND		0.40	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Cyclohexane	0.42	J	0.79	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Chlorodibromomethane	ND		0.40	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Dichlorodifluoromethane	ND		0.40	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Ethylbenzene	0.14	J	0.40	0.075	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Isopropylbenzene	0.11	J	0.40	0.060	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Methyl acetate	0.68	J	2.0	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Methyl tert-butyl ether	ND		0.40	0.059	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Methylcyclohexane	1.6		0.79	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Methylene Chloride	ND		0.79	0.61	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Styrene	ND		0.40	0.083	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Tetrachloroethene	ND		0.40	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Toluene	ND		0.40	0.38	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
trans-1,2-Dichloroethene	ND		0.40	0.098	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
trans-1,3-Dichloropropene	ND		0.40	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Trichloroethene	ND		0.40	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Trichlorofluoromethane	ND		0.40	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Vinyl chloride	ND		0.40	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Xylenes, Total	1.3		0.79	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 08:08	1
Butyl acrylate	11		7.9	4.3	mg/Kg	✱	03/15/23 13:01	03/17/23 03:09	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Date Collected: 03/14/23 11:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		1.6	0.37	mg/Kg	✱	03/15/23 13:01	03/17/23 03:09	2
2-Ethylhexyl acrylate	40		9.9	7.4	mg/Kg	✱	03/15/23 13:01	03/17/23 22:18	2.5

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		56 - 125				03/15/23 13:01	03/17/23 03:09	2
Toluene-d8 (Surr)	92		56 - 125				03/15/23 13:01	03/17/23 08:08	1
Toluene-d8 (Surr)	108		56 - 125				03/15/23 13:01	03/17/23 22:18	2.5
Dibromofluoromethane (Surr)	93		41 - 138				03/15/23 13:01	03/17/23 03:09	2
Dibromofluoromethane (Surr)	80		41 - 138				03/15/23 13:01	03/17/23 08:08	1
Dibromofluoromethane (Surr)	89		41 - 138				03/15/23 13:01	03/17/23 22:18	2.5
4-Bromofluorobenzene (Surr)	115		41 - 143				03/15/23 13:01	03/17/23 03:09	2
4-Bromofluorobenzene (Surr)	100		41 - 143				03/15/23 13:01	03/17/23 08:08	1
4-Bromofluorobenzene (Surr)	111		41 - 143				03/15/23 13:01	03/17/23 22:18	2.5
1,2-Dichloroethane-d4 (Surr)	106		58 - 125				03/15/23 13:01	03/17/23 03:09	2
1,2-Dichloroethane-d4 (Surr)	82		58 - 125				03/15/23 13:01	03/17/23 08:08	1
1,2-Dichloroethane-d4 (Surr)	101		58 - 125				03/15/23 13:01	03/17/23 22:18	2.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.22	J	0.63	0.21	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
bis (2-chloroisopropyl) ether	ND		1.3	0.13	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,4,5-Trichlorophenol	ND		1.9	0.87	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,4,6-Trichlorophenol	ND		1.9	0.80	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,4-Dichlorophenol	ND		1.9	0.55	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,4-Dimethylphenol	ND		1.9	0.50	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,4-Dinitrophenol	ND		4.1	1.8	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,4-Dinitrotoluene	ND		2.5	0.78	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2,6-Dinitrotoluene	ND		2.5	0.70	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2-Chloronaphthalene	ND		0.63	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2-Chlorophenol	ND		0.63	0.13	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2-Methylnaphthalene	2.1		0.19	0.025	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2-Methylphenol	ND		2.5	0.39	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2-Nitroaniline	ND		2.5	0.50	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
2-Nitrophenol	ND		0.63	0.16	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
3,3'-Dichlorobenzidine	ND		1.3	0.54	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
3-Nitroaniline	ND		2.5	0.61	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4,6-Dinitro-2-methylphenol	ND		4.1	1.0	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4-Bromophenyl phenyl ether	ND		0.63	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4-Chloro-3-methylphenol	ND		1.9	0.56	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4-Chloroaniline	ND		1.9	0.38	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4-Chlorophenyl phenyl ether	ND		0.63	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4-Nitroaniline	ND		2.5	0.75	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
4-Nitrophenol	ND		4.1	1.2	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Acenaphthene	0.70		0.19	0.036	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Acenaphthylene	0.55		0.19	0.050	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Acetophenone	ND		1.3	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Anthracene	1.2		0.19	0.030	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Atrazine	ND		2.5	0.45	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Benzaldehyde	ND		1.3	0.29	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10
Benzo[a]anthracene	2.6		0.19	0.043	mg/Kg	✱	03/15/23 09:31	03/17/23 20:02	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Date Collected: 03/14/23 11:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	2.8		0.19	0.12	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Benzo[b]fluoranthene	5.0		0.19	0.082	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Benzo[g,h,i]perylene	2.3		0.19	0.089	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Benzo[k]fluoranthene	1.8		0.19	0.087	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Bis(2-chloroethoxy)methane	ND		1.3	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Bis(2-chloroethyl)ether	ND		1.3	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Bis(2-ethylhexyl) phthalate	ND		0.88	0.64	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Butyl benzyl phthalate	ND		0.88	0.28	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Caprolactam	ND		4.1	0.94	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Carbazole	0.39	J	0.63	0.24	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Chrysene	4.1		0.19	0.019	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Dibenz(a,h)anthracene	0.51		0.19	0.087	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Dibenzofuran	0.93		0.63	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Diethyl phthalate	ND		0.88	0.39	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Dimethyl phthalate	ND		0.88	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Di-n-butyl phthalate	ND		0.88	0.63	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Di-n-octyl phthalate	ND		0.88	0.35	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Fluoranthene	5.1		0.19	0.056	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Fluorene	0.65		0.19	0.034	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Hexachlorobenzene	ND		0.19	0.036	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Hexachlorobutadiene	ND		0.63	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Hexachlorocyclopentadiene	ND		4.1	0.78	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Hexachloroethane	ND		0.63	0.11	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Indeno[1,2,3-cd]pyrene	2.0		0.19	0.092	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Isophorone	ND		0.63	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
N-Nitrosodi-n-propylamine	ND		0.63	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
N-Nitrosodiphenylamine	ND		0.63	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Naphthalene	1.7		0.19	0.030	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Nitrobenzene	ND		1.3	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Pentachlorophenol	ND		1.9	0.73	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Phenanthrene	3.7		0.19	0.028	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Phenol	ND		0.63	0.10	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
Pyrene	4.6		0.19	0.027	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
3 & 4 Methylphenol	ND		5.0	0.36	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10
2-Butoxyethanol	2.4		0.88	0.82	mg/Kg	✳	03/15/23 09:31	03/17/23 20:02	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	63		46 - 137	03/15/23 09:31	03/17/23 20:02	10
Phenol-d5 (Surr)	56		26 - 120	03/15/23 09:31	03/17/23 20:02	10
Nitrobenzene-d5 (Surr)	61		25 - 120	03/15/23 09:31	03/17/23 20:02	10
2-Fluorophenol (Surr)	57		20 - 120	03/15/23 09:31	03/17/23 20:02	10
2-Fluorobiphenyl (Surr)	56		34 - 120	03/15/23 09:31	03/17/23 20:02	10
2,4,6-Tribromophenol (Surr)	47		10 - 120	03/15/23 09:31	03/17/23 20:02	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0084	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:40	1
Barium	0.43	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:40	1
Cadmium	0.0016	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:40	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:40	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Date Collected: 03/14/23 11:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.2

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.017	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:40	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:40	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:40	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.2		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.8		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Date Collected: 03/14/23 11:45

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.20	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.091	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,1-Dichloroethane	ND		0.34	0.065	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,2-Dibromo-3-Chloropropane	ND		0.68	0.30	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,2-Dichloropropane	ND		0.34	0.050	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
2-Butanone (MEK)	ND		1.4	0.21	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.32	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Acetone	ND		1.4	0.33	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Benzene	ND		0.34	0.057	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Bromoform	ND		0.34	0.31	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Bromomethane	ND		0.34	0.23	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Chloroethane	ND		0.34	0.20	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Chloroform	ND		0.34	0.074	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Chloromethane	ND		0.34	0.090	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
cis-1,2-Dichloroethene	ND		0.34	0.054	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Cyclohexane	0.47	J	0.68	0.22	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Dichlorodifluoromethane	ND		0.34	0.072	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Ethylbenzene	0.095	J	0.34	0.064	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Isopropylbenzene	0.094	J	0.34	0.052	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Methyl tert-butyl ether	ND		0.34	0.050	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Methylcyclohexane	1.6		0.68	0.090	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Methylene Chloride	ND		0.68	0.52	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Styrene	ND		0.34	0.071	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Toluene	ND		0.34	0.33	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
trans-1,2-Dichloroethene	ND		0.34	0.084	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Trichloroethene	ND		0.34	0.19	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Vinyl chloride	ND		0.34	0.17	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Xylenes, Total	1.0		0.68	0.12	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Butyl acrylate	ND		3.4	1.8	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Date Collected: 03/14/23 11:45

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.68	0.16	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
2-Ethylhexyl acrylate	ND		3.4	2.5	mg/Kg	✳	03/15/23 13:01	03/16/23 21:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	113		56 - 125				03/15/23 13:01	03/16/23 21:16	1
Dibromofluoromethane (Surr)	89		41 - 138				03/15/23 13:01	03/16/23 21:16	1
4-Bromofluorobenzene (Surr)	117		41 - 143				03/15/23 13:01	03/16/23 21:16	1
1,2-Dichloroethane-d4 (Surr)	103		58 - 125				03/15/23 13:01	03/16/23 21:16	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.29	J	0.31	0.11	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
bis (2-chloroisopropyl) ether	ND		0.63	0.063	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,4,5-Trichlorophenol	ND		0.94	0.43	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,4,6-Trichlorophenol	ND		0.94	0.40	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,4-Dichlorophenol	ND		0.94	0.28	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,4-Dimethylphenol	ND		0.94	0.25	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,4-Dinitrophenol	ND		2.1	0.89	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,4-Dinitrotoluene	ND		1.3	0.39	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2,6-Dinitrotoluene	ND		1.3	0.35	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Chloronaphthalene	ND		0.31	0.088	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Chlorophenol	ND		0.31	0.063	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Methylnaphthalene	3.2		0.094	0.012	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Methylphenol	ND		1.3	0.19	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Nitroaniline	ND		1.3	0.25	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Nitrophenol	ND		0.31	0.081	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
3,3'-Dichlorobenzidine	ND		0.63	0.27	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
3-Nitroaniline	ND		1.3	0.31	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4,6-Dinitro-2-methylphenol	ND		2.1	0.50	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4-Bromophenyl phenyl ether	ND		0.31	0.088	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4-Chloro-3-methylphenol	ND		0.94	0.28	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4-Chloroaniline	ND		0.94	0.19	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4-Chlorophenyl phenyl ether	ND		0.31	0.088	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4-Nitroaniline	ND		1.3	0.38	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
4-Nitrophenol	ND		2.1	0.59	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Acenaphthene	0.34		0.094	0.018	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Acenaphthylene	0.51		0.094	0.025	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Acetophenone	ND		0.63	0.069	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Anthracene	0.97		0.094	0.015	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Atrazine	ND		1.3	0.23	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Benzaldehyde	ND		0.63	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Benzo[a]anthracene	2.3		0.094	0.021	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Benzo[a]pyrene	2.4		0.094	0.058	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Benzo[b]fluoranthene	4.7		0.094	0.041	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Benzo[g,h,i]perylene	2.2		0.094	0.044	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Benzo[k]fluoranthene	1.3		0.094	0.043	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Bis(2-chloroethoxy)methane	ND		0.63	0.075	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Bis(2-chloroethyl)ether	ND		0.63	0.075	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Bis(2-ethylhexyl) phthalate	ND		0.44	0.32	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Butyl benzyl phthalate	ND		0.44	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Date Collected: 03/14/23 11:45

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.1	0.47	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Carbazole	0.26	J	0.31	0.12	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Chrysene	3.9		0.094	0.0093	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Dibenz(a,h)anthracene	0.59		0.094	0.043	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Dibenzofuran	1.1		0.31	0.081	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Diethyl phthalate	ND		0.44	0.19	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Dimethyl phthalate	ND		0.44	0.088	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Di-n-butyl phthalate	ND		0.44	0.32	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Di-n-octyl phthalate	ND		0.44	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Fluoranthene	3.7		0.094	0.028	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Fluorene	0.31		0.094	0.017	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Hexachlorobenzene	ND		0.094	0.018	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Hexachlorobutadiene	ND		0.31	0.075	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Hexachlorocyclopentadiene	ND		2.1	0.39	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Hexachloroethane	ND		0.31	0.056	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Indeno[1,2,3-cd]pyrene	1.8		0.094	0.046	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Isophorone	ND		0.31	0.075	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
N-Nitrosodi-n-propylamine	ND		0.31	0.069	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
N-Nitrosodiphenylamine	ND		0.31	0.075	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Naphthalene	2.6		0.094	0.015	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Nitrobenzene	ND		0.63	0.081	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Pentachlorophenol	ND		0.94	0.36	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Phenanthrene	2.3		0.094	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Phenol	ND		0.31	0.050	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
Pyrene	3.9		0.094	0.013	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
3 & 4 Methylphenol	ND		2.5	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5
2-Butoxyethanol	0.83		0.44	0.41	mg/Kg	✳	03/15/23 09:31	03/17/23 15:08	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	73		46 - 137	03/15/23 09:31	03/17/23 15:08	5
Phenol-d5 (Surr)	63		26 - 120	03/15/23 09:31	03/17/23 15:08	5
Nitrobenzene-d5 (Surr)	58		25 - 120	03/15/23 09:31	03/17/23 15:08	5
2-Fluorophenol (Surr)	58		20 - 120	03/15/23 09:31	03/17/23 15:08	5
2-Fluorobiphenyl (Surr)	70		34 - 120	03/15/23 09:31	03/17/23 15:08	5
2,4,6-Tribromophenol (Surr)	71		10 - 120	03/15/23 09:31	03/17/23 15:08	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:45	1
Barium	0.54	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:45	1
Cadmium	0.0017	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:45	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:45	1
Lead	0.0066	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:45	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:45	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:45	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Date Collected: 03/14/23 11:45

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.8		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.2		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Date Collected: 03/14/23 12:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 90.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.30	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,1,2,2-Tetrachloroethane	ND		0.30	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.30	0.079	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,1,2-Trichloroethane	ND		0.30	0.067	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,1-Dichloroethane	ND		0.30	0.057	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,1-Dichloroethene	ND		0.30	0.097	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,2,4-Trichlorobenzene	ND		0.30	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,2-Dibromo-3-Chloropropane	ND		0.59	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Ethylene Dibromide	ND		0.30	0.093	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,2-Dichlorobenzene	ND		0.30	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,2-Dichloroethane	ND		0.30	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,2-Dichloropropane	ND		0.30	0.044	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,3-Dichlorobenzene	ND		0.30	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
1,4-Dichlorobenzene	ND		0.30	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
2-Butanone (MEK)	ND		1.2	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
2-Hexanone	ND		1.2	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
4-Methyl-2-pentanone (MIBK)	ND		1.2	0.28	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Acetone	ND		1.2	0.29	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Benzene	ND		0.30	0.050	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Dichlorobromomethane	ND		0.30	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Bromoform	ND		0.30	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Bromomethane	ND		0.30	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Carbon disulfide	ND		0.30	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Carbon tetrachloride	ND		0.30	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Chlorobenzene	ND		0.30	0.041	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Chloroethane	ND		0.30	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Chloroform	ND		0.30	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Chloromethane	ND		0.30	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
cis-1,2-Dichloroethene	ND		0.30	0.047	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
cis-1,3-Dichloropropene	ND		0.30	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Cyclohexane	ND		0.59	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Chlorodibromomethane	ND		0.30	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Dichlorodifluoromethane	ND		0.30	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Ethylbenzene	0.077	J	0.30	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Isopropylbenzene	ND		0.30	0.045	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Methyl acetate	1.5		1.5	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Methyl tert-butyl ether	ND		0.30	0.044	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Methylcyclohexane	0.31	J	0.59	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Methylene Chloride	ND		0.59	0.45	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Styrene	ND		0.30	0.062	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Tetrachloroethene	ND		0.30	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Toluene	ND		0.30	0.28	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
trans-1,2-Dichloroethene	ND		0.30	0.073	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
trans-1,3-Dichloropropene	ND		0.30	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Trichloroethene	ND		0.30	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Trichlorofluoromethane	ND		0.30	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Vinyl chloride	ND		0.30	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Xylenes, Total	0.52	J	0.59	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:32	1
Butyl acrylate	ND		12	6.4	mg/Kg	✱	03/15/23 13:01	03/17/23 21:48	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Date Collected: 03/14/23 12:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 90.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	53		2.4	0.56	mg/Kg	☼	03/15/23 13:01	03/17/23 21:48	4
2-Ethylhexyl acrylate	28		12	8.8	mg/Kg	☼	03/15/23 13:01	03/17/23 21:48	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		56 - 125				03/15/23 13:01	03/17/23 08:32	1
Toluene-d8 (Surr)	109		56 - 125				03/15/23 13:01	03/17/23 21:48	4
Dibromofluoromethane (Surr)	77		41 - 138				03/15/23 13:01	03/17/23 08:32	1
Dibromofluoromethane (Surr)	95		41 - 138				03/15/23 13:01	03/17/23 21:48	4
4-Bromofluorobenzene (Surr)	97		41 - 143				03/15/23 13:01	03/17/23 08:32	1
4-Bromofluorobenzene (Surr)	114		41 - 143				03/15/23 13:01	03/17/23 21:48	4
1,2-Dichloroethane-d4 (Surr)	77		58 - 125				03/15/23 13:01	03/17/23 08:32	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125				03/15/23 13:01	03/17/23 21:48	4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.54	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
bis (2-chloroisopropyl) ether	ND		1.1	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,4,5-Trichlorophenol	ND		1.6	0.75	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,4,6-Trichlorophenol	ND		1.6	0.70	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,4-Dichlorophenol	ND		1.6	0.48	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,4-Dimethylphenol	ND		1.6	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,4-Dinitrophenol	ND		3.6	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,4-Dinitrotoluene	ND		2.2	0.68	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2,6-Dinitrotoluene	ND		2.2	0.61	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2-Chloronaphthalene	ND		0.54	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2-Chlorophenol	ND		0.54	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2-Methylnaphthalene	0.39		0.16	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2-Methylphenol	ND		2.2	0.34	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2-Nitroaniline	ND		2.2	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
2-Nitrophenol	ND		0.54	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
3,3'-Dichlorobenzidine	ND		1.1	0.47	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
3-Nitroaniline	ND		2.2	0.53	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4,6-Dinitro-2-methylphenol	ND		3.6	0.87	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4-Bromophenyl phenyl ether	ND		0.54	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4-Chloro-3-methylphenol	ND		1.6	0.49	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4-Chloroaniline	ND		1.6	0.33	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4-Chlorophenyl phenyl ether	ND		0.54	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4-Nitroaniline	ND		2.2	0.65	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
4-Nitrophenol	ND		3.6	1.0	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Acenaphthene	0.067	J	0.16	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Acenaphthylene	0.058	J	0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Acetophenone	ND		1.1	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Anthracene	0.10	J	0.16	0.026	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Atrazine	ND		2.2	0.39	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Benzaldehyde	ND		1.1	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Benzo[a]anthracene	0.23		0.16	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Benzo[a]pyrene	0.19		0.16	0.10	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Benzo[b]fluoranthene	0.47		0.16	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Benzo[g,h,i]perylene	ND		0.16	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10
Benzo[k]fluoranthene	0.11	J	0.16	0.075	mg/Kg	☼	03/15/23 09:31	03/17/23 20:26	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Date Collected: 03/14/23 12:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 90.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		1.1	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Bis(2-chloroethyl)ether	ND		1.1	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Bis(2-ethylhexyl) phthalate	ND		0.76	0.56	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Butyl benzyl phthalate	ND		0.76	0.24	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Caprolactam	ND		3.6	0.82	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Carbazole	ND		0.54	0.21	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Chrysene	0.36		0.16	0.016	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Dibenz(a,h)anthracene	ND		0.16	0.075	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Dibenzofuran	ND		0.54	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Diethyl phthalate	ND		0.76	0.34	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Dimethyl phthalate	ND		0.76	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Di-n-butyl phthalate	ND		0.76	0.55	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Di-n-octyl phthalate	ND		0.76	0.30	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Fluoranthene	0.51		0.16	0.048	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Fluorene	0.055 J		0.16	0.030	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Hexachlorobenzene	ND		0.16	0.031	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Hexachlorobutadiene	ND		0.54	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Hexachlorocyclopentadiene	ND		3.6	0.68	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Hexachloroethane	ND		0.54	0.098	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Indeno[1,2,3-cd]pyrene	0.13 J		0.16	0.080	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Isophorone	ND		0.54	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
N-Nitrosodi-n-propylamine	ND		0.54	0.12	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
N-Nitrosodiphenylamine	ND		0.54	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Naphthalene	0.29		0.16	0.026	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Nitrobenzene	ND		1.1	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Pentachlorophenol	ND		1.6	0.63	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Phenanthrene	0.37		0.16	0.024	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Phenol	ND		0.54	0.087	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
Pyrene	0.47		0.16	0.023	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
3 & 4 Methylphenol	ND		4.4	0.32	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10
2-Butoxyethanol	3.0		0.76	0.71	mg/Kg	✳	03/15/23 09:31	03/17/23 20:26	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	39	S1-	46 - 137	03/15/23 09:31	03/17/23 20:26	10
Phenol-d5 (Surr)	48		26 - 120	03/15/23 09:31	03/17/23 20:26	10
Nitrobenzene-d5 (Surr)	38		25 - 120	03/15/23 09:31	03/17/23 20:26	10
2-Fluorophenol (Surr)	38		20 - 120	03/15/23 09:31	03/17/23 20:26	10
2-Fluorobiphenyl (Surr)	36		34 - 120	03/15/23 09:31	03/17/23 20:26	10
2,4,6-Tribromophenol (Surr)	28		10 - 120	03/15/23 09:31	03/17/23 20:26	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:49	1
Barium	0.34	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:49	1
Cadmium	0.00027	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:49	1
Chromium	0.19		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:49	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:49	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:49	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:49	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Date Collected: 03/14/23 12:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 90.5

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	90.5		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	9.5		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Date Collected: 03/14/23 12:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.29	0.090	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,1,2,2-Tetrachloroethane	ND		0.29	0.17	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.29	0.078	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,1,2-Trichloroethane	ND		0.29	0.066	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,1-Dichloroethane	ND		0.29	0.056	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,1-Dichloroethene	ND		0.29	0.095	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,2,4-Trichlorobenzene	ND		0.29	0.15	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,2-Dibromo-3-Chloropropane	ND		0.58	0.26	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Ethylene Dibromide	ND		0.29	0.091	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,2-Dichlorobenzene	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,2-Dichloroethane	ND		0.29	0.054	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,2-Dichloropropane	ND		0.29	0.043	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,3-Dichlorobenzene	ND		0.29	0.053	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
1,4-Dichlorobenzene	ND		0.29	0.064	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
2-Butanone (MEK)	ND		1.2	0.18	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
2-Hexanone	ND		1.2	0.30	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
4-Methyl-2-pentanone (MIBK)	ND		1.2	0.28	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Acetone	0.29	J	1.2	0.28	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Benzene	ND		0.29	0.049	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Dichlorobromomethane	ND		0.29	0.070	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Bromoform	ND		0.29	0.26	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Bromomethane	ND		0.29	0.19	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Carbon disulfide	ND		0.29	0.13	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Carbon tetrachloride	ND		0.29	0.12	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Chlorobenzene	ND		0.29	0.041	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Chloroethane	ND		0.29	0.17	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Chloroform	ND		0.29	0.063	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Chloromethane	ND		0.29	0.076	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
cis-1,2-Dichloroethene	ND		0.29	0.046	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
cis-1,3-Dichloropropene	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Cyclohexane	0.29	J	0.58	0.19	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Chlorodibromomethane	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Dichlorodifluoromethane	ND		0.29	0.061	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Ethylbenzene	ND		0.29	0.054	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Isopropylbenzene	ND		0.29	0.044	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Methyl acetate	ND		1.4	0.19	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Methyl tert-butyl ether	ND		0.29	0.043	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Methylcyclohexane	1.0		0.58	0.076	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Methylene Chloride	ND		0.58	0.44	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Styrene	ND		0.29	0.060	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Tetrachloroethene	ND		0.29	0.11	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Toluene	ND		0.29	0.28	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
trans-1,2-Dichloroethene	ND		0.29	0.072	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
trans-1,3-Dichloropropene	ND		0.29	0.12	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Trichloroethene	ND		0.29	0.17	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Trichlorofluoromethane	ND		0.29	0.16	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Vinyl chloride	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Xylenes, Total	0.56	J	0.58	0.11	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1
Butyl acrylate	9.0		2.9	1.6	mg/Kg	✱	03/15/23 13:01	03/16/23 22:06	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Date Collected: 03/14/23 12:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.58	0.14	mg/Kg	✳	03/15/23 13:01	03/16/23 22:06	1
2-Ethylhexyl acrylate	ND		2.9	2.2	mg/Kg	✳	03/15/23 13:01	03/16/23 22:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	112		56 - 125				03/15/23 13:01	03/16/23 22:06	1
Dibromofluoromethane (Surr)	87		41 - 138				03/15/23 13:01	03/16/23 22:06	1
4-Bromofluorobenzene (Surr)	113		41 - 143				03/15/23 13:01	03/16/23 22:06	1
1,2-Dichloroethane-d4 (Surr)	102		58 - 125				03/15/23 13:01	03/16/23 22:06	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.13	J	0.25	0.084	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
bis (2-chloroisopropyl) ether	ND		0.49	0.049	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,4,5-Trichlorophenol	ND		0.74	0.34	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,4,6-Trichlorophenol	ND		0.74	0.32	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,4-Dichlorophenol	ND		0.74	0.22	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,4-Dimethylphenol	ND		0.74	0.20	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,4-Dinitrophenol	ND		1.6	0.70	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,4-Dinitrotoluene	ND		0.99	0.31	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2,6-Dinitrotoluene	ND		0.99	0.28	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Chloronaphthalene	ND		0.25	0.069	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Chlorophenol	ND		0.25	0.049	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Methylnaphthalene	1.2		0.074	0.0097	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Methylphenol	ND		0.99	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Nitroaniline	ND		0.99	0.20	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Nitrophenol	ND		0.25	0.064	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
3,3'-Dichlorobenzidine	ND		0.49	0.21	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
3-Nitroaniline	ND		0.99	0.24	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4,6-Dinitro-2-methylphenol	ND		1.6	0.40	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4-Bromophenyl phenyl ether	ND		0.25	0.069	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4-Chloro-3-methylphenol	ND		0.74	0.22	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4-Chloroaniline	ND		0.74	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4-Chlorophenyl phenyl ether	ND		0.25	0.069	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4-Nitroaniline	ND		0.99	0.30	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
4-Nitrophenol	ND		1.6	0.47	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Acenaphthene	0.15		0.074	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Acenaphthylene	0.17		0.074	0.020	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Acetophenone	ND		0.49	0.054	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Anthracene	1.4		0.074	0.012	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Atrazine	ND		0.99	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Benzaldehyde	ND		0.49	0.11	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Benzo[a]anthracene	1.2		0.074	0.017	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Benzo[a]pyrene	0.74		0.074	0.046	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Benzo[b]fluoranthene	1.4		0.074	0.032	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Benzo[g,h,i]perylene	0.52		0.074	0.035	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Benzo[k]fluoranthene	0.47		0.074	0.034	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Bis(2-chloroethoxy)methane	ND		0.49	0.059	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Bis(2-chloroethyl)ether	ND		0.49	0.059	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Bis(2-ethylhexyl) phthalate	ND		0.35	0.25	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Butyl benzyl phthalate	ND		0.35	0.11	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Date Collected: 03/14/23 12:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		1.6	0.37	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Carbazole	0.18	J	0.25	0.094	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Chrysene	1.8		0.074	0.0074	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Dibenz(a,h)anthracene	0.13		0.074	0.034	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Dibenzofuran	0.53		0.25	0.064	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Diethyl phthalate	ND		0.35	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Dimethyl phthalate	ND		0.35	0.069	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Di-n-butyl phthalate	ND		0.35	0.25	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Di-n-octyl phthalate	ND		0.35	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Fluoranthene	3.0		0.074	0.022	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Fluorene	0.16		0.074	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Hexachlorobenzene	ND		0.074	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Hexachlorobutadiene	ND		0.25	0.059	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Hexachlorocyclopentadiene	ND		1.6	0.31	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Hexachloroethane	ND		0.25	0.045	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Indeno[1,2,3-cd]pyrene	0.44		0.074	0.036	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Isophorone	ND		0.25	0.059	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
N-Nitrosodi-n-propylamine	ND		0.25	0.054	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
N-Nitrosodiphenylamine	ND		0.25	0.059	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Naphthalene	0.66		0.074	0.012	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Nitrobenzene	ND		0.49	0.064	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Pentachlorophenol	ND		0.74	0.29	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Phenanthrene	1.8		0.074	0.011	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Phenol	ND		0.25	0.040	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
Pyrene	2.5		0.074	0.011	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
3 & 4 Methylphenol	ND		2.0	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4
2-Butoxyethanol	2.9		0.35	0.32	mg/Kg	✳	03/15/23 09:31	03/17/23 16:22	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	63		46 - 137	03/15/23 09:31	03/17/23 16:22	4
Phenol-d5 (Surr)	49		26 - 120	03/15/23 09:31	03/17/23 16:22	4
Nitrobenzene-d5 (Surr)	39		25 - 120	03/15/23 09:31	03/17/23 16:22	4
2-Fluorophenol (Surr)	41		20 - 120	03/15/23 09:31	03/17/23 16:22	4
2-Fluorobiphenyl (Surr)	55		34 - 120	03/15/23 09:31	03/17/23 16:22	4
2,4,6-Tribromophenol (Surr)	50		10 - 120	03/15/23 09:31	03/17/23 16:22	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.013	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:54	1
Barium	0.73	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:54	1
Cadmium	0.0016	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:54	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:54	1
Lead	0.012	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:54	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:54	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:54	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:48	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Date Collected: 03/14/23 12:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.7		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.3		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Date Collected: 03/14/23 12:50

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,1-Dichloroethane	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,2-Dibromo-3-Chloropropane	ND		0.68	0.30	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,2-Dichloropropane	ND		0.34	0.050	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
2-Butanone (MEK)	ND		1.4	0.21	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.32	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Acetone	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Benzene	ND		0.34	0.057	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Chloroethane	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Chloromethane	ND		0.34	0.090	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
cis-1,2-Dichloroethene	ND		0.34	0.054	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Cyclohexane	ND		0.68	0.22	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Dichlorodifluoromethane	ND		0.34	0.072	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Ethylbenzene	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Isopropylbenzene	ND		0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Methyl tert-butyl ether	ND		0.34	0.050	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Methylcyclohexane	0.12	J	0.68	0.090	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Methylene Chloride	ND		0.68	0.52	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Styrene	ND		0.34	0.071	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
trans-1,2-Dichloroethene	ND		0.34	0.084	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Trichloroethene	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Vinyl chloride	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Xylenes, Total	ND		0.68	0.12	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1
Butyl acrylate	11		3.4	1.8	mg/Kg	✱	03/15/23 13:01	03/16/23 22:31	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Date Collected: 03/14/23 12:50

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	0.17	J	0.68	0.16	mg/Kg	☼	03/15/23 13:01	03/16/23 22:31	1
2-Ethylhexyl acrylate	6.0		3.4	2.5	mg/Kg	☼	03/15/23 13:01	03/16/23 22:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	111		56 - 125				03/15/23 13:01	03/16/23 22:31	1
Dibromofluoromethane (Surr)	86		41 - 138				03/15/23 13:01	03/16/23 22:31	1
4-Bromofluorobenzene (Surr)	113		41 - 143				03/15/23 13:01	03/16/23 22:31	1
1,2-Dichloroethane-d4 (Surr)	103		58 - 125				03/15/23 13:01	03/16/23 22:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.042	J	0.062	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
bis (2-chloroisopropyl) ether	ND		0.12	0.012	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,4,5-Trichlorophenol	ND		0.19	0.086	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,4,6-Trichlorophenol	ND		0.19	0.079	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,4-Dichlorophenol	ND		0.19	0.055	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,4-Dimethylphenol	ND		0.19	0.050	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,4-Dinitrophenol	ND		0.41	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,4-Dinitrotoluene	ND		0.25	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2,6-Dinitrotoluene	ND		0.25	0.070	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Chloronaphthalene	ND		0.062	0.017	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Chlorophenol	ND		0.062	0.012	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Methylnaphthalene	0.61		0.019	0.0024	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Methylphenol	ND		0.25	0.039	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Nitroaniline	ND		0.25	0.050	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Nitrophenol	ND		0.062	0.016	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
3,3'-Dichlorobenzidine	ND		0.12	0.053	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
3-Nitroaniline	ND		0.25	0.061	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4,6-Dinitro-2-methylphenol	ND		0.41	0.099	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4-Bromophenyl phenyl ether	ND		0.062	0.017	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4-Chloro-3-methylphenol	ND		0.19	0.056	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4-Chloroaniline	ND		0.19	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4-Chlorophenyl phenyl ether	ND		0.062	0.017	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4-Nitroaniline	ND		0.25	0.075	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
4-Nitrophenol	ND		0.41	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Acenaphthene	0.060		0.019	0.0036	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Acenaphthylene	0.029		0.019	0.0050	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Acetophenone	ND		0.12	0.014	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Anthracene	0.090		0.019	0.0030	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Atrazine	ND		0.25	0.045	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Benzaldehyde	ND		0.12	0.029	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Benzo[a]anthracene	0.13		0.019	0.0042	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Benzo[a]pyrene	0.099		0.019	0.012	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Benzo[b]fluoranthene	0.21		0.019	0.0081	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Benzo[g,h,i]perylene	0.084		0.019	0.0088	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Benzo[k]fluoranthene	0.066		0.019	0.0086	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Bis(2-chloroethoxy)methane	ND		0.12	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Bis(2-chloroethyl)ether	ND		0.12	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Bis(2-ethylhexyl) phthalate	ND		0.087	0.063	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Butyl benzyl phthalate	ND		0.087	0.027	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Date Collected: 03/14/23 12:50

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		0.41	0.093	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Carbazole	0.038	J	0.062	0.024	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Chrysene	0.20		0.019	0.0019	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Dibenz(a,h)anthracene	ND		0.019	0.0086	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Dibenzofuran	0.15		0.062	0.016	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Diethyl phthalate	ND		0.087	0.039	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Dimethyl phthalate	ND		0.087	0.017	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Di-n-butyl phthalate	ND		0.087	0.063	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Di-n-octyl phthalate	ND		0.087	0.035	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Fluoranthene	0.28		0.019	0.0055	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Fluorene	0.050		0.019	0.0034	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Hexachlorobenzene	ND		0.019	0.0035	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Hexachlorobutadiene	ND		0.062	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Hexachlorocyclopentadiene	ND		0.41	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Hexachloroethane	ND		0.062	0.011	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Indeno[1,2,3-cd]pyrene	0.062		0.019	0.0091	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Isophorone	ND		0.062	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
N-Nitrosodi-n-propylamine	ND		0.062	0.014	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
N-Nitrosodiphenylamine	ND		0.062	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Naphthalene	0.33		0.019	0.0030	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Nitrobenzene	ND		0.12	0.016	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Pentachlorophenol	ND		0.19	0.072	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Phenanthrene	0.48		0.019	0.0028	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Phenol	ND		0.062	0.0099	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
Pyrene	0.26		0.019	0.0027	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
3 & 4 Methylphenol	ND		0.50	0.036	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1
2-Butoxyethanol	0.68		0.087	0.081	mg/Kg	☼	03/15/23 09:31	03/17/23 14:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	66		46 - 137	03/15/23 09:31	03/17/23 14:44	1
Phenol-d5 (Surr)	57		26 - 120	03/15/23 09:31	03/17/23 14:44	1
Nitrobenzene-d5 (Surr)	45		25 - 120	03/15/23 09:31	03/17/23 14:44	1
2-Fluorophenol (Surr)	48		20 - 120	03/15/23 09:31	03/17/23 14:44	1
2-Fluorobiphenyl (Surr)	58		34 - 120	03/15/23 09:31	03/17/23 14:44	1
2,4,6-Tribromophenol (Surr)	57		10 - 120	03/15/23 09:31	03/17/23 14:44	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:58	1
Barium	0.82	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:58	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:58	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:58	1
Lead	0.0084	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:58	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:58	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:58	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:50	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Date Collected: 03/14/23 12:50

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.4		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.6		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Date Collected: 03/14/23 13:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 79.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.26	0.080	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,1,2,2-Tetrachloroethane	ND		0.26	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.26	0.069	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,1,2-Trichloroethane	0.061	J	0.26	0.059	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,1-Dichloroethane	ND		0.26	0.049	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,1-Dichloroethene	ND		0.26	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,2,4-Trichlorobenzene	ND		0.26	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,2-Dibromo-3-Chloropropane	ND		0.51	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Ethylene Dibromide	ND		0.26	0.081	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,2-Dichlorobenzene	ND		0.26	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,2-Dichloroethane	ND		0.26	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,2-Dichloropropane	ND		0.26	0.038	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,3-Dichlorobenzene	ND		0.26	0.047	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
1,4-Dichlorobenzene	ND		0.26	0.057	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
2-Hexanone	ND		1.0	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Acetone	ND		1.0	0.25	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Benzene	0.19	J	0.26	0.043	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Dichlorobromomethane	ND		0.26	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Bromoform	ND		0.26	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Bromomethane	ND		0.26	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Carbon disulfide	ND		0.26	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Carbon tetrachloride	ND		0.26	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Chlorobenzene	ND		0.26	0.036	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Chloroethane	ND		0.26	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Chloroform	ND		0.26	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Chloromethane	ND		0.26	0.068	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
cis-1,2-Dichloroethene	ND		0.26	0.041	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
cis-1,3-Dichloropropene	ND		0.26	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Cyclohexane	0.18	J	0.51	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Chlorodibromomethane	ND		0.26	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Dichlorodifluoromethane	ND		0.26	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Ethylbenzene	0.053	J	0.26	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Isopropylbenzene	0.055	J	0.26	0.039	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Methyl acetate	ND		1.3	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Methyl tert-butyl ether	ND		0.26	0.038	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Methylcyclohexane	0.67		0.51	0.068	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Methylene Chloride	ND		0.51	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Styrene	ND		0.26	0.053	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Tetrachloroethene	ND		0.26	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Toluene	ND		0.26	0.25	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
trans-1,2-Dichloroethene	ND		0.26	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
trans-1,3-Dichloropropene	ND		0.26	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Trichloroethene	ND		0.26	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Trichlorofluoromethane	ND		0.26	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Vinyl chloride	ND		0.26	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Xylenes, Total	0.40	J	0.51	0.094	mg/Kg	✱	03/15/23 13:01	03/17/23 10:55	1
Butyl acrylate	1200		260	140	mg/Kg	✱	03/15/23 13:01	03/18/23 06:32	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Date Collected: 03/14/23 13:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 79.2

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		26	6.1	mg/Kg	✱	03/15/23 13:01	03/16/23 22:56	50
2-Ethylhexyl acrylate	ND		130	96	mg/Kg	✱	03/15/23 13:01	03/16/23 22:56	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		56 - 125				03/15/23 13:01	03/16/23 22:56	50
Toluene-d8 (Surr)	104		56 - 125				03/15/23 13:01	03/17/23 10:55	1
Toluene-d8 (Surr)	87		56 - 125				03/15/23 13:01	03/18/23 06:32	100
Dibromofluoromethane (Surr)	92		41 - 138				03/15/23 13:01	03/16/23 22:56	50
Dibromofluoromethane (Surr)	82		41 - 138				03/15/23 13:01	03/17/23 10:55	1
Dibromofluoromethane (Surr)	83		41 - 138				03/15/23 13:01	03/18/23 06:32	100
4-Bromofluorobenzene (Surr)	112		41 - 143				03/15/23 13:01	03/16/23 22:56	50
4-Bromofluorobenzene (Surr)	81		41 - 143				03/15/23 13:01	03/17/23 10:55	1
4-Bromofluorobenzene (Surr)	84		41 - 143				03/15/23 13:01	03/18/23 06:32	100
1,2-Dichloroethane-d4 (Surr)	101		58 - 125				03/15/23 13:01	03/16/23 22:56	50
1,2-Dichloroethane-d4 (Surr)	80		58 - 125				03/15/23 13:01	03/17/23 10:55	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125				03/15/23 13:01	03/18/23 06:32	100

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.1	1.1	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
bis (2-chloroisopropyl) ether	ND		6.3	0.63	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,4,5-Trichlorophenol	ND		9.4	4.3	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,4,6-Trichlorophenol	ND		9.4	4.0	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,4-Dichlorophenol	ND		9.4	2.8	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,4-Dimethylphenol	ND		9.4	2.5	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,4-Dinitrophenol	ND		21	8.9	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,4-Dinitrotoluene	ND		13	3.9	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2,6-Dinitrotoluene	ND		13	3.5	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2-Chloronaphthalene	ND		3.1	0.88	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2-Chlorophenol	ND		3.1	0.63	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2-Methylnaphthalene	0.69	J	0.94	0.12	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2-Methylphenol	ND		13	2.0	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2-Nitroaniline	ND		13	2.5	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
2-Nitrophenol	ND		3.1	0.82	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
3,3'-Dichlorobenzidine	ND		6.3	2.7	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
3-Nitroaniline	ND		13	3.1	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4,6-Dinitro-2-methylphenol	ND		21	5.0	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4-Bromophenyl phenyl ether	ND		3.1	0.88	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4-Chloro-3-methylphenol	ND		9.4	2.8	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4-Chloroaniline	ND		9.4	1.9	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4-Chlorophenyl phenyl ether	ND		3.1	0.88	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4-Nitroaniline	ND		13	3.8	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
4-Nitrophenol	ND		21	5.9	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Acenaphthene	ND		0.94	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Acenaphthylene	ND		0.94	0.25	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Acetophenone	ND		6.3	0.69	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Anthracene	0.23	J	0.94	0.15	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Atrazine	ND		13	2.3	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Benzaldehyde	ND		6.3	1.4	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50
Benzo[a]anthracene	0.67	J	0.94	0.21	mg/Kg	✱	03/15/23 09:31	03/17/23 17:35	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Date Collected: 03/14/23 13:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 79.2

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.94	0.59	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Benzo[b]fluoranthene	0.82	J	0.94	0.41	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Benzo[g,h,i]perylene	ND		0.94	0.45	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Benzo[k]fluoranthene	ND		0.94	0.44	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Bis(2-chloroethoxy)methane	ND		6.3	0.76	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Bis(2-chloroethyl)ether	ND		6.3	0.76	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Bis(2-ethylhexyl) phthalate	ND		4.4	3.2	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Butyl benzyl phthalate	ND		4.4	1.4	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Caprolactam	ND		21	4.7	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Carbazole	ND		3.1	1.2	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Chrysene	0.96		0.94	0.094	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Dibenz(a,h)anthracene	ND		0.94	0.44	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Dibenzofuran	ND		3.1	0.82	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Diethyl phthalate	ND		4.4	2.0	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Dimethyl phthalate	ND		4.4	0.88	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Di-n-butyl phthalate	ND		4.4	3.2	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Di-n-octyl phthalate	ND		4.4	1.8	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Fluoranthene	1.3		0.94	0.28	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Fluorene	ND		0.94	0.17	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Hexachlorobenzene	ND		0.94	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Hexachlorobutadiene	ND		3.1	0.76	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Hexachlorocyclopentadiene	ND		21	3.9	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Hexachloroethane	ND		3.1	0.57	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Indeno[1,2,3-cd]pyrene	ND		0.94	0.46	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Isophorone	ND		3.1	0.76	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
N-Nitrosodi-n-propylamine	ND		3.1	0.69	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
N-Nitrosodiphenylamine	ND		3.1	0.76	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Naphthalene	ND		0.94	0.15	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Nitrobenzene	ND		6.3	0.82	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Pentachlorophenol	ND		9.4	3.7	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Phenanthrene	0.90	J	0.94	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Phenol	ND		3.1	0.50	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
Pyrene	1.2		0.94	0.13	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
3 & 4 Methylphenol	ND		25	1.8	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50
2-Butoxyethanol	67		4.4	4.1	mg/Kg	✳	03/15/23 09:31	03/17/23 17:35	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	48		46 - 137	03/15/23 09:31	03/17/23 17:35	50
Phenol-d5 (Surr)	39		26 - 120	03/15/23 09:31	03/17/23 17:35	50
Nitrobenzene-d5 (Surr)	37		25 - 120	03/15/23 09:31	03/17/23 17:35	50
2-Fluorophenol (Surr)	43		20 - 120	03/15/23 09:31	03/17/23 17:35	50
2-Fluorobiphenyl (Surr)	43		34 - 120	03/15/23 09:31	03/17/23 17:35	50
2,4,6-Tribromophenol (Surr)	21		10 - 120	03/15/23 09:31	03/17/23 17:35	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.014	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:03	1
Barium	0.52	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:03	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:03	1
Chromium	0.028	J	0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:03	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Date Collected: 03/14/23 13:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 79.2

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.049	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:03	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:03	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:03	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.2		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	20.8		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
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- 15
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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (01-07)

Lab Sample ID: 240-181894-8

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 82.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/17/23 15:32	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/17/23 15:32	1
2-Butanone (MEK)	0.023	J B	0.25	0.0012	mg/L			03/17/23 15:32	1
Benzene	ND		0.025	0.00042	mg/L			03/17/23 15:32	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/17/23 15:32	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/17/23 15:32	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/17/23 15:32	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/17/23 15:32	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/17/23 15:32	1
Chloroform	ND		0.025	0.00047	mg/L			03/17/23 15:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		80 - 120		03/17/23 15:32	1
Dibromofluoromethane (Surr)	94		71 - 121		03/17/23 15:32	1
4-Bromofluorobenzene (Surr)	89		80 - 120		03/17/23 15:32	1
1,2-Dichloroethane-d4 (Surr)	97		76 - 120		03/17/23 15:32	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/16/23 11:22	03/18/23 15:39	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/16/23 11:22	03/18/23 15:39	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/16/23 11:22	03/18/23 15:39	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/16/23 11:22	03/18/23 15:39	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/16/23 11:22	03/18/23 15:39	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/16/23 11:22	03/18/23 15:39	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/16/23 11:22	03/18/23 15:39	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/16/23 11:22	03/18/23 15:39	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/16/23 11:22	03/18/23 15:39	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/16/23 11:22	03/18/23 15:39	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/16/23 11:22	03/18/23 15:39	1
Pyridine	ND		0.0040	0.00036	mg/L		03/16/23 11:22	03/18/23 15:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	123		46 - 137	03/16/23 11:22	03/18/23 15:39	1
Phenol-d5 (Surr)	64		26 - 120	03/16/23 11:22	03/18/23 15:39	1
Nitrobenzene-d5 (Surr)	72		24 - 120	03/16/23 11:22	03/18/23 15:39	1
2-Fluorophenol (Surr)	71		19 - 120	03/16/23 11:22	03/18/23 15:39	1
2-Fluorobiphenyl (Surr)	96		33 - 120	03/16/23 11:22	03/18/23 15:39	1
2,4,6-Tribromophenol (Surr)	94		10 - 120	03/16/23 11:22	03/18/23 15:39	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/16/23 11:26	03/17/23 11:42	1
Endrin	ND		0.00050	0.0000065	mg/L		03/16/23 11:26	03/17/23 11:42	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/16/23 11:26	03/17/23 11:42	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/16/23 11:26	03/17/23 11:42	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/16/23 11:26	03/17/23 11:42	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/16/23 11:26	03/17/23 11:42	1
Toxaphene	ND		0.020	0.000058	mg/L		03/16/23 11:26	03/17/23 11:42	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (01-07)

Lab Sample ID: 240-181894-8

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 82.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	73		10 - 145	03/16/23 11:26	03/17/23 11:42	1
DCB Decachlorobiphenyl	72		10 - 145	03/16/23 11:26	03/17/23 11:42	1
Tetrachloro-m-xylene	60		10 - 123	03/16/23 11:26	03/17/23 11:42	1
Tetrachloro-m-xylene	59		10 - 123	03/16/23 11:26	03/17/23 11:42	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		60	30	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1221	ND		60	36	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1232	ND		60	25	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1242	ND		60	23	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1248	ND		60	21	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1254	ND		60	25	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1260	ND		60	25	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1262	ND		60	27	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1
Aroclor-1268	ND		60	19	ug/Kg	☆	03/16/23 08:44	03/16/23 18:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	78		10 - 149	03/16/23 08:44	03/16/23 18:40	1
DCB Decachlorobiphenyl	63		10 - 174	03/16/23 08:44	03/16/23 18:40	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 06:22	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 06:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	58		26 - 136	03/20/23 19:00	03/21/23 06:22	1
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	03/20/23 19:00	03/21/23 06:22	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	140	B	6.0	0.17	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,4,6,7,8-HpCDF	25	B	6.0	0.078	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,4,7,8-HxCDD	6.0	B	6.0	0.050	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,4,7,8-HxCDF	7.1		6.0	0.094	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,4,7,8,9-HpCDF	5.3	J B	6.0	0.10	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,6,7,8-HxCDD	7.4	B	6.0	0.045	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,6,7,8-HxCDF	5.5	J B	6.0	0.087	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,7,8-PeCDD	4.1	J I B	6.0	0.052	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,7,8-PeCDF	3.9	J I B	6.0	0.077	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,7,8,9-HxCDD	5.4	J B	6.0	0.044	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
1,2,3,7,8,9-HxCDF	5.1	J B	6.0	0.11	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
2,3,4,6,7,8-HxCDF	5.8	J B	6.0	0.088	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
2,3,4,7,8-PeCDF	6.6	B	6.0	0.060	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
2,3,7,8-TCDD	1.9		1.2	0.058	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
2,3,7,8-TCDF	1.9	B	1.2	0.20	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
OCDD	1100	B	12	0.22	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
OCDF	81	B	12	0.089	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
Total HxCDD	72	I B	6.0	0.046	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1
Total HxCDF	57	I B	6.0	0.094	ng/Kg	☆	03/17/23 11:07	03/21/23 07:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (01-07)

Lab Sample ID: 240-181894-8

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 82.6

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	140	B	6.0	0.17	ng/Kg	☼	03/17/23 11:07	03/21/23 07:02	1
Total HpCDF	75	B	6.0	0.091	ng/Kg	☼	03/17/23 11:07	03/21/23 07:02	1
Total PeCDD	14	IB	6.0	0.052	ng/Kg	☼	03/17/23 11:07	03/21/23 07:02	1
Total PeCDF	47	IB	6.0	0.068	ng/Kg	☼	03/17/23 11:07	03/21/23 07:02	1
Total TCDD	7.3	IB	1.2	0.058	ng/Kg	☼	03/17/23 11:07	03/21/23 07:02	1
Total TCDF	13	IB	1.2	0.20	ng/Kg	☼	03/17/23 11:07	03/21/23 07:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	90		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-OCDD	95		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-2,3,7,8-TCDF	84		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-2,3,7,8-TCDD	84		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-2,3,4,7,8-PeCDF	93		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-2,3,4,6,7,8-HxCDF	78		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,7,8,9-HxCDF	77		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,7,8,9-HxCDD	88		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,7,8-PeCDF	91		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,7,8-PeCDD	87		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,6,7,8-HxCDF	84		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,6,7,8-HxCDD	86		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,4,7,8,9-HpCDF	83		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,4,7,8-HxCDF	79		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,4,7,8-HxCDD	79		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,4,6,7,8-HpCDF	79		40 - 135	03/17/23 11:07	03/21/23 07:02	1
13C-1,2,3,4,6,7,8-HpCDD	85		40 - 135	03/17/23 11:07	03/21/23 07:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.6		0.1	0.1	%			03/15/23 14:34	1
Percent Moisture (EPA Moisture)	17.4		0.1	0.1	%			03/15/23 14:34	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1,2-Trichloroethane	ND		0.40	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1-Dichloroethane	ND		0.40	0.077	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1-Dichloroethene	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2,4-Trichlorobenzene	ND		0.40	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dibromo-3-Chloropropane	ND		0.80	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Ethylene Dibromide	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dichlorobenzene	ND		0.40	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dichloroethane	ND		0.40	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dichloropropane	ND		0.40	0.060	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,3-Dichlorobenzene	ND		0.40	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,4-Dichlorobenzene	ND		0.40	0.089	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
2-Butanone (MEK)	ND		1.6	0.25	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
2-Hexanone	ND		1.6	0.42	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.38	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Acetone	ND		1.6	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Benzene	ND		0.40	0.068	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Dichlorobromomethane	ND		0.40	0.098	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Bromoform	ND		0.40	0.37	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Bromomethane	ND		0.40	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Carbon disulfide	ND		0.40	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Carbon tetrachloride	ND		0.40	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chlorobenzene	ND		0.40	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chloroethane	ND		0.40	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chloroform	ND		0.40	0.087	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chloromethane	ND		0.40	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
cis-1,2-Dichloroethene	ND		0.40	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
cis-1,3-Dichloropropene	ND		0.40	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Cyclohexane	ND		0.80	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chlorodibromomethane	ND		0.40	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Dichlorodifluoromethane	ND		0.40	0.085	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Ethylbenzene	0.084	J	0.40	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Isopropylbenzene	0.098	J	0.40	0.061	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methyl acetate	0.38	J	2.0	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methyl tert-butyl ether	ND		0.40	0.060	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methylcyclohexane	0.91		0.80	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methylene Chloride	ND		0.80	0.62	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Styrene	ND		0.40	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Tetrachloroethene	ND		0.40	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Toluene	ND		0.40	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
trans-1,2-Dichloroethene	ND		0.40	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
trans-1,3-Dichloropropene	ND		0.40	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Trichloroethene	ND		0.40	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Trichlorofluoromethane	ND		0.40	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Vinyl chloride	ND		0.40	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Xylenes, Total	0.80		0.80	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Butyl acrylate	25		21	11	mg/Kg	✱	03/15/23 13:01	03/17/23 20:32	5.26315

789

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		4.2	1.0	mg/Kg	☼	03/15/23 13:01	03/17/23 20:32	5.26315 789
2-Ethylhexyl acrylate	98		21	16	mg/Kg	☼	03/15/23 13:01	03/17/23 20:32	5.26315 789
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		56 - 125				03/15/23 13:01	03/17/23 08:55	1
Toluene-d8 (Surr)	108		56 - 125				03/15/23 13:01	03/17/23 20:32	5.26315 789
Dibromofluoromethane (Surr)	80		41 - 138				03/15/23 13:01	03/17/23 08:55	1
Dibromofluoromethane (Surr)	94		41 - 138				03/15/23 13:01	03/17/23 20:32	5.26315 789
4-Bromofluorobenzene (Surr)	104		41 - 143				03/15/23 13:01	03/17/23 08:55	1
4-Bromofluorobenzene (Surr)	113		41 - 143				03/15/23 13:01	03/17/23 20:32	5.26315 789
1,2-Dichloroethane-d4 (Surr)	79		58 - 125				03/15/23 13:01	03/17/23 08:55	1
1,2-Dichloroethane-d4 (Surr)	104		58 - 125				03/15/23 13:01	03/17/23 20:32	5.26315 789

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.072	J	0.16	0.054	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
bis (2-chloroisopropyl) ether	ND		0.32	0.032	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4,5-Trichlorophenol	ND		0.48	0.22	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4,6-Trichlorophenol	ND		0.48	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dichlorophenol	ND		0.48	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dimethylphenol	ND		0.48	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dinitrophenol	ND		1.0	0.45	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dinitrotoluene	ND		0.63	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,6-Dinitrotoluene	ND		0.63	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Chloronaphthalene	ND		0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Chlorophenol	ND		0.16	0.032	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Methylnaphthalene	0.68		0.048	0.0062	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Methylphenol	ND		0.63	0.098	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Nitroaniline	ND		0.63	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Nitrophenol	ND		0.16	0.041	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
3,3'-Dichlorobenzidine	ND		0.32	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
3-Nitroaniline	ND		0.63	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4,6-Dinitro-2-methylphenol	ND		1.0	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Bromophenyl phenyl ether	ND		0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Chloro-3-methylphenol	ND		0.48	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Chloroaniline	ND		0.48	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Chlorophenyl phenyl ether	ND		0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Nitroaniline	ND		0.63	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Nitrophenol	ND		1.0	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Acenaphthene	0.16		0.048	0.0091	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Acenaphthylene	0.18		0.048	0.013	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Acetophenone	ND		0.32	0.035	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Anthracene	0.39		0.048	0.0076	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Atrazine	ND		0.63	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Benzaldehyde	ND		0.32	0.073	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.98		0.048	0.011	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[a]pyrene	0.67		0.048	0.030	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[b]fluoranthene	1.5		0.048	0.021	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[g,h,i]perylene	0.43		0.048	0.022	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[k]fluoranthene	0.45		0.048	0.022	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Bis(2-chloroethoxy)methane	ND		0.32	0.038	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Bis(2-chloroethyl)ether	ND		0.32	0.038	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Bis(2-ethylhexyl) phthalate	ND		0.22	0.16	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Butyl benzyl phthalate	ND		0.22	0.070	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Caprolactam	ND		1.0	0.24	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Carbazole	0.15	J	0.16	0.060	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Chrysene	1.3		0.048	0.0047	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Dibenz(a,h)anthracene	0.13		0.048	0.022	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Dibenzofuran	0.31		0.16	0.041	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Diethyl phthalate	ND		0.22	0.098	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Dimethyl phthalate	ND		0.22	0.044	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Di-n-butyl phthalate	ND		0.22	0.16	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Di-n-octyl phthalate	ND		0.22	0.089	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Fluoranthene	1.7		0.048	0.014	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Fluorene	0.17		0.048	0.0087	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Hexachlorobenzene	ND		0.048	0.0090	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Hexachlorobutadiene	ND		0.16	0.038	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Hexachlorocyclopentadiene	ND		1.0	0.20	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Hexachloroethane	ND		0.16	0.029	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Indeno[1,2,3-cd]pyrene	0.42		0.048	0.023	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Isophorone	ND		0.16	0.038	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
N-Nitrosodi-n-propylamine	ND		0.16	0.035	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
N-Nitrosodiphenylamine	ND		0.16	0.038	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Naphthalene	0.41		0.048	0.0076	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Nitrobenzene	ND		0.32	0.041	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Pentachlorophenol	ND		0.48	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Phenanthrene	1.1		0.048	0.0071	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Phenol	ND		0.16	0.025	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
Pyrene	1.7		0.048	0.0068	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
3 & 4 Methylphenol	ND		1.3	0.092	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5
2-Butoxyethanol	2.4		0.22	0.21	mg/Kg	✱	03/15/23 09:31	03/17/23 18:24	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	52		46 - 137	03/15/23 09:31	03/17/23 18:24	2.5
Phenol-d5 (Surr)	40		26 - 120	03/15/23 09:31	03/17/23 18:24	2.5
Nitrobenzene-d5 (Surr)	32		25 - 120	03/15/23 09:31	03/17/23 18:24	2.5
2-Fluorophenol (Surr)	35		20 - 120	03/15/23 09:31	03/17/23 18:24	2.5
2-Fluorobiphenyl (Surr)	42		34 - 120	03/15/23 09:31	03/17/23 18:24	2.5
2,4,6-Tribromophenol (Surr)	32		10 - 120	03/15/23 09:31	03/17/23 18:24	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:08	1
Barium	0.60	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:08	1
Cadmium	0.0018	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:08	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:08	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:08	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:08	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.8		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	22.2		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1,2-Trichloroethane	ND		0.34	0.079	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1-Dichloroethane	ND		0.34	0.066	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dibromo-3-Chloropropane	ND		0.69	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dichlorobenzene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dichloroethane	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dichloropropane	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,4-Dichlorobenzene	ND		0.34	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
2-Butanone (MEK)	ND		1.4	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Acetone	ND		1.4	0.34	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Benzene	ND		0.34	0.058	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Dichlorobromomethane	ND		0.34	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chloromethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
cis-1,2-Dichloroethene	ND		0.34	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Cyclohexane	ND		0.69	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Dichlorodifluoromethane	ND		0.34	0.073	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Ethylbenzene	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Isopropylbenzene	0.055	J	0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methyl tert-butyl ether	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methylcyclohexane	0.69		0.69	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methylene Chloride	ND		0.69	0.53	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Styrene	ND		0.34	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
trans-1,2-Dichloroethene	ND		0.34	0.085	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Trichloroethene	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Vinyl chloride	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Xylenes, Total	0.42	J	0.69	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Butyl acrylate	41		17	9.3	mg/Kg	✱	03/15/23 13:01	03/16/23 23:47	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		3.4	0.81	mg/Kg	✱	03/15/23 13:01	03/16/23 23:47	5
2-Ethylhexyl acrylate	99		34	26	mg/Kg	✱	03/15/23 13:01	03/17/23 20:57	10

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		56 - 125				03/15/23 13:01	03/16/23 23:47	5
Toluene-d8 (Surr)	90		56 - 125				03/15/23 13:01	03/17/23 07:44	1
Toluene-d8 (Surr)	109		56 - 125				03/15/23 13:01	03/17/23 20:57	10
Dibromofluoromethane (Surr)	89		41 - 138				03/15/23 13:01	03/16/23 23:47	5
Dibromofluoromethane (Surr)	81		41 - 138				03/15/23 13:01	03/17/23 07:44	1
Dibromofluoromethane (Surr)	94		41 - 138				03/15/23 13:01	03/17/23 20:57	10
4-Bromofluorobenzene (Surr)	111		41 - 143				03/15/23 13:01	03/16/23 23:47	5
4-Bromofluorobenzene (Surr)	102		41 - 143				03/15/23 13:01	03/17/23 07:44	1
4-Bromofluorobenzene (Surr)	114		41 - 143				03/15/23 13:01	03/17/23 20:57	10
1,2-Dichloroethane-d4 (Surr)	101		58 - 125				03/15/23 13:01	03/16/23 23:47	5
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				03/15/23 13:01	03/17/23 07:44	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125				03/15/23 13:01	03/17/23 20:57	10

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.074	J	0.15	0.052	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
bis (2-chloroisopropyl) ether	ND		0.31	0.031	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,4,5-Trichlorophenol	ND		0.46	0.21	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,4,6-Trichlorophenol	ND		0.46	0.20	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dichlorophenol	ND		0.46	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dimethylphenol	ND		0.46	0.12	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dinitrophenol	ND		1.0	0.44	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dinitrotoluene	ND		0.61	0.19	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2,6-Dinitrotoluene	ND		0.61	0.17	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2-Chloronaphthalene	ND		0.15	0.043	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2-Chlorophenol	ND		0.15	0.031	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2-Methylnaphthalene	0.55		0.046	0.0060	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2-Methylphenol	ND		0.61	0.095	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2-Nitroaniline	ND		0.61	0.12	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
2-Nitrophenol	ND		0.15	0.040	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
3,3'-Dichlorobenzidine	ND		0.31	0.13	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
3-Nitroaniline	ND		0.61	0.15	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4,6-Dinitro-2-methylphenol	ND		1.0	0.25	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4-Bromophenyl phenyl ether	ND		0.15	0.043	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4-Chloro-3-methylphenol	ND		0.46	0.14	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4-Chloroaniline	ND		0.46	0.092	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4-Chlorophenyl phenyl ether	ND		0.15	0.043	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4-Nitroaniline	ND		0.61	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
4-Nitrophenol	ND		1.0	0.29	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Acenaphthene	0.11		0.046	0.0088	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Acenaphthylene	0.10		0.046	0.012	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Acetophenone	ND		0.31	0.034	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Anthracene	0.28		0.046	0.0074	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Atrazine	ND		0.61	0.11	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Benzaldehyde	ND		0.31	0.071	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[a]anthracene	0.83		0.046	0.010	mg/Kg	✱	03/15/23 09:31	03/17/23 18:49	2.5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.55		0.046	0.029	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[b]fluoranthene	1.0		0.046	0.020	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[g,h,i]perylene	0.31		0.046	0.022	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[k]fluoranthene	0.41		0.046	0.021	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Bis(2-chloroethoxy)methane	ND		0.31	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Bis(2-chloroethyl)ether	ND		0.31	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Bis(2-ethylhexyl) phthalate	ND		0.22	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Butyl benzyl phthalate	ND		0.22	0.068	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Caprolactam	ND		1.0	0.23	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Carbazole	0.15		0.15	0.058	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Chrysene	1.1		0.046	0.0046	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Dibenz(a,h)anthracene	0.092		0.046	0.021	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Dibenzofuran	0.30		0.15	0.040	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Diethyl phthalate	ND		0.22	0.095	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Dimethyl phthalate	ND		0.22	0.043	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Di-n-butyl phthalate	ND		0.22	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Di-n-octyl phthalate	ND		0.22	0.086	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Fluoranthene	1.7		0.046	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Fluorene	0.17		0.046	0.0084	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Hexachlorobenzene	ND		0.046	0.0088	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Hexachlorobutadiene	ND		0.15	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Hexachlorocyclopentadiene	ND		1.0	0.19	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Hexachloroethane	ND		0.15	0.028	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Indeno[1,2,3-cd]pyrene	0.27		0.046	0.023	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Isophorone	ND		0.15	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
N-Nitrosodi-n-propylamine	ND		0.15	0.034	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
N-Nitrosodiphenylamine	ND		0.15	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Naphthalene	0.35		0.046	0.0074	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Nitrobenzene	ND		0.31	0.040	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Pentachlorophenol	ND		0.46	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Phenanthrene	1.0		0.046	0.0069	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Phenol	ND		0.15	0.025	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
Pyrene	1.6		0.046	0.0066	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
3 & 4 Methylphenol	ND		1.2	0.089	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5
2-Butoxyethanol	2.5		0.22	0.20	mg/Kg	✳	03/15/23 09:31	03/17/23 18:49	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	53		46 - 137	03/15/23 09:31	03/17/23 18:49	2.5
Phenol-d5 (Surr)	47		26 - 120	03/15/23 09:31	03/17/23 18:49	2.5
Nitrobenzene-d5 (Surr)	33		25 - 120	03/15/23 09:31	03/17/23 18:49	2.5
2-Fluorophenol (Surr)	42		20 - 120	03/15/23 09:31	03/17/23 18:49	2.5
2-Fluorobiphenyl (Surr)	47		34 - 120	03/15/23 09:31	03/17/23 18:49	2.5
2,4,6-Tribromophenol (Surr)	34		10 - 120	03/15/23 09:31	03/17/23 18:49	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:12	1
Barium	0.50	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:12	1
Cadmium	0.0011	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:12	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:12	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:12	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:12	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.0		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.0		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1-Dichloroethane	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dibromo-3-Chloropropane	ND		0.68	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dichloropropane	ND		0.34	0.050	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
2-Butanone (MEK)	ND		1.4	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.32	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Acetone	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Benzene	ND		0.34	0.057	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chloroethane	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chloromethane	ND		0.34	0.090	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
cis-1,2-Dichloroethene	ND		0.34	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Cyclohexane	0.26	J	0.68	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Dichlorodifluoromethane	ND		0.34	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Ethylbenzene	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Isopropylbenzene	0.058	J	0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methyl tert-butyl ether	ND		0.34	0.050	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methylcyclohexane	0.99		0.68	0.090	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methylene Chloride	ND		0.68	0.52	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Styrene	ND		0.34	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
trans-1,2-Dichloroethene	ND		0.34	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Trichloroethene	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Vinyl chloride	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Xylenes, Total	0.52	J	0.68	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Butyl acrylate	3.3	J	3.4	1.8	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.68	0.16	mg/Kg	☼	03/15/23 13:01	03/17/23 00:12	1
2-Ethylhexyl acrylate	11		3.4	2.5	mg/Kg	☼	03/15/23 13:01	03/17/23 00:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	110		56 - 125				03/15/23 13:01	03/17/23 00:12	1
<i>Dibromofluoromethane (Surr)</i>	88		41 - 138				03/15/23 13:01	03/17/23 00:12	1
<i>4-Bromofluorobenzene (Surr)</i>	113		41 - 143				03/15/23 13:01	03/17/23 00:12	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		58 - 125				03/15/23 13:01	03/17/23 00:12	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.2	2.1	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
bis (2-chloroisopropyl) ether	ND		12	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4,5-Trichlorophenol	ND		18	8.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4,6-Trichlorophenol	ND		18	7.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dichlorophenol	ND		18	5.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dimethylphenol	ND		18	4.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dinitrophenol	ND		41	17	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dinitrotoluene	ND		25	7.6	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,6-Dinitrotoluene	ND		25	6.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Chloronaphthalene	ND		6.2	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Chlorophenol	ND		6.2	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Methylnaphthalene	1.0 J		1.8	0.24	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Methylphenol	ND		25	3.8	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Nitroaniline	ND		25	4.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Nitrophenol	ND		6.2	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
3,3'-Dichlorobenzidine	ND		12	5.3	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
3-Nitroaniline	ND		25	6.0	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4,6-Dinitro-2-methylphenol	ND		41	9.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Bromophenyl phenyl ether	ND		6.2	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Chloro-3-methylphenol	ND		18	5.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Chloroaniline	ND		18	3.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Chlorophenyl phenyl ether	ND		6.2	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Nitroaniline	ND		25	7.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Nitrophenol	ND		41	12	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Acenaphthene	ND		1.8	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Acenaphthylene	ND		1.8	0.49	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Acetophenone	ND		12	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Anthracene	ND		1.8	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Atrazine	ND		25	4.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzaldehyde	ND		12	2.8	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[a]anthracene	ND		1.8	0.42	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[a]pyrene	ND		1.8	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[b]fluoranthene	ND		1.8	0.80	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[g,h,i]perylene	ND		1.8	0.87	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[k]fluoranthene	ND		1.8	0.85	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Bis(2-chloroethoxy)methane	ND		12	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Bis(2-chloroethyl)ether	ND		12	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Bis(2-ethylhexyl) phthalate	ND		8.6	6.3	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Butyl benzyl phthalate	ND		8.6	2.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		41	9.2	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Carbazole	ND		6.2	2.3	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Chrysene	ND		1.8	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Dibenz(a,h)anthracene	ND		1.8	0.85	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Dibenzofuran	ND		6.2	1.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Diethyl phthalate	ND		8.6	3.8	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Dimethyl phthalate	ND		8.6	1.7	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Di-n-butyl phthalate	ND		8.6	6.2	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Di-n-octyl phthalate	ND		8.6	3.4	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Fluoranthene	1.1	J	1.8	0.55	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Fluorene	ND		1.8	0.34	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachlorobenzene	ND		1.8	0.35	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachlorobutadiene	ND		6.2	1.5	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachlorocyclopentadiene	ND		41	7.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachloroethane	ND		6.2	1.1	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Indeno[1,2,3-cd]pyrene	ND		1.8	0.91	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Isophorone	ND		6.2	1.5	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
N-Nitrosodi-n-propylamine	ND		6.2	1.4	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
N-Nitrosodiphenylamine	ND		6.2	1.5	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Naphthalene	ND		1.8	0.30	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Nitrobenzene	ND		12	1.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Pentachlorophenol	ND		18	7.1	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Phenanthrene	0.91	J	1.8	0.27	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Phenol	ND		6.2	0.99	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Pyrene	1.0	J	1.8	0.26	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
3 & 4 Methylphenol	ND		49	3.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
2-Butoxyethanol	130		8.6	8.1	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	49		46 - 137	03/15/23 09:31	03/17/23 16:46	100
Phenol-d5 (Surr)	40		26 - 120	03/15/23 09:31	03/17/23 16:46	100
Nitrobenzene-d5 (Surr)	24	S1-	25 - 120	03/15/23 09:31	03/17/23 16:46	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	03/15/23 09:31	03/17/23 16:46	100
2-Fluorobiphenyl (Surr)	36		34 - 120	03/15/23 09:31	03/17/23 16:46	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/15/23 09:31	03/17/23 16:46	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:17	1
Barium	0.36	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:17	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:17	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:17	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:17	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:17	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:17	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:03	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.7		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.3		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.37	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,1,2,2-Tetrachloroethane	ND		0.37	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.37	0.098	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,1,2-Trichloroethane	ND		0.37	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,1-Dichloroethane	ND		0.37	0.070	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,1-Dichloroethene	ND		0.37	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,2,4-Trichlorobenzene	ND		0.37	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,2-Dibromo-3-Chloropropane	ND		0.73	0.32	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Ethylene Dibromide	ND		0.37	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,2-Dichlorobenzene	ND		0.37	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,2-Dichloroethane	ND		0.37	0.069	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,2-Dichloropropane	ND		0.37	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,3-Dichlorobenzene	ND		0.37	0.067	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
1,4-Dichlorobenzene	ND		0.37	0.081	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
2-Butanone (MEK)	ND		1.5	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
2-Hexanone	ND		1.5	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.35	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Acetone	ND		1.5	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Benzene	ND		0.37	0.062	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Dichlorobromomethane	ND		0.37	0.089	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Bromoform	ND		0.37	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Bromomethane	ND		0.37	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Carbon disulfide	ND		0.37	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Carbon tetrachloride	ND		0.37	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Chlorobenzene	ND		0.37	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Chloroethane	ND		0.37	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Chloroform	ND		0.37	0.079	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Chloromethane	ND		0.37	0.097	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
cis-1,2-Dichloroethene	ND		0.37	0.059	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
cis-1,3-Dichloropropene	ND		0.37	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Cyclohexane	ND		0.73	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Chlorodibromomethane	ND		0.37	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Dichlorodifluoromethane	ND		0.37	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Ethylbenzene	ND		0.37	0.069	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Isopropylbenzene	ND		0.37	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Methyl acetate	ND		1.8	0.25	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Methyl tert-butyl ether	ND		0.37	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Methylcyclohexane	0.62	J	0.73	0.097	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Methylene Chloride	ND		0.73	0.56	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Styrene	ND		0.37	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Tetrachloroethene	ND		0.37	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Toluene	ND		0.37	0.35	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
trans-1,2-Dichloroethene	ND		0.37	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
trans-1,3-Dichloropropene	ND		0.37	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Trichloroethene	ND		0.37	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Trichlorofluoromethane	ND		0.37	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Vinyl chloride	0.24	J	0.37	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Xylenes, Total	0.41	J	0.73	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 09:19	1
Butyl acrylate	40		31	17	mg/Kg	✱	03/15/23 13:01	03/17/23 20:07	8.3333

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		6.1	1.4	mg/Kg	☼	03/15/23 13:01	03/17/23 20:07	8.3333
2-Ethylhexyl acrylate	130		31	23	mg/Kg	☼	03/15/23 13:01	03/17/23 20:07	8.3333

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		56 - 125				03/15/23 13:01	03/17/23 09:19	1
Toluene-d8 (Surr)	109		56 - 125				03/15/23 13:01	03/17/23 20:07	8.3333
Dibromofluoromethane (Surr)	79		41 - 138				03/15/23 13:01	03/17/23 09:19	1
Dibromofluoromethane (Surr)	94		41 - 138				03/15/23 13:01	03/17/23 20:07	8.3333
4-Bromofluorobenzene (Surr)	97		41 - 143				03/15/23 13:01	03/17/23 09:19	1
4-Bromofluorobenzene (Surr)	114		41 - 143				03/15/23 13:01	03/17/23 20:07	8.3333
1,2-Dichloroethane-d4 (Surr)	80		58 - 125				03/15/23 13:01	03/17/23 09:19	1
1,2-Dichloroethane-d4 (Surr)	103		58 - 125				03/15/23 13:01	03/17/23 20:07	8.3333

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.32	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
bis (2-chloroisopropyl) ether	ND		0.64	0.064	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4,5-Trichlorophenol	ND		0.96	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4,6-Trichlorophenol	ND		0.96	0.41	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dichlorophenol	ND		0.96	0.28	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dimethylphenol	ND		0.96	0.26	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dinitrophenol	ND		2.1	0.91	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dinitrotoluene	ND		1.3	0.40	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,6-Dinitrotoluene	ND		1.3	0.36	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Chloronaphthalene	ND		0.32	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Chlorophenol	ND		0.32	0.064	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Methylnaphthalene	0.76		0.096	0.013	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Methylphenol	ND		1.3	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Nitroaniline	ND		1.3	0.26	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Nitrophenol	ND		0.32	0.084	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
3,3'-Dichlorobenzidine	ND		0.64	0.28	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
3-Nitroaniline	ND		1.3	0.31	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4,6-Dinitro-2-methylphenol	ND		2.1	0.51	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Bromophenyl phenyl ether	ND		0.32	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Chloro-3-methylphenol	ND		0.96	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Chloroaniline	ND		0.96	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Chlorophenyl phenyl ether	ND		0.32	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Nitroaniline	ND		1.3	0.39	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Nitrophenol	ND		2.1	0.60	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Acenaphthene	0.074	J	0.096	0.018	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Acenaphthylene	0.12		0.096	0.026	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Acetophenone	ND		0.64	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Anthracene	0.17		0.096	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Atrazine	ND		1.3	0.23	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzaldehyde	ND		0.64	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[a]anthracene	0.40		0.096	0.022	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[a]pyrene	0.35		0.096	0.060	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[b]fluoranthene	0.82		0.096	0.042	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[g,h,i]perylene	0.26		0.096	0.046	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[k]fluoranthene	0.21		0.096	0.045	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.64	0.077	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Bis(2-chloroethyl)ether	ND		0.64	0.077	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Bis(2-ethylhexyl) phthalate	ND		0.45	0.33	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Butyl benzyl phthalate	ND		0.45	0.14	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Caprolactam	ND		2.1	0.48	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Carbazole	ND		0.32	0.12	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Chrysene	0.63		0.096	0.0096	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Dibenz(a,h)anthracene	ND		0.096	0.044	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Dibenzofuran	0.28	J	0.32	0.084	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Diethyl phthalate	ND		0.45	0.20	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Dimethyl phthalate	ND		0.45	0.090	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Di-n-butyl phthalate	ND		0.45	0.32	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Di-n-octyl phthalate	ND		0.45	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Fluoranthene	0.69		0.096	0.029	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Fluorene	0.079	J	0.096	0.018	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Hexachlorobenzene	ND		0.096	0.018	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Hexachlorobutadiene	ND		0.32	0.077	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Hexachlorocyclopentadiene	ND		2.1	0.40	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Hexachloroethane	ND		0.32	0.058	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Indeno[1,2,3-cd]pyrene	0.25		0.096	0.047	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Isophorone	ND		0.32	0.077	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
N-Nitrosodi-n-propylamine	ND		0.32	0.071	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
N-Nitrosodiphenylamine	ND		0.32	0.077	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Naphthalene	0.49		0.096	0.015	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Nitrobenzene	ND		0.64	0.084	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Pentachlorophenol	ND		0.96	0.37	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Phenanthrene	0.71		0.096	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Phenol	ND		0.32	0.051	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
Pyrene	0.68		0.096	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
3 & 4 Methylphenol	ND		2.6	0.19	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5
2-Butoxyethanol	5.0		0.45	0.42	mg/Kg	✳	03/15/23 09:31	03/17/23 15:33	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	47		46 - 137	03/15/23 09:31	03/17/23 15:33	5
Phenol-d5 (Surr)	45		26 - 120	03/15/23 09:31	03/17/23 15:33	5
Nitrobenzene-d5 (Surr)	43		25 - 120	03/15/23 09:31	03/17/23 15:33	5
2-Fluorophenol (Surr)	39		20 - 120	03/15/23 09:31	03/17/23 15:33	5
2-Fluorobiphenyl (Surr)	43		34 - 120	03/15/23 09:31	03/17/23 15:33	5
2,4,6-Tribromophenol (Surr)	35		10 - 120	03/15/23 09:31	03/17/23 15:33	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:22	1
Barium	0.86	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:22	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:22	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:22	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:22	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:22	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:22	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.7		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	22.3		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.29	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1,2,2-Tetrachloroethane	ND		0.29	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.29	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1,2-Trichloroethane	ND		0.29	0.067	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1-Dichloroethane	ND		0.29	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1-Dichloroethene	ND		0.29	0.096	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2,4-Trichlorobenzene	ND		0.29	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dibromo-3-Chloropropane	ND		0.58	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Ethylene Dibromide	ND		0.29	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dichlorobenzene	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dichloroethane	ND		0.29	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dichloropropane	ND		0.29	0.043	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,3-Dichlorobenzene	ND		0.29	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,4-Dichlorobenzene	ND		0.29	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
2-Butanone (MEK)	ND		1.2	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
2-Hexanone	ND		1.2	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
4-Methyl-2-pentanone (MIBK)	ND		1.2	0.28	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Acetone	ND		1.2	0.29	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Benzene	0.12	J	0.29	0.049	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Dichlorobromomethane	ND		0.29	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Bromoform	ND		0.29	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Bromomethane	ND		0.29	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Carbon disulfide	ND		0.29	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Carbon tetrachloride	ND		0.29	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chlorobenzene	ND		0.29	0.041	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chloroethane	ND		0.29	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chloroform	ND		0.29	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chloromethane	ND		0.29	0.077	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
cis-1,2-Dichloroethene	ND		0.29	0.047	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
cis-1,3-Dichloropropene	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Cyclohexane	ND		0.58	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chlorodibromomethane	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Dichlorodifluoromethane	ND		0.29	0.062	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Ethylbenzene	ND		0.29	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Isopropylbenzene	ND		0.29	0.044	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methyl acetate	0.62	J	1.5	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methyl tert-butyl ether	ND		0.29	0.043	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methylcyclohexane	0.28	J	0.58	0.077	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methylene Chloride	ND		0.58	0.45	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Styrene	ND		0.29	0.061	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Tetrachloroethene	ND		0.29	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Toluene	ND		0.29	0.28	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
trans-1,2-Dichloroethene	ND		0.29	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
trans-1,3-Dichloropropene	ND		0.29	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Trichloroethene	ND		0.29	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Trichlorofluoromethane	ND		0.29	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Vinyl chloride	2.2		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Xylenes, Total	0.19	J	0.58	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Butyl acrylate	67		49	26	mg/Kg	✱	03/15/23 13:01	03/17/23 19:42	16.6666

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		9.7	2.3	mg/Kg	☼	03/15/23 13:01	03/17/23 19:42	16.6666
2-Ethylhexyl acrylate	190		49	36	mg/Kg	☼	03/15/23 13:01	03/17/23 19:42	16.6666

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		56 - 125				03/15/23 13:01	03/17/23 11:43	1
Toluene-d8 (Surr)	105		56 - 125				03/15/23 13:01	03/17/23 19:42	16.6666
Dibromofluoromethane (Surr)	79		41 - 138				03/15/23 13:01	03/17/23 11:43	1
Dibromofluoromethane (Surr)	93		41 - 138				03/15/23 13:01	03/17/23 19:42	16.6666
4-Bromofluorobenzene (Surr)	95		41 - 143				03/15/23 13:01	03/17/23 11:43	1
4-Bromofluorobenzene (Surr)	112		41 - 143				03/15/23 13:01	03/17/23 19:42	16.6666
1,2-Dichloroethane-d4 (Surr)	77		58 - 125				03/15/23 13:01	03/17/23 11:43	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125				03/15/23 13:01	03/17/23 19:42	16.6666

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dimethylphenol	ND		3.7	0.99	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dinitrophenol	ND		8.2	3.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dinitrotoluene	ND		5.0	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,6-Dinitrotoluene	ND		5.0	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Chloronaphthalene	ND		1.2	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Chlorophenol	ND		1.2	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Methylnaphthalene	0.41		0.37	0.049	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Methylphenol	ND		5.0	0.77	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Nitroaniline	ND		5.0	0.99	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
3-Nitroaniline	ND		5.0	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4,6-Dinitro-2-methylphenol	ND		8.2	2.0	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Bromophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Chloroaniline	ND		3.7	0.74	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Chlorophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Nitroaniline	ND		5.0	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Nitrophenol	ND		8.2	2.3	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Acenaphthene	ND		0.37	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Acenaphthylene	0.11	J	0.37	0.10	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Acetophenone	ND		2.5	0.27	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Anthracene	0.28	J	0.37	0.060	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Atrazine	ND		5.0	0.89	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzaldehyde	ND		2.5	0.57	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[a]anthracene	1.4		0.37	0.085	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[a]pyrene	0.53		0.37	0.23	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[b]fluoranthene	1.1		0.37	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[g,h,i]perylene	0.34	J	0.37	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[k]fluoranthene	0.54		0.37	0.17	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.3	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Butyl benzyl phthalate	ND		1.7	0.55	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Caprolactam	ND		8.2	1.9	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Carbazole	ND		1.2	0.47	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Chrysene	2.0		0.37	0.037	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Dibenzofuran	ND		1.2	0.32	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Diethyl phthalate	ND		1.7	0.77	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Dimethyl phthalate	ND		1.7	0.35	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Di-n-butyl phthalate	ND		1.7	1.3	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Di-n-octyl phthalate	ND		1.7	0.70	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Fluoranthene	2.4		0.37	0.11	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Fluorene	0.11 J		0.37	0.068	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Hexachlorobenzene	ND		0.37	0.071	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Hexachlorobutadiene	ND		1.2	0.30	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Hexachlorocyclopentadiene	ND		8.2	1.5	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Indeno[1,2,3-cd]pyrene	0.34 J		0.37	0.18	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Isophorone	ND		1.2	0.30	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
N-Nitrosodiphenylamine	ND		1.2	0.30	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Naphthalene	0.27 J		0.37	0.060	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Nitrobenzene	ND		2.5	0.32	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Phenanthrene	0.78		0.37	0.055	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Phenol	ND		1.2	0.20	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
Pyrene	2.1		0.37	0.053	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
3 & 4 Methylphenol	ND		9.9	0.72	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20
2-Butoxyethanol	18		1.7	1.6	mg/Kg	✱	03/15/23 09:31	03/17/23 18:00	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	46		46 - 137	03/15/23 09:31	03/17/23 18:00	20
Phenol-d5 (Surr)	33		26 - 120	03/15/23 09:31	03/17/23 18:00	20
Nitrobenzene-d5 (Surr)	33		25 - 120	03/15/23 09:31	03/17/23 18:00	20
2-Fluorophenol (Surr)	33		20 - 120	03/15/23 09:31	03/17/23 18:00	20
2-Fluorobiphenyl (Surr)	43		34 - 120	03/15/23 09:31	03/17/23 18:00	20
2,4,6-Tribromophenol (Surr)	21		10 - 120	03/15/23 09:31	03/17/23 18:00	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:35	1
Barium	0.48	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:35	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:35	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:35	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:35	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:35	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:35	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.9		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.1		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.32	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,1,2,2-Tetrachloroethane	ND		0.32	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	0.087	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,1,2-Trichloroethane	ND		0.32	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,1-Dichloroethane	ND		0.32	0.062	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,1-Dichloroethene	ND		0.32	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,2,4-Trichlorobenzene	ND		0.32	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,2-Dibromo-3-Chloropropane	ND		0.65	0.29	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Ethylene Dibromide	ND		0.32	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,2-Dichlorobenzene	ND		0.32	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,2-Dichloroethane	ND		0.32	0.061	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,2-Dichloropropane	ND		0.32	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,3-Dichlorobenzene	ND		0.32	0.060	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
1,4-Dichlorobenzene	ND		0.32	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
2-Butanone (MEK)	ND		1.3	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
2-Hexanone	ND		1.3	0.34	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
4-Methyl-2-pentanone (MIBK)	ND		1.3	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Acetone	ND		1.3	0.32	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Benzene	ND		0.32	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Dichlorobromomethane	ND		0.32	0.079	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Bromoform	ND		0.32	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Bromomethane	ND		0.32	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Carbon disulfide	ND		0.32	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Carbon tetrachloride	ND		0.32	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Chlorobenzene	ND		0.32	0.045	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Chloroethane	ND		0.32	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Chloroform	ND		0.32	0.070	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Chloromethane	ND		0.32	0.086	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
cis-1,2-Dichloroethene	ND		0.32	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
cis-1,3-Dichloropropene	ND		0.32	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Cyclohexane	ND		0.65	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Chlorodibromomethane	ND		0.32	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Dichlorodifluoromethane	ND		0.32	0.069	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Ethylbenzene	ND		0.32	0.061	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Isopropylbenzene	ND		0.32	0.049	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Methyl acetate	0.23	J	1.6	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Methyl tert-butyl ether	ND		0.32	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Methylcyclohexane	0.41	J	0.65	0.086	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Methylene Chloride	ND		0.65	0.50	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Styrene	ND		0.32	0.067	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Tetrachloroethene	ND		0.32	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Toluene	ND		0.32	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
trans-1,2-Dichloroethene	ND		0.32	0.080	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
trans-1,3-Dichloropropene	ND		0.32	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Trichloroethene	ND		0.32	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Trichlorofluoromethane	ND		0.32	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Vinyl chloride	ND		0.32	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Xylenes, Total	0.31	J	0.65	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 12:31	1
Butyl acrylate	61		54	29	mg/Kg	✱	03/15/23 13:01	03/17/23 18:16	16.6666

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		11	2.6	mg/Kg	☼	03/15/23 13:01	03/17/23 18:16	16.6666
2-Ethylhexyl acrylate	160		54	40	mg/Kg	☼	03/15/23 13:01	03/17/23 18:16	16.6666
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		56 - 125				03/15/23 13:01	03/17/23 12:31	1
Toluene-d8 (Surr)	107		56 - 125				03/15/23 13:01	03/17/23 18:16	16.6666
Dibromofluoromethane (Surr)	79		41 - 138				03/15/23 13:01	03/17/23 12:31	1
Dibromofluoromethane (Surr)	93		41 - 138				03/15/23 13:01	03/17/23 18:16	16.6666
4-Bromofluorobenzene (Surr)	97		41 - 143				03/15/23 13:01	03/17/23 12:31	1
4-Bromofluorobenzene (Surr)	112		41 - 143				03/15/23 13:01	03/17/23 18:16	16.6666
1,2-Dichloroethane-d4 (Surr)	78		58 - 125				03/15/23 13:01	03/17/23 12:31	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125				03/15/23 13:01	03/17/23 18:16	16.6666

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.068	J	0.15	0.052	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
bis (2-chloroisopropyl) ether	ND		0.31	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4,5-Trichlorophenol	ND		0.46	0.21	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4,6-Trichlorophenol	ND		0.46	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dichlorophenol	ND		0.46	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dimethylphenol	ND		0.46	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dinitrophenol	ND		1.0	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dinitrotoluene	ND		0.61	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,6-Dinitrotoluene	ND		0.61	0.17	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Chloronaphthalene	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Chlorophenol	ND		0.15	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Methylnaphthalene	0.70		0.046	0.0060	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Methylphenol	ND		0.61	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Nitroaniline	ND		0.61	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Nitrophenol	ND		0.15	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
3,3'-Dichlorobenzidine	ND		0.31	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
3-Nitroaniline	ND		0.61	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4,6-Dinitro-2-methylphenol	ND		1.0	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Bromophenyl phenyl ether	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Chloro-3-methylphenol	ND		0.46	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Chloroaniline	ND		0.46	0.092	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Chlorophenyl phenyl ether	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Nitroaniline	ND		0.61	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Nitrophenol	ND		1.0	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Acenaphthene	0.12		0.046	0.0088	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Acenaphthylene	0.16		0.046	0.012	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Acetophenone	ND		0.31	0.034	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Anthracene	0.28		0.046	0.0074	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Atrazine	ND		0.61	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzaldehyde	ND		0.31	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[a]anthracene	0.62		0.046	0.010	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[a]pyrene	0.51		0.046	0.029	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[b]fluoranthene	1.2		0.046	0.020	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[g,h,i]perylene	0.35		0.046	0.022	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[k]fluoranthene	0.32		0.046	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.31	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Bis(2-chloroethyl)ether	ND		0.31	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Bis(2-ethylhexyl) phthalate	ND		0.22	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Butyl benzyl phthalate	ND		0.22	0.068	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Caprolactam	ND		1.0	0.23	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Carbazole	0.14	J	0.15	0.058	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Chrysene	0.98		0.046	0.0046	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Dibenz(a,h)anthracene	0.12		0.046	0.021	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Dibenzofuran	0.28		0.15	0.040	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Diethyl phthalate	ND		0.22	0.095	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Dimethyl phthalate	ND		0.22	0.043	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Di-n-butyl phthalate	ND		0.22	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Di-n-octyl phthalate	ND		0.22	0.086	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Fluoranthene	1.2		0.046	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Fluorene	0.14		0.046	0.0084	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Hexachlorobenzene	ND		0.046	0.0088	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Hexachlorobutadiene	ND		0.15	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Hexachlorocyclopentadiene	ND		1.0	0.19	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Hexachloroethane	ND		0.15	0.028	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Indeno[1,2,3-cd]pyrene	0.37		0.046	0.023	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Isophorone	ND		0.15	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
N-Nitrosodi-n-propylamine	ND		0.15	0.034	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
N-Nitrosodiphenylamine	ND		0.15	0.037	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Naphthalene	0.43		0.046	0.0074	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Nitrobenzene	ND		0.31	0.040	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Pentachlorophenol	ND		0.46	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Phenanthrene	0.91		0.046	0.0069	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Phenol	ND		0.15	0.025	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
Pyrene	1.2		0.046	0.0066	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
3 & 4 Methylphenol	ND		1.2	0.089	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5
2-Butoxyethanol	3.0		0.22	0.20	mg/Kg	✳	03/15/23 09:31	03/17/23 19:13	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	84		46 - 137	03/15/23 09:31	03/17/23 19:13	2.5
Phenol-d5 (Surr)	82		26 - 120	03/15/23 09:31	03/17/23 19:13	2.5
Nitrobenzene-d5 (Surr)	69		25 - 120	03/15/23 09:31	03/17/23 19:13	2.5
2-Fluorophenol (Surr)	78		20 - 120	03/15/23 09:31	03/17/23 19:13	2.5
2-Fluorobiphenyl (Surr)	78		34 - 120	03/15/23 09:31	03/17/23 19:13	2.5
2,4,6-Tribromophenol (Surr)	60		10 - 120	03/15/23 09:31	03/17/23 19:13	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.013	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:39	1
Barium	0.53	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:39	1
Cadmium	0.0015	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:39	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:39	1
Lead	0.0036	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:39	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:39	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:39	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.1		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.9		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1-Dichloroethane	ND		0.34	0.066	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dibromo-3-Chloropropane	ND		0.69	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dichloropropane	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
2-Butanone (MEK)	ND		1.4	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Acetone	0.35	J	1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Benzene	0.068	J	0.34	0.058	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chloromethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
cis-1,2-Dichloroethene	ND		0.34	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Cyclohexane	ND		0.69	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Dichlorodifluoromethane	ND		0.34	0.073	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Ethylbenzene	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Isopropylbenzene	0.059	J	0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methyl tert-butyl ether	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methylcyclohexane	0.71		0.69	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methylene Chloride	ND		0.69	0.53	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Styrene	ND		0.34	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
trans-1,2-Dichloroethene	ND		0.34	0.085	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Trichloroethene	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Vinyl chloride	0.25	J	0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Xylenes, Total	0.55	J	0.69	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Butyl acrylate	340		340	190	mg/Kg	✱	03/15/23 13:01	03/17/23 01:53	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		69	16	mg/Kg	☼	03/15/23 13:01	03/17/23 01:53	100
2-Ethylhexyl acrylate	720		340	260	mg/Kg	☼	03/15/23 13:01	03/17/23 01:53	100

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	107		56 - 125				03/15/23 13:01	03/17/23 01:53	100
<i>Toluene-d8 (Surr)</i>	96		56 - 125				03/15/23 13:01	03/17/23 13:19	1
<i>Dibromofluoromethane (Surr)</i>	92		41 - 138				03/15/23 13:01	03/17/23 01:53	100
<i>Dibromofluoromethane (Surr)</i>	80		41 - 138				03/15/23 13:01	03/17/23 13:19	1
<i>4-Bromofluorobenzene (Surr)</i>	110		41 - 143				03/15/23 13:01	03/17/23 01:53	100
<i>4-Bromofluorobenzene (Surr)</i>	88		41 - 143				03/15/23 13:01	03/17/23 13:19	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		58 - 125				03/15/23 13:01	03/17/23 01:53	100
<i>1,2-Dichloroethane-d4 (Surr)</i>	78		58 - 125				03/15/23 13:01	03/17/23 13:19	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.5	2.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
bis (2-chloroisopropyl) ether	ND		13	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4,5-Trichlorophenol	ND		20	9.0	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4,6-Trichlorophenol	ND		20	8.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dichlorophenol	ND		20	5.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dimethylphenol	ND		20	5.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dinitrophenol	ND		43	19	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dinitrotoluene	ND		26	8.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,6-Dinitrotoluene	ND		26	7.3	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Chloronaphthalene	ND		6.5	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Chlorophenol	ND		6.5	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Methylnaphthalene	0.74	J	2.0	0.26	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Methylphenol	ND		26	4.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Nitroaniline	ND		26	5.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Nitrophenol	ND		6.5	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
3,3'-Dichlorobenzidine	ND		13	5.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
3-Nitroaniline	ND		26	6.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4,6-Dinitro-2-methylphenol	ND		43	10	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Bromophenyl phenyl ether	ND		6.5	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Chloro-3-methylphenol	ND		20	5.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Chloroaniline	ND		20	3.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Chlorophenyl phenyl ether	ND		6.5	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Nitroaniline	ND		26	7.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Nitrophenol	ND		43	12	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Acenaphthene	ND		2.0	0.37	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Acenaphthylene	ND		2.0	0.52	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Acetophenone	ND		13	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Anthracene	0.49	J	2.0	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Atrazine	ND		26	4.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzaldehyde	ND		13	3.0	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[a]anthracene	1.6	J	2.0	0.45	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[a]pyrene	ND		2.0	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[b]fluoranthene	1.8	J	2.0	0.85	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[g,h,i]perylene	ND		2.0	0.93	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[k]fluoranthene	ND		2.0	0.91	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		13	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Bis(2-chloroethyl)ether	ND		13	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Bis(2-ethylhexyl) phthalate	ND		9.2	6.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Butyl benzyl phthalate	ND		9.2	2.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Caprolactam	ND		43	9.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Carbazole	ND		6.5	2.5	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Chrysene	1.8	J	2.0	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Dibenz(a,h)anthracene	ND		2.0	0.91	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Dibenzofuran	ND		6.5	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Diethyl phthalate	ND		9.2	4.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Dimethyl phthalate	ND		9.2	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Di-n-butyl phthalate	ND		9.2	6.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Di-n-octyl phthalate	ND		9.2	3.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Fluoranthene	3.8		2.0	0.58	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Fluorene	ND		2.0	0.36	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachlorobenzene	ND		2.0	0.37	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachlorobutadiene	ND		6.5	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachlorocyclopentadiene	ND		43	8.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachloroethane	ND		6.5	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Indeno[1,2,3-cd]pyrene	ND		2.0	0.96	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Isophorone	ND		6.5	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
N-Nitrosodi-n-propylamine	ND		6.5	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
N-Nitrosodiphenylamine	ND		6.5	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Naphthalene	0.58	J	2.0	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Nitrobenzene	ND		13	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Pentachlorophenol	ND		20	7.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Phenanthrene	1.5	J	2.0	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Phenol	ND		6.5	1.0	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Pyrene	3.8		2.0	0.28	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
3 & 4 Methylphenol	ND		52	3.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Butoxyethanol	120		9.2	8.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	43	S1-	46 - 137	03/15/23 09:31	03/17/23 17:11	100
Phenol-d5 (Surr)	44		26 - 120	03/15/23 09:31	03/17/23 17:11	100
Nitrobenzene-d5 (Surr)	23	S1-	25 - 120	03/15/23 09:31	03/17/23 17:11	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	03/15/23 09:31	03/17/23 17:11	100
2-Fluorobiphenyl (Surr)	33	S1-	34 - 120	03/15/23 09:31	03/17/23 17:11	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/15/23 09:31	03/17/23 17:11	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:44	1
Barium	0.44	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:44	1
Cadmium	0.0016	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:44	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:44	1
Lead	0.013	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:44	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:44	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.5		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	22.5		0.1	0.1	%			03/15/23 13:31	1

Preliminary Data

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/17/23 15:56	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/17/23 15:56	1
2-Butanone (MEK)	0.027	J B	0.25	0.0012	mg/L			03/17/23 15:56	1
Benzene	ND		0.025	0.00042	mg/L			03/17/23 15:56	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/17/23 15:56	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/17/23 15:56	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/17/23 15:56	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/17/23 15:56	1
Vinyl chloride	0.0075	J F2	0.025	0.00045	mg/L			03/17/23 15:56	1
Chloroform	ND		0.025	0.00047	mg/L			03/17/23 15:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		03/17/23 15:56	1
Dibromofluoromethane (Surr)	98		71 - 121		03/17/23 15:56	1
4-Bromofluorobenzene (Surr)	95		80 - 120		03/17/23 15:56	1
1,2-Dichloroethane-d4 (Surr)	101		76 - 120		03/17/23 15:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/16/23 11:22	03/18/23 16:01	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/16/23 11:22	03/18/23 16:01	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/16/23 11:22	03/18/23 16:01	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/16/23 11:22	03/18/23 16:01	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/16/23 11:22	03/18/23 16:01	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/16/23 11:22	03/18/23 16:01	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/16/23 11:22	03/18/23 16:01	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/16/23 11:22	03/18/23 16:01	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/16/23 11:22	03/18/23 16:01	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/16/23 11:22	03/18/23 16:01	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/16/23 11:22	03/18/23 16:01	1
Pyridine	ND		0.0040	0.00036	mg/L		03/16/23 11:22	03/18/23 16:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	116		46 - 137	03/16/23 11:22	03/18/23 16:01	1
Phenol-d5 (Surr)	62		26 - 120	03/16/23 11:22	03/18/23 16:01	1
Nitrobenzene-d5 (Surr)	71		24 - 120	03/16/23 11:22	03/18/23 16:01	1
2-Fluorophenol (Surr)	69		19 - 120	03/16/23 11:22	03/18/23 16:01	1
2-Fluorobiphenyl (Surr)	93		33 - 120	03/16/23 11:22	03/18/23 16:01	1
2,4,6-Tribromophenol (Surr)	90		10 - 120	03/16/23 11:22	03/18/23 16:01	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/16/23 11:26	03/17/23 11:58	1
Endrin	ND		0.00050	0.0000065	mg/L		03/16/23 11:26	03/17/23 11:58	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/16/23 11:26	03/17/23 11:58	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/16/23 11:26	03/17/23 11:58	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/16/23 11:26	03/17/23 11:58	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/16/23 11:26	03/17/23 11:58	1
Toxaphene	ND		0.020	0.000058	mg/L		03/16/23 11:26	03/17/23 11:58	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	71		10 - 145	03/16/23 11:26	03/17/23 11:58	1
DCB Decachlorobiphenyl	70		10 - 145	03/16/23 11:26	03/17/23 11:58	1
Tetrachloro-m-xylene	57		10 - 123	03/16/23 11:26	03/17/23 11:58	1
Tetrachloro-m-xylene	54		10 - 123	03/16/23 11:26	03/17/23 11:58	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 06:50	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 06:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136	03/20/23 19:00	03/21/23 06:50	1
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136	03/20/23 19:00	03/21/23 06:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.7		0.1	0.1	%			03/15/23 14:34	1
Percent Moisture (EPA Moisture)	15.3		0.1	0.1	%			03/15/23 14:34	1

Preliminary Data

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 84.7

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		60	30	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1221	ND		60	36	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1232	ND		60	25	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1242	ND		60	23	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1248	ND		60	20	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1254	ND		60	25	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1260	ND		60	25	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1262	ND		60	26	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1268	ND		60	19	ug/Kg	☼	03/16/23 08:44	03/16/23 18:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	77		10 - 149	03/16/23 08:44	03/16/23 18:56	1
DCB Decachlorobiphenyl	64		10 - 174	03/16/23 08:44	03/16/23 18:56	1

Preliminary

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
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- 14
- 15
- 16

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-181894-1	WC-S. TRK-WEST-01 (2-4)	113	96	118	107
240-181894-1	WC-S. TRK-WEST-01 (2-4)	97	81	89	79
240-181894-2	WC-S. TRK-WEST-02 (6-8)	110	93	115	106
240-181894-2	WC-S. TRK-WEST-02 (6-8)	92	80	100	82
240-181894-2	WC-S. TRK-WEST-02 (6-8)	108	89	111	101
240-181894-3	WC-S. TRK-WEST-03 (2-4)	113	89	117	103
240-181894-4	WC-S. TRK-WEST-04 (4-6)	88	77	97	77
240-181894-4	WC-S. TRK-WEST-04 (4-6)	109	95	114	105
240-181894-5	WC-S. TRK-WEST-05 (4-6)	112	87	113	102
240-181894-6	WC-S. TRK-WEST-06 (6-8)	111	86	113	103
240-181894-7	WC-S. TRK-WEST-07 (8-10)	110	92	112	101
240-181894-7	WC-S. TRK-WEST-07 (8-10)	104	82	81	80
240-181894-7	WC-S. TRK-WEST-07 (8-10)	87	83	84	89
240-181894-9	WC-S. TRK-WEST-08 (8-10)	91	80	104	79
240-181894-9	WC-S. TRK-WEST-08 (8-10)	108	94	113	104
240-181894-10	WC-S. TRK-WEST-09 (10-12)	110	89	111	101
240-181894-10	WC-S. TRK-WEST-09 (10-12)	90	81	102	84
240-181894-10	WC-S. TRK-WEST-09 (10-12)	109	94	114	105
240-181894-11	WC-S. TRK-WEST-10 (10-12)	110	88	113	103
240-181894-12	WC-S. TRK-WEST-11 (12-14)	89	79	97	80
240-181894-12	WC-S. TRK-WEST-11 (12-14)	109	94	114	103
240-181894-13	WC-S. TRK-WEST-12 (12-14)	91	79	95	77
240-181894-13	WC-S. TRK-WEST-12 (12-14)	105	93	112	106
240-181894-14	WC-S. TRK-WEST-13 (14-16)	89	79	97	78
240-181894-14	WC-S. TRK-WEST-13 (14-16)	107	93	112	105
240-181894-15	WC-S. TRK-WEST-14 (14-16)	107	92	110	102
240-181894-15	WC-S. TRK-WEST-14 (14-16)	96	80	88	78
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	108	96	112	98
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	103	87	89	81
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	112	99	115	101
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	95	82	86	77
LCS 240-565503/2-A	Lab Control Sample	114	97	118	98
LCS 240-565503/2-A	Lab Control Sample	92	86	101	84
MB 240-565503/1-A	Method Blank	113	91	116	104
MB 240-565503/1-A	Method Blank	90	85	104	89

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-565827/10	Lab Control Sample	104	105	101	104

Surrogate Legend

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

TOL = Toluene-d8 (Surr)
 DBFM = Dibromofluoromethane (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	91	94	89	97
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	95	98	95	101
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	101	99	100	96
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	94	96	96	97
LB 240-565528/1-A MB	Method Blank	94	94	88	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
 DBFM = Dibromofluoromethane (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-181894-1	WC-S. TRK-WEST-01 (2-4)	44 S1-	52	39	44	43	33
240-181894-2	WC-S. TRK-WEST-02 (6-8)	63	56	61	57	56	47
240-181894-3	WC-S. TRK-WEST-03 (2-4)	73	63	58	58	70	71
240-181894-4	WC-S. TRK-WEST-04 (4-6)	39 S1-	48	38	38	36	28
240-181894-5	WC-S. TRK-WEST-05 (4-6)	63	49	39	41	55	50
240-181894-6	WC-S. TRK-WEST-06 (6-8)	66	57	45	48	58	57
240-181894-7	WC-S. TRK-WEST-07 (8-10)	48	39	37	43	43	21
240-181894-9	WC-S. TRK-WEST-08 (8-10)	52	40	32	35	42	32
240-181894-10	WC-S. TRK-WEST-09 (10-12)	53	47	33	42	47	34
240-181894-11	WC-S. TRK-WEST-10 (10-12)	49	40	24 S1-	0 S1-	36	0 S1-
240-181894-12	WC-S. TRK-WEST-11 (12-14)	47	45	43	39	43	35
240-181894-13	WC-S. TRK-WEST-12 (12-14)	46	33	33	33	43	21
240-181894-14	WC-S. TRK-WEST-13 (14-16)	84	82	69	78	78	60
240-181894-15	WC-S. TRK-WEST-14 (14-16)	43 S1-	44	23 S1-	0 S1-	33 S1-	0 S1-
LCS 240-565464/2-A	Lab Control Sample	96	76	74	69	78	65
MB 240-565464/1-A	Method Blank	106	67	76	54	83	34

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-565653/9-A	Lab Control Sample	106	63	69	70	91	93
MB 240-565653/8-A	Method Blank	117	61	67	70	92	73

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	123	64	72	71	96	94
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	116	62	71	69	93	90

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-565654/7-A	Lab Control Sample	74	73	61	69
MB 240-565654/6-A	Method Blank	72	73	52	59

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	73	72	60	59
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	71	70	57	54

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine
 TCX = Tetrachloro-m-xylene

Job ID: 240-181894-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX1 (10-149)	DCBP1 (10-174)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	78	63
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	77	64
LCS 240-565605/2-A	Lab Control Sample	112	97
MB 240-565605/1-A	Method Blank	92	76

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)	DCPAA2 (26-136)
LCS 410-355463/4-A	Lab Control Sample	61	66
MB 410-355463/1-A	Method Blank	58	63
MB 410-355463/2-A	Method Blank	61	68
MB 410-355463/3-A	Method Blank	63	67

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPAA1 (26-136)	DCPAA2 (26-136)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	58	63
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	60	65

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-565503/1-A
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Acetone	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Benzene	ND		0.25	0.042	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Bromoform	ND		0.25	0.23	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chloroform	ND		0.25	0.054	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Styrene	ND		0.25	0.052	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Toluene	ND		0.25	0.24	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/15/23 13:01	03/16/23 17:51	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-565503/1-A
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Butyl acrylate	ND		2.5	1.4	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methyl acrylate	ND		0.50	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
%Recovery	Qualifier								
Toluene-d8 (Surr)	113		56 - 125				03/15/23 13:01	03/16/23 17:51	1
Dibromofluoromethane (Surr)	91		41 - 138				03/15/23 13:01	03/16/23 17:51	1
4-Bromofluorobenzene (Surr)	116		41 - 143				03/15/23 13:01	03/16/23 17:51	1
1,2-Dichloroethane-d4 (Surr)	104		58 - 125				03/15/23 13:01	03/16/23 17:51	1

Lab Sample ID: MB 240-565503/1-A
Matrix: Solid
Analysis Batch: 565727

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Acetone	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Benzene	ND		0.25	0.042	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Bromoform	ND		0.25	0.23	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chloroform	ND		0.25	0.054	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/15/23 13:01	03/17/23 04:55	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-565503/1-A
Matrix: Solid
Analysis Batch: 565727

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565503

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Styrene	ND		0.25	0.052	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Toluene	ND		0.25	0.24	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Butyl acrylate	ND		2.5	1.4	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methyl acrylate	ND		0.50	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg		03/15/23 13:01	03/17/23 04:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	90		56 - 125	03/15/23 13:01	03/17/23 04:55	1
Dibromofluoromethane (Surr)	85		41 - 138	03/15/23 13:01	03/17/23 04:55	1
4-Bromofluorobenzene (Surr)	104		41 - 143	03/15/23 13:01	03/17/23 04:55	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125	03/15/23 13:01	03/17/23 04:55	1

Lab Sample ID: LCS 240-565503/2-A
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1,1-Trichloroethane	1.25	1.41		mg/Kg		113	74 - 136
1,1,1,2-Tetrachloroethane	1.25	1.33		mg/Kg		107	66 - 129
1,1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.30		mg/Kg		104	64 - 148
1,1,2-Trichloroethane	1.25	1.33		mg/Kg		106	79 - 120
1,1-Dichloroethane	1.25	1.27		mg/Kg		101	74 - 121
1,1-Dichloroethene	1.25	1.27		mg/Kg		101	68 - 141
1,2,4-Trichlorobenzene	1.25	1.31		mg/Kg		104	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	1.03		mg/Kg		83	52 - 133
Ethylene Dibromide	1.25	1.25		mg/Kg		100	80 - 121
1,2-Dichlorobenzene	1.25	1.37		mg/Kg		109	73 - 120
1,2-Dichloroethane	1.25	1.24		mg/Kg		99	71 - 123
1,2-Dichloropropane	1.25	1.20		mg/Kg		96	76 - 126
1,3-Dichlorobenzene	1.25	1.37		mg/Kg		109	73 - 120
1,4-Dichlorobenzene	1.25	1.40		mg/Kg		112	74 - 120
2-Butanone (MEK)	2.50	2.44		mg/Kg		97	63 - 142
2-Hexanone	2.50	2.54		mg/Kg		101	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.49		mg/Kg		99	62 - 142
Acetone	2.50	2.80		mg/Kg		112	58 - 160

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565503/2-A
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.25	1.32		mg/Kg		106	76 - 121
Dichlorobromomethane	1.25	1.14		mg/Kg		91	71 - 138
Bromoform	1.25	0.964		mg/Kg		77	57 - 140
Bromomethane	1.25	1.18		mg/Kg		94	10 - 171
Carbon disulfide	1.25	1.04		mg/Kg		83	43 - 152
Carbon tetrachloride	1.25	1.20		mg/Kg		96	64 - 144
Chlorobenzene	1.25	1.35		mg/Kg		108	80 - 120
Chloroethane	1.25	0.815		mg/Kg		65	11 - 164
Chloroform	1.25	1.31		mg/Kg		105	78 - 120
Chloromethane	1.25	1.26		mg/Kg		101	41 - 142
cis-1,2-Dichloroethene	1.25	1.28		mg/Kg		103	78 - 124
cis-1,3-Dichloropropene	1.25	1.17		mg/Kg		93	70 - 133
Cyclohexane	1.25	1.27		mg/Kg		101	65 - 137
Chlorodibromomethane	1.25	1.07		mg/Kg		85	68 - 131
Dichlorodifluoromethane	1.25	1.62		mg/Kg		129	21 - 150
Ethylbenzene	1.25	1.40		mg/Kg		112	80 - 120
Isopropylbenzene	1.25	1.46		mg/Kg		117	80 - 130
Methyl acetate	2.50	2.21		mg/Kg		89	60 - 133
Methyl tert-butyl ether	1.25	1.18		mg/Kg		95	70 - 130
Methylcyclohexane	1.25	1.37		mg/Kg		109	70 - 138
Methylene Chloride	1.25	1.37		mg/Kg		110	71 - 124
Styrene	1.25	1.39		mg/Kg		111	75 - 140
Tetrachloroethene	1.25	1.49		mg/Kg		119	76 - 127
Toluene	1.25	1.44		mg/Kg		115	80 - 120
trans-1,2-Dichloroethene	1.25	1.25		mg/Kg		100	76 - 130
trans-1,3-Dichloropropene	1.25	1.28		mg/Kg		102	61 - 121
Trichloroethene	1.25	1.29		mg/Kg		103	74 - 130
Trichlorofluoromethane	1.25	1.30		mg/Kg		104	50 - 154
Vinyl chloride	1.25	1.41		mg/Kg		113	49 - 146
Xylenes, Total	2.50	2.80		mg/Kg		112	80 - 122
m-Xylene & p-Xylene	1.25	1.42		mg/Kg		113	80 - 122
o-Xylene	1.25	1.38		mg/Kg		110	80 - 124
Butyl acrylate	5.00	4.79		mg/Kg		96	61 - 120
Methyl acrylate	5.00	4.86		mg/Kg		97	76 - 120
2-Ethylhexyl acrylate	5.00	4.43		mg/Kg		89	57 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	114		56 - 125
Dibromofluoromethane (Surr)	97		41 - 138
4-Bromofluorobenzene (Surr)	118		41 - 143
1,2-Dichloroethane-d4 (Surr)	98		58 - 125

Lab Sample ID: LCS 240-565503/2-A
Matrix: Solid
Analysis Batch: 565727

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	1.25	1.11		mg/Kg		89	74 - 136

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565503/2-A

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.30		mg/Kg		104	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.04		mg/Kg		83	64 - 148
1,1,2-Trichloroethane	1.25	1.21		mg/Kg		97	79 - 120
1,1-Dichloroethane	1.25	1.10		mg/Kg		88	74 - 121
1,1-Dichloroethene	1.25	1.07		mg/Kg		86	68 - 141
1,2,4-Trichlorobenzene	1.25	1.12		mg/Kg		89	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	1.09		mg/Kg		87	52 - 133
Ethylene Dibromide	1.25	1.20		mg/Kg		96	80 - 121
1,2-Dichlorobenzene	1.25	1.14		mg/Kg		91	73 - 120
1,2-Dichloroethane	1.25	1.24		mg/Kg		99	71 - 123
1,2-Dichloropropane	1.25	1.20		mg/Kg		96	76 - 126
1,3-Dichlorobenzene	1.25	1.12		mg/Kg		90	73 - 120
1,4-Dichlorobenzene	1.25	1.12		mg/Kg		90	74 - 120
2-Butanone (MEK)	2.50	2.62		mg/Kg		105	63 - 142
2-Hexanone	2.50	2.90		mg/Kg		116	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.66		mg/Kg		106	62 - 142
Acetone	2.50	3.42		mg/Kg		137	58 - 160
Benzene	1.25	1.15		mg/Kg		92	76 - 121
Dichlorobromomethane	1.25	1.14		mg/Kg		92	71 - 138
Bromoform	1.25	1.02		mg/Kg		81	57 - 140
Bromomethane	1.25	0.740		mg/Kg		59	10 - 171
Carbon disulfide	1.25	0.926		mg/Kg		74	43 - 152
Carbon tetrachloride	1.25	1.04		mg/Kg		83	64 - 144
Chlorobenzene	1.25	1.13		mg/Kg		90	80 - 120
Chloroethane	1.25	0.711		mg/Kg		57	11 - 164
Chloroform	1.25	1.15		mg/Kg		92	78 - 120
Chloromethane	1.25	1.06		mg/Kg		85	41 - 142
cis-1,2-Dichloroethene	1.25	1.12		mg/Kg		90	78 - 124
cis-1,3-Dichloropropene	1.25	1.16		mg/Kg		93	70 - 133
Cyclohexane	1.25	1.13		mg/Kg		90	65 - 137
Chlorodibromomethane	1.25	1.10		mg/Kg		88	68 - 131
Dichlorodifluoromethane	1.25	0.878		mg/Kg		70	21 - 150
Ethylbenzene	1.25	1.18		mg/Kg		94	80 - 120
Isopropylbenzene	1.25	1.22		mg/Kg		97	80 - 130
Methyl acetate	2.50	2.67		mg/Kg		107	60 - 133
Methyl tert-butyl ether	1.25	1.24		mg/Kg		99	70 - 130
Methylcyclohexane	1.25	1.10		mg/Kg		88	70 - 138
Methylene Chloride	1.25	1.14		mg/Kg		91	71 - 124
Styrene	1.25	1.19		mg/Kg		95	75 - 140
Tetrachloroethene	1.25	1.10		mg/Kg		88	76 - 127
Toluene	1.25	1.12		mg/Kg		90	80 - 120
trans-1,2-Dichloroethene	1.25	1.08		mg/Kg		87	76 - 130
trans-1,3-Dichloropropene	1.25	1.12		mg/Kg		89	61 - 121
Trichloroethene	1.25	1.08		mg/Kg		86	74 - 130
Trichlorofluoromethane	1.25	0.976		mg/Kg		78	50 - 154
Vinyl chloride	1.25	1.04		mg/Kg		83	49 - 146
Xylenes, Total	2.50	2.40		mg/Kg		96	80 - 122
m-Xylene & p-Xylene	1.25	1.20		mg/Kg		96	80 - 122

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565503/2-A
Matrix: Solid
Analysis Batch: 565727

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	1.25	1.20		mg/Kg		96	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	92		56 - 125
Dibromofluoromethane (Surr)	86		41 - 138
4-Bromofluorobenzene (Surr)	101		41 - 143
1,2-Dichloroethane-d4 (Surr)	84		58 - 125

Lab Sample ID: 240-181894-15 MS
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: WC-S. TRK-WEST-14 (14-16)
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Butyl acrylate	340		686	1140		mg/Kg	✖	116	10 - 150
Methyl acrylate	ND		686	782		mg/Kg	✖	114	10 - 150
2-Ethylhexyl acrylate	720		686	1470		mg/Kg	✖	109	10 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	108		56 - 125
Dibromofluoromethane (Surr)	96		41 - 138
4-Bromofluorobenzene (Surr)	112		41 - 143
1,2-Dichloroethane-d4 (Surr)	98		58 - 125

Lab Sample ID: 240-181894-15 MS
Matrix: Solid
Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		1.71	1.67		mg/Kg	✖	97	46 - 144
1,1,1,2-Tetrachloroethane	ND		1.71	1.48		mg/Kg	✖	86	26 - 159
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.71	1.62		mg/Kg	✖	94	35 - 164
1,1,2-Trichloroethane	ND		1.71	1.68		mg/Kg	✖	98	26 - 149
1,1-Dichloroethane	ND		1.71	1.66		mg/Kg	✖	97	46 - 135
1,1-Dichloroethene	ND		1.71	1.72		mg/Kg	✖	100	44 - 160
1,2,4-Trichlorobenzene	ND		1.71	1.57		mg/Kg	✖	92	10 - 120
1,2-Dibromo-3-Chloropropane	ND		1.71	1.64		mg/Kg	✖	96	12 - 144
Ethylene Dibromide	ND		1.71	1.79		mg/Kg	✖	104	31 - 142
1,2-Dichlorobenzene	ND		1.71	1.66		mg/Kg	✖	97	10 - 126
1,2-Dichloroethane	ND		1.71	1.66		mg/Kg	✖	97	40 - 132
1,2-Dichloropropane	ND		1.71	1.71		mg/Kg	✖	100	45 - 133
1,3-Dichlorobenzene	ND		1.71	1.56		mg/Kg	✖	91	10 - 131
1,4-Dichlorobenzene	ND		1.71	1.56		mg/Kg	✖	91	10 - 129
2-Butanone (MEK)	ND		3.43	3.32		mg/Kg	✖	97	30 - 157
2-Hexanone	ND		3.43	4.92		mg/Kg	✖	143	20 - 166
4-Methyl-2-pentanone (MIBK)	ND		3.43	4.48		mg/Kg	✖	131	31 - 159
Acetone	0.35	J	3.43	3.95		mg/Kg	✖	105	35 - 167
Benzene	0.068	J	1.71	1.78		mg/Kg	✖	100	39 - 134

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-15 MS

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Dichlorobromomethane	ND		1.71	1.49		mg/Kg	⊛	87		32 - 146
Bromoform	ND		1.71	1.41		mg/Kg	⊛	82		12 - 144
Bromomethane	ND		1.71	1.39		mg/Kg	⊛	81		10 - 161
Carbon disulfide	ND		1.71	1.42		mg/Kg	⊛	83		24 - 153
Carbon tetrachloride	ND		1.71	1.56		mg/Kg	⊛	91		37 - 145
Chlorobenzene	ND		1.71	1.65		mg/Kg	⊛	96		18 - 134
Chloroethane	ND		1.71	1.31		mg/Kg	⊛	76		14 - 159
Chloroform	ND		1.71	1.65		mg/Kg	⊛	96		43 - 134
Chloromethane	ND		1.71	1.63		mg/Kg	⊛	95		32 - 151
cis-1,2-Dichloroethene	ND		1.71	1.68		mg/Kg	⊛	98		48 - 132
cis-1,3-Dichloropropene	ND		1.71	1.56		mg/Kg	⊛	91		23 - 139
Cyclohexane	ND		1.71	1.89		mg/Kg	⊛	110		31 - 147
Chlorodibromomethane	ND		1.71	1.48		mg/Kg	⊛	86		25 - 143
Dichlorodifluoromethane	ND		1.71	1.34		mg/Kg	⊛	78		16 - 157
Ethylbenzene	ND		1.71	1.78		mg/Kg	⊛	104		17 - 137
Isopropylbenzene	0.059	J	1.71	1.84		mg/Kg	⊛	104		10 - 146
Methyl acetate	ND		3.43	4.06		mg/Kg	⊛	118		13 - 164
Methyl tert-butyl ether	ND		1.71	1.84		mg/Kg	⊛	107		55 - 134
Methylcyclohexane	0.71		1.71	2.40		mg/Kg	⊛	98		20 - 153
Methylene Chloride	ND		1.71	1.56		mg/Kg	⊛	91		38 - 145
Styrene	ND		1.71	1.82		mg/Kg	⊛	106		10 - 149
Tetrachloroethene	ND		1.71	1.76		mg/Kg	⊛	102		19 - 147
Toluene	ND		1.71	1.94		mg/Kg	⊛	113		30 - 137
trans-1,2-Dichloroethene	ND		1.71	1.71		mg/Kg	⊛	100		41 - 145
trans-1,3-Dichloropropene	ND		1.71	1.62		mg/Kg	⊛	95		19 - 130
Trichloroethene	ND		1.71	1.81		mg/Kg	⊛	105		21 - 158
Trichlorofluoromethane	ND		1.71	1.50		mg/Kg	⊛	88		36 - 161
Vinyl chloride	0.25	J	1.71	1.80		mg/Kg	⊛	90		32 - 163
Xylenes, Total	0.55	J	3.43	4.04		mg/Kg	⊛	102		17 - 138
m-Xylene & p-Xylene	0.28	J	1.71	2.11		mg/Kg	⊛	107		10 - 141
o-Xylene	0.27	J	1.71	1.93		mg/Kg	⊛	97		18 - 139

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	103		56 - 125
Dibromofluoromethane (Surr)	87		41 - 138
4-Bromofluorobenzene (Surr)	89		41 - 143
1,2-Dichloroethane-d4 (Surr)	81		58 - 125

Lab Sample ID: 240-181894-15 MSD

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Butyl acrylate	340		686	1100		mg/Kg	⊛	111		10 - 150	3	30
Methyl acrylate	ND		686	753		mg/Kg	⊛	110		10 - 150	4	30
2-Ethylhexyl acrylate	720		686	1440		mg/Kg	⊛	105		10 - 150	2	30

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-15 MSD
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: WC-S. TRK-WEST-14 (14-16)
Prep Type: Total/NA
Prep Batch: 565503

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	112		56 - 125
Dibromofluoromethane (Surr)	99		41 - 138
4-Bromofluorobenzene (Surr)	115		41 - 143
1,2-Dichloroethane-d4 (Surr)	101		58 - 125

Lab Sample ID: 240-181894-15 MSD
Matrix: Solid
Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)
Prep Type: Total/NA
Prep Batch: 565503

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
1,1,1-Trichloroethane	ND		1.71	1.67		mg/Kg	☼	97	46 - 144	0	37	
1,1,2,2-Tetrachloroethane	ND		1.71	1.64		mg/Kg	☼	96	26 - 159	10	40	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.71	1.58		mg/Kg	☼	92	35 - 164	2	37	
1,1,2-Trichloroethane	ND		1.71	1.69		mg/Kg	☼	99	26 - 149	0	40	
1,1-Dichloroethane	ND		1.71	1.51		mg/Kg	☼	88	46 - 135	9	36	
1,1-Dichloroethene	ND		1.71	1.60		mg/Kg	☼	93	44 - 160	7	37	
1,2,4-Trichlorobenzene	ND		1.71	1.55		mg/Kg	☼	91	10 - 120	1	40	
1,2-Dibromo-3-Chloropropane	ND		1.71	1.79		mg/Kg	☼	104	12 - 144	9	40	
Ethylene Dibromide	ND		1.71	1.73		mg/Kg	☼	101	31 - 142	3	40	
1,2-Dichlorobenzene	ND		1.71	1.62		mg/Kg	☼	94	10 - 126	2	40	
1,2-Dichloroethane	ND		1.71	1.61		mg/Kg	☼	94	40 - 132	3	35	
1,2-Dichloropropane	ND		1.71	1.64		mg/Kg	☼	96	45 - 133	4	37	
1,3-Dichlorobenzene	ND		1.71	1.51		mg/Kg	☼	88	10 - 131	3	40	
1,4-Dichlorobenzene	ND		1.71	1.52		mg/Kg	☼	88	10 - 129	3	40	
2-Butanone (MEK)	ND		3.43	3.75		mg/Kg	☼	109	30 - 157	12	40	
2-Hexanone	ND		3.43	4.89		mg/Kg	☼	143	20 - 166	1	40	
4-Methyl-2-pentanone (MIBK)	ND		3.43	4.26		mg/Kg	☼	124	31 - 159	5	40	
Acetone	0.35	J	3.43	4.54		mg/Kg	☼	122	35 - 167	14	40	
Benzene	0.068	J	1.71	1.72		mg/Kg	☼	97	39 - 134	3	40	
Dichlorobromomethane	ND		1.71	1.43		mg/Kg	☼	83	32 - 146	4	39	
Bromoform	ND		1.71	1.43		mg/Kg	☼	84	12 - 144	2	40	
Bromomethane	ND		1.71	1.28		mg/Kg	☼	75	10 - 161	8	40	
Carbon disulfide	ND		1.71	1.34		mg/Kg	☼	78	24 - 153	6	40	
Carbon tetrachloride	ND		1.71	1.54		mg/Kg	☼	90	37 - 145	1	38	
Chlorobenzene	ND		1.71	1.60		mg/Kg	☼	93	18 - 134	3	40	
Chloroethane	ND		1.71	1.29		mg/Kg	☼	75	14 - 159	1	40	
Chloroform	ND		1.71	1.60		mg/Kg	☼	94	43 - 134	3	36	
Chloromethane	ND		1.71	1.68		mg/Kg	☼	98	32 - 151	3	38	
cis-1,2-Dichloroethene	ND		1.71	1.63		mg/Kg	☼	95	48 - 132	3	37	
cis-1,3-Dichloropropene	ND		1.71	1.54		mg/Kg	☼	90	23 - 139	1	39	
Cyclohexane	ND		1.71	1.87		mg/Kg	☼	109	31 - 147	1	39	
Chlorodibromomethane	ND		1.71	1.40		mg/Kg	☼	81	25 - 143	6	40	
Dichlorodifluoromethane	ND		1.71	1.39		mg/Kg	☼	81	16 - 157	4	40	
Ethylbenzene	ND		1.71	1.76		mg/Kg	☼	103	17 - 137	1	40	
Isopropylbenzene	0.059	J	1.71	1.86		mg/Kg	☼	105	10 - 146	1	40	
Methyl acetate	ND		3.43	3.76		mg/Kg	☼	110	13 - 164	8	40	
Methyl tert-butyl ether	ND		1.71	1.66		mg/Kg	☼	97	55 - 134	10	37	
Methylcyclohexane	0.71		1.71	2.43		mg/Kg	☼	100	20 - 153	1	40	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-15 MSD

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 565727

Prep Batch: 565503

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD		
Methylene Chloride	ND		1.71	1.40		mg/Kg	☼	82	38 - 145	11	40	
Styrene	ND		1.71	1.79		mg/Kg	☼	105	10 - 149	1	40	
Tetrachloroethene	ND		1.71	1.74		mg/Kg	☼	102	19 - 147	1	40	
Toluene	ND		1.71	1.87		mg/Kg	☼	109	30 - 137	3	40	
trans-1,2-Dichloroethene	ND		1.71	1.55		mg/Kg	☼	91	41 - 145	10	37	
trans-1,3-Dichloropropene	ND		1.71	1.55		mg/Kg	☼	90	19 - 130	5	40	
Trichloroethene	ND		1.71	1.67		mg/Kg	☼	98	21 - 158	8	40	
Trichlorofluoromethane	ND		1.71	1.55		mg/Kg	☼	90	36 - 161	3	40	
Vinyl chloride	0.25	J	1.71	1.85		mg/Kg	☼	93	32 - 163	3	38	
Xylenes, Total	0.55	J	3.43	3.84		mg/Kg	☼	96	17 - 138	5	40	
m-Xylene & p-Xylene	0.28	J	1.71	1.98		mg/Kg	☼	99	10 - 141	6	40	
o-Xylene	0.27	J	1.71	1.86		mg/Kg	☼	93	18 - 139	4	40	
Surrogate	MSD	MSD	Limits									
	%Recovery	Qualifier		Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Toluene-d8 (Surr)	95		56 - 125									
Dibromofluoromethane (Surr)	82		41 - 138									
4-Bromofluorobenzene (Surr)	86		41 - 143									
1,2-Dichloroethane-d4 (Surr)	77		58 - 125									

Lab Sample ID: LCS 240-565827/10

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 565827

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
1,1-Dichloroethene	1.00	1.07		mg/L		107	74 - 127	
1,2-Dichloroethane	1.00	1.01		mg/L		101	72 - 120	
2-Butanone (MEK)	2.00	2.38		mg/L		119	68 - 130	
Benzene	1.00	1.05		mg/L		105	80 - 121	
Carbon tetrachloride	1.00	0.955		mg/L		95	69 - 120	
Chlorobenzene	1.00	1.04		mg/L		104	80 - 120	
Chloroform	1.00	1.02		mg/L		102	75 - 120	
Tetrachloroethene	1.00	1.05		mg/L		105	74 - 120	
Trichloroethene	1.00	0.974		mg/L		97	75 - 120	
Vinyl chloride	1.00	0.725		mg/L		72	53 - 147	
Surrogate	LCS	LCS	Limits					
	%Recovery	Qualifier		Result	Qualifier	Unit	D	%Rec
Toluene-d8 (Surr)	104		80 - 120					
Dibromofluoromethane (Surr)	105		71 - 121					
4-Bromofluorobenzene (Surr)	101		80 - 120					
1,2-Dichloroethane-d4 (Surr)	104		76 - 120					

Lab Sample ID: LB 240-565528/1-A MB

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: TCLP

Analysis Batch: 565827

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/17/23 14:45	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/17/23 14:45	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 240-565528/1-A MB
Matrix: Solid
Analysis Batch: 565827

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	0.0187	J	0.25	0.0012	mg/L			03/17/23 14:45	1
Benzene	ND		0.025	0.00042	mg/L			03/17/23 14:45	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/17/23 14:45	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/17/23 14:45	1
Chloroform	ND		0.025	0.00047	mg/L			03/17/23 14:45	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/17/23 14:45	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/17/23 14:45	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/17/23 14:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		80 - 120		03/17/23 14:45	1
Dibromofluoromethane (Surr)	94		71 - 121		03/17/23 14:45	1
4-Bromofluorobenzene (Surr)	88		80 - 120		03/17/23 14:45	1
1,2-Dichloroethane-d4 (Surr)	97		76 - 120		03/17/23 14:45	1

Lab Sample ID: 240-181894-16 MS
Matrix: Solid
Analysis Batch: 565827

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	ND		1.00	0.981		mg/L		98	72 - 127
1,2-Dichloroethane	ND		1.00	0.896		mg/L		90	70 - 120
2-Butanone (MEK)	0.027	J B	2.00	2.24		mg/L		111	76 - 127
Benzene	ND		1.00	0.994		mg/L		99	80 - 124
Carbon tetrachloride	ND		1.00	0.848		mg/L		85	63 - 120
Chlorobenzene	ND		1.00	0.958		mg/L		96	80 - 120
Chloroform	ND		1.00	0.947		mg/L		95	75 - 121
Tetrachloroethene	ND		1.00	0.980		mg/L		98	68 - 120
Trichloroethene	ND		1.00	1.01		mg/L		101	70 - 120
Vinyl chloride	0.0075	J F2	1.00	0.835		mg/L		83	55 - 144

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	99		71 - 121
4-Bromofluorobenzene (Surr)	100		80 - 120
1,2-Dichloroethane-d4 (Surr)	96		76 - 120

Lab Sample ID: 240-181894-16 MSD
Matrix: Solid
Analysis Batch: 565827

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		1.00	1.02		mg/L		102	72 - 127	4	11
1,2-Dichloroethane	ND		1.00	0.983		mg/L		98	70 - 120	9	10
2-Butanone (MEK)	0.027	J B	2.00	2.43		mg/L		120	76 - 127	8	17
Benzene	ND		1.00	1.03		mg/L		103	80 - 124	4	10
Carbon tetrachloride	ND		1.00	0.914		mg/L		91	63 - 120	7	11
Chlorobenzene	ND		1.00	0.999		mg/L		100	80 - 120	4	10

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-16 MSD

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Matrix: Solid

Prep Type: TCLP

Analysis Batch: 565827

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloroform	ND		1.00	1.00		mg/L		100	75 - 121	5	10
Tetrachloroethene	ND		1.00	1.01		mg/L		101	68 - 120	3	10
Trichloroethene	ND		1.00	0.956		mg/L		96	70 - 120	6	10
Vinyl chloride	0.0075	J F2	1.00	0.697	F2	mg/L		69	55 - 144	18	11

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	96		71 - 121
4-Bromofluorobenzene (Surr)	96		80 - 120
1,2-Dichloroethane-d4 (Surr)	97		76 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-565464/1-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 565783

Prep Batch: 565464

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Atrazine	ND		0.20	0.036	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/15/23 09:31	03/17/23 12:41	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-565464/1-A
Matrix: Solid
Analysis Batch: 565783

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565464

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Carbazole	ND		0.050	0.019	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Isophorone	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Phenol	ND		0.050	0.0080	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Butoxyethanol	ND		0.070	0.066	mg/Kg		03/15/23 09:31	03/17/23 12:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137	03/15/23 09:31	03/17/23 12:41	1
Phenol-d5 (Surr)	67		26 - 120	03/15/23 09:31	03/17/23 12:41	1
Nitrobenzene-d5 (Surr)	76		25 - 120	03/15/23 09:31	03/17/23 12:41	1
2-Fluorophenol (Surr)	54		20 - 120	03/15/23 09:31	03/17/23 12:41	1
2-Fluorobiphenyl (Surr)	83		34 - 120	03/15/23 09:31	03/17/23 12:41	1
2,4,6-Tribromophenol (Surr)	34		10 - 120	03/15/23 09:31	03/17/23 12:41	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-565464/2-A
Matrix: Solid
Analysis Batch: 566020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565464

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.469		mg/Kg		70	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.452		mg/Kg		68	38 - 120
2,4,5-Trichlorophenol	0.667	0.457		mg/Kg		69	50 - 120
2,4,6-Trichlorophenol	0.667	0.473		mg/Kg		71	50 - 120
2,4-Dichlorophenol	0.667	0.480		mg/Kg		72	50 - 120
2,4-Dimethylphenol	0.667	0.426		mg/Kg		64	24 - 120
2,4-Dinitrophenol	1.33	0.840		mg/Kg		63	19 - 132
2,4-Dinitrotoluene	0.667	0.551		mg/Kg		83	64 - 120
2,6-Dinitrotoluene	0.667	0.525		mg/Kg		79	62 - 120
2-Chloronaphthalene	0.667	0.496		mg/Kg		74	51 - 120
2-Chlorophenol	0.667	0.445		mg/Kg		67	47 - 120
2-Methylnaphthalene	0.667	0.457		mg/Kg		69	38 - 120
2-Methylphenol	0.667	0.470		mg/Kg		70	45 - 120
2-Nitroaniline	0.667	0.574		mg/Kg		86	57 - 120
2-Nitrophenol	0.667	0.476		mg/Kg		71	51 - 120
3,3'-Dichlorobenzidine	1.33	0.873		mg/Kg		65	27 - 199
3-Nitroaniline	0.667	0.478		mg/Kg		72	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.03		mg/Kg		77	46 - 126
4-Bromophenyl phenyl ether	0.667	0.528		mg/Kg		79	65 - 120
4-Chloro-3-methylphenol	0.667	0.513		mg/Kg		77	51 - 120
4-Chloroaniline	0.667	0.370		mg/Kg		55	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.506		mg/Kg		76	59 - 120
4-Nitroaniline	0.667	0.516		mg/Kg		77	48 - 128
4-Nitrophenol	1.33	1.15		mg/Kg		86	43 - 120
Acenaphthene	0.667	0.520		mg/Kg		78	52 - 120
Acenaphthylene	0.667	0.479		mg/Kg		72	52 - 120
Acetophenone	0.667	0.461		mg/Kg		69	47 - 120
Anthracene	0.667	0.537		mg/Kg		81	64 - 120
Atrazine	1.33	1.25		mg/Kg		93	71 - 125
Benzaldehyde	1.33	0.941		mg/Kg		71	42 - 120
Benzo[a]anthracene	0.667	0.564		mg/Kg		85	70 - 120
Benzo[a]pyrene	0.667	0.506		mg/Kg		76	63 - 125
Benzo[b]fluoranthene	0.667	0.546		mg/Kg		82	64 - 121
Benzo[g,h,i]perylene	0.667	0.496		mg/Kg		74	62 - 120
Benzo[k]fluoranthene	0.667	0.528		mg/Kg		79	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.475		mg/Kg		71	50 - 120
Bis(2-chloroethyl)ether	0.667	0.465		mg/Kg		70	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.603		mg/Kg		90	63 - 133
Butyl benzyl phthalate	0.667	0.604		mg/Kg		91	66 - 127
Caprolactam	1.33	1.11		mg/Kg		83	67 - 120
Carbazole	0.667	0.563		mg/Kg		84	61 - 129
Chrysene	0.667	0.549		mg/Kg		82	67 - 120
Dibenz(a,h)anthracene	0.667	0.495		mg/Kg		74	62 - 120
Dibenzofuran	0.667	0.505		mg/Kg		76	55 - 120
Diethyl phthalate	0.667	0.549		mg/Kg		82	61 - 120
Dimethyl phthalate	0.667	0.562		mg/Kg		84	64 - 120
Di-n-butyl phthalate	0.667	0.587		mg/Kg		88	70 - 129
Di-n-octyl phthalate	0.667	0.588		mg/Kg		88	64 - 129

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-565464/2-A
Matrix: Solid
Analysis Batch: 566020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565464

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoranthene	0.667	0.561		mg/Kg		84	71 - 124
Fluorene	0.667	0.522		mg/Kg		78	58 - 120
Hexachlorobenzene	0.667	0.498		mg/Kg		75	59 - 120
Hexachlorobutadiene	0.667	0.462		mg/Kg		69	45 - 120
Hexachlorocyclopentadiene	0.667	0.197	J	mg/Kg		30	10 - 120
Hexachloroethane	0.667	0.399		mg/Kg		60	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.515		mg/Kg		77	65 - 122
Isophorone	0.667	0.476		mg/Kg		71	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.465		mg/Kg		70	48 - 120
N-Nitrosodiphenylamine	0.667	0.526		mg/Kg		79	64 - 120
Naphthalene	0.667	0.463		mg/Kg		69	34 - 120
Nitrobenzene	0.667	0.479		mg/Kg		72	48 - 120
Pentachlorophenol	1.33	0.634		mg/Kg		48	10 - 120
Phenanthrene	0.667	0.530		mg/Kg		79	60 - 120
Phenol	0.667	0.485		mg/Kg		73	48 - 120
Pyrene	0.667	0.568		mg/Kg		85	67 - 120
3 & 4 Methylphenol	0.667	0.466		mg/Kg		70	49 - 120
2-Butoxyethanol	0.667	0.419		mg/Kg		63	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	96		46 - 137
Phenol-d5 (Surr)	76		26 - 120
Nitrobenzene-d5 (Surr)	74		25 - 120
2-Fluorophenol (Surr)	69		20 - 120
2-Fluorobiphenyl (Surr)	78		34 - 120
2,4,6-Tribromophenol (Surr)	65		10 - 120

Lab Sample ID: MB 240-565653/8-A
Matrix: Solid
Analysis Batch: 565910

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565653

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/16/23 11:22	03/18/23 14:10	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/16/23 11:22	03/18/23 14:10	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/16/23 11:22	03/18/23 14:10	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/16/23 11:22	03/18/23 14:10	1
Pyridine	ND		0.0040	0.00036	mg/L		03/16/23 11:22	03/18/23 14:10	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/16/23 11:22	03/18/23 14:10	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/16/23 11:22	03/18/23 14:10	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/16/23 11:22	03/18/23 14:10	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/16/23 11:22	03/18/23 14:10	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/16/23 11:22	03/18/23 14:10	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/16/23 11:22	03/18/23 14:10	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/16/23 11:22	03/18/23 14:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	117		46 - 137	03/16/23 11:22	03/18/23 14:10	1
Phenol-d5 (Surr)	61		26 - 120	03/16/23 11:22	03/18/23 14:10	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-565653/8-A
Matrix: Solid
Analysis Batch: 565910

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565653

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Nitrobenzene-d5 (Surr)	67		24 - 120	03/16/23 11:22	03/18/23 14:10	1
2-Fluorophenol (Surr)	70		19 - 120	03/16/23 11:22	03/18/23 14:10	1
2-Fluorobiphenyl (Surr)	92		33 - 120	03/16/23 11:22	03/18/23 14:10	1
2,4,6-Tribromophenol (Surr)	73		10 - 120	03/16/23 11:22	03/18/23 14:10	1

Lab Sample ID: LCS 240-565653/9-A
Matrix: Solid
Analysis Batch: 565910

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565653

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
1,4-Dichlorobenzene	0.0800	0.0555		mg/L		69	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0711		mg/L		89	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0687		mg/L		86	51 - 120
2,4-Dinitrotoluene	0.0800	0.0631		mg/L		79	58 - 125
Pyridine	0.160	0.0442		mg/L		28	10 - 120
2-Methylphenol	0.0800	0.0545		mg/L		68	45 - 120
Hexachlorobenzene	0.0800	0.0724		mg/L		91	55 - 120
Hexachlorobutadiene	0.0800	0.0606		mg/L		76	41 - 120
Hexachloroethane	0.0800	0.0511		mg/L		64	39 - 120
Nitrobenzene	0.0800	0.0549		mg/L		69	47 - 120
Pentachlorophenol	0.160	0.0993		mg/L		62	19 - 132
3 & 4 Methylphenol	0.0800	0.0567		mg/L		71	40 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	106		46 - 137
Phenol-d5 (Surr)	63		26 - 120
Nitrobenzene-d5 (Surr)	69		24 - 120
2-Fluorophenol (Surr)	70		19 - 120
2-Fluorobiphenyl (Surr)	91		33 - 120
2,4,6-Tribromophenol (Surr)	93		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-565654/6-A
Matrix: Solid
Analysis Batch: 565762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565654

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/16/23 11:26	03/17/23 11:11	1
Endrin	ND		0.00050	0.0000065	mg/L		03/16/23 11:26	03/17/23 11:11	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/16/23 11:26	03/17/23 11:11	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/16/23 11:26	03/17/23 11:11	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/16/23 11:26	03/17/23 11:11	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/16/23 11:26	03/17/23 11:11	1
Toxaphene	ND		0.020	0.000058	mg/L		03/16/23 11:26	03/17/23 11:11	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	72		10 - 145	03/16/23 11:26	03/17/23 11:11	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 240-565654/6-A
Matrix: Solid
Analysis Batch: 565762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565654

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	73		10 - 145	03/16/23 11:26	03/17/23 11:11	1
Tetrachloro-m-xylene	52		10 - 123	03/16/23 11:26	03/17/23 11:11	1
Tetrachloro-m-xylene	59		10 - 123	03/16/23 11:26	03/17/23 11:11	1

Lab Sample ID: LCS 240-565654/7-A
Matrix: Solid
Analysis Batch: 565762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565654

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Endrin	0.00100	0.000863		mg/L		86	36 - 120
Heptachlor	0.00100	0.000788		mg/L		79	29 - 120
Heptachlor epoxide	0.00100	0.000806		mg/L		81	36 - 120
gamma-BHC (Lindane)	0.00100	0.000792		mg/L		79	23 - 120
Methoxychlor	0.00100	0.00106		mg/L		106	23 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	74		10 - 145
DCB Decachlorobiphenyl	73		10 - 145
Tetrachloro-m-xylene	61		10 - 123
Tetrachloro-m-xylene	69		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-565605/1-A
Matrix: Solid
Analysis Batch: 565569

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565605

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1221	ND		50	30	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1232	ND		50	21	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1242	ND		50	19	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1248	ND		50	17	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1254	ND		50	21	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1260	ND		50	21	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1262	ND		50	22	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1268	ND		50	16	ug/Kg		03/16/23 08:44	03/16/23 17:38	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	92		10 - 149	03/16/23 08:44	03/16/23 17:38	1
DCB Decachlorobiphenyl	76		10 - 174	03/16/23 08:44	03/16/23 17:38	1

Lab Sample ID: LCS 240-565605/2-A
Matrix: Solid
Analysis Batch: 565569

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565605

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Aroclor-1016	1000	908		ug/Kg		91	28 - 140

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-565605/2-A
Matrix: Solid
Analysis Batch: 565569

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565605

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1260	1000	906		ug/Kg		91	39 - 153

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	112		10 - 149
DCB Decachlorobiphenyl	97		10 - 174

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-355463/1-A
Matrix: Solid
Analysis Batch: 355545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 355463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 04:30	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 04:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	58		26 - 136	03/20/23 19:00	03/21/23 04:30	1
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	03/20/23 19:00	03/21/23 04:30	1

Lab Sample ID: MB 410-355463/2-A
Matrix: Solid
Analysis Batch: 355545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 355463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 04:58	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 04:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	03/20/23 19:00	03/21/23 04:58	1
2,4-Dichlorophenylacetic acid (Surr)	68		26 - 136	03/20/23 19:00	03/21/23 04:58	1

Lab Sample ID: MB 410-355463/3-A
Matrix: Solid
Analysis Batch: 355545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 355463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 05:26	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 05:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	03/20/23 19:00	03/21/23 05:26	1
2,4-Dichlorophenylacetic acid (Surr)	67		26 - 136	03/20/23 19:00	03/21/23 05:26	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 410-355463/4-A
Matrix: Solid
Analysis Batch: 355545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 355463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Silvex (2,4,5-TP)	0.00500	0.00358	J	mg/L		72	58 - 148
2,4-D	0.0502	0.0373	J	mg/L		74	42 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136
2,4-Dichlorophenylacetic acid (Surr)	66		26 - 136

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-354736/1-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354736

Analyte	MB Result	MB Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	0.109	J I	5.0	0.011	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,6,7,8-HpCDF	0.0245	J I	5.0	0.0017	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,7,8-HxCDD	0.0330	J	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,7,8-HxCDF	ND		5.0	0.0031	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,7,8,9-HpCDF	0.0247	J I	5.0	0.0024	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,6,7,8-HxCDD	0.0232	J I	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,6,7,8-HxCDF	0.0121	J I	5.0	0.0031	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8-PeCDD	0.0346	J I	5.0	0.0034	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8-PeCDF	0.0550	J I	5.0	0.0075	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8,9-HxCDD	0.0272	J I	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8,9-HxCDF	0.0470	J I	5.0	0.0034	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,4,6,7,8-HxCDF	0.0531	J I	5.0	0.0030	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,4,7,8-PeCDF	0.0437	J I	5.0	0.0055	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,7,8-TCDD	ND		1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,7,8-TCDF	0.00755	J	1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
OCDD	0.270	J	10	0.0091	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
OCDF	0.0892	J	10	0.0024	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HxCDD	0.218	J I	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HxCDF	0.135	J I	5.0	0.0031	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HpCDD	0.109	J I	5.0	0.011	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HpCDF	0.0493	J I	5.0	0.0020	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total PeCDD	0.0997	J I	5.0	0.0034	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total PeCDF	0.115	J I	5.0	0.0065	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total TCDD	0.0236	J	1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total TCDF	0.0277	J I	1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	98		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-OCDD	99		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,7,8-TCDF	86		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,7,8-TCDD	86		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,4,7,8-PeCDF	93		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,4,6,7,8-HxCDF	94		40 - 135	03/17/23 11:07	03/21/23 02:11	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 410-354736/1-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354736

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8,9-HxCDF	97		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8,9-HxCDD	94		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8-PeCDF	89		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8-PeCDD	85		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,6,7,8-HxCDF	100		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,6,7,8-HxCDD	93		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,7,8,9-HpCDF	94		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,7,8-HxCDF	93		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,7,8-HxCDD	92		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,6,7,8-HpCDF	96		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,6,7,8-HpCDD	96		40 - 135	03/17/23 11:07	03/21/23 02:11	1

Lab Sample ID: LCS 410-354736/2-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 354736

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
1,2,3,4,6,7,8-HpCDD	100	91.7		ng/Kg		92	77 - 127
1,2,3,4,6,7,8-HpCDF	100	89.4		ng/Kg		89	77 - 127
1,2,3,4,7,8-HxCDD	100	97.2		ng/Kg		97	77 - 127
1,2,3,4,7,8-HxCDF	100	95.3		ng/Kg		95	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.7		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	97.3		ng/Kg		97	76 - 127
1,2,3,6,7,8-HxCDF	100	93.1		ng/Kg		93	77 - 129
1,2,3,7,8-PeCDD	100	102		ng/Kg		102	77 - 127
1,2,3,7,8-PeCDF	100	97.8		ng/Kg		98	75 - 129
1,2,3,7,8,9-HxCDD	100	99.3		ng/Kg		99	76 - 127
1,2,3,7,8,9-HxCDF	100	94.2		ng/Kg		94	76 - 126
2,3,4,6,7,8-HxCDF	100	93.0		ng/Kg		93	78 - 128
2,3,4,7,8-PeCDF	100	98.4		ng/Kg		98	75 - 131
2,3,7,8-TCDD	20.0	18.4		ng/Kg		92	68 - 142
2,3,7,8-TCDF	20.0	19.3		ng/Kg		96	70 - 133
OCDD	200	189		ng/Kg		95	77 - 125
OCDF	200	188		ng/Kg		94	75 - 128

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-OCDF	85		40 - 135
13C-OCDD	87		40 - 135
13C-2,3,7,8-TCDF	79		40 - 135
13C-2,3,7,8-TCDD	78		40 - 135
13C-2,3,4,7,8-PeCDF	85		40 - 135
13C-2,3,4,6,7,8-HxCDF	84		40 - 135
13C-1,2,3,7,8,9-HxCDF	83		40 - 135
13C-1,2,3,7,8,9-HxCDD	84		40 - 135
13C-1,2,3,7,8-PeCDF	81		40 - 135
13C-1,2,3,7,8-PeCDD	78		40 - 135
13C-1,2,3,6,7,8-HxCDF	88		40 - 135
13C-1,2,3,6,7,8-HxCDD	82		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	82		40 - 135

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-354736/2-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 354736

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-1,2,3,4,7,8-HxCDF	85		40 - 135
13C-1,2,3,4,7,8-HxCDD	81		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	85		40 - 135

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-565630/2-A
Matrix: Solid
Analysis Batch: 565882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565630

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:01	1
Barium	ND		0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:01	1
Cadmium	ND		0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:01	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:01	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:01	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:01	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:01	1

Lab Sample ID: LCS 240-565630/3-A
Matrix: Solid
Analysis Batch: 565882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565630

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.09		mg/L		105	50 - 150
Barium	2.00	1.93		mg/L		97	50 - 150
Cadmium	1.00	1.03		mg/L		103	50 - 150
Chromium	1.00	0.950		mg/L		95	50 - 150
Lead	1.00	0.951		mg/L		95	50 - 150
Selenium	2.00	2.10		mg/L		105	50 - 150
Silver	0.100	0.101		mg/L		101	50 - 150

Lab Sample ID: LB 240-565526/1-B
Matrix: Solid
Analysis Batch: 565882

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565630

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00596	J	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 18:57	1
Barium	0.00179	J	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 18:57	1
Cadmium	ND		0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 18:57	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 18:57	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 18:57	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 18:57	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 18:57	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-181894-1 MS
Matrix: Solid
Analysis Batch: 565882

Client Sample ID: WC-S. TRK-WEST-01 (2-4)
Prep Type: TCLP
Prep Batch: 565630

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Arsenic	0.010	J B	5.00	5.09		mg/L		102		75 - 125
Barium	0.47	J B	50.0	48.2		mg/L		95		75 - 125
Cadmium	0.0012	J	1.00	1.00		mg/L		100		75 - 125
Chromium	ND		5.00	4.78		mg/L		96		75 - 125
Lead	ND		5.00	4.84		mg/L		97		75 - 125
Selenium	ND		1.00	1.02		mg/L		102		75 - 125
Silver	ND		1.00	0.977		mg/L		98		75 - 125

Lab Sample ID: 240-181894-1 MSD
Matrix: Solid
Analysis Batch: 565882

Client Sample ID: WC-S. TRK-WEST-01 (2-4)
Prep Type: TCLP
Prep Batch: 565630

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Arsenic	0.010	J B	5.00	5.20		mg/L		104		75 - 125	2	20
Barium	0.47	J B	50.0	48.0		mg/L		95		75 - 125	0	20
Cadmium	0.0012	J	1.00	1.02		mg/L		101		75 - 125	1	20
Chromium	ND		5.00	4.82		mg/L		96		75 - 125	1	20
Lead	ND		5.00	4.89		mg/L		98		75 - 125	1	20
Selenium	ND		1.00	1.03		mg/L		103		75 - 125	1	20
Silver	ND		1.00	0.979		mg/L		98		75 - 125	0	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-565632/2-A
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565632

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:25	1

Lab Sample ID: LCS 240-565632/3-A
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565632

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
Mercury	0.00500	0.00518		mg/L		104		80 - 120

Lab Sample ID: LB 240-565526/1-C
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565632

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:23	1

Lab Sample ID: 240-181894-1 MS
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: WC-S. TRK-WEST-01 (2-4)
Prep Type: TCLP
Prep Batch: 565632

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Mercury	ND		0.00500	0.00541		mg/L		108		80 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 240-181894-1 MSD
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: WC-S. TRK-WEST-01 (2-4)
Prep Type: TCLP
Prep Batch: 565632

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits	Limit	
Mercury	ND		0.00500	0.00554		mg/L		111	80 - 120	2	20

Method: Moisture - Percent Moisture

Lab Sample ID: 240-181894-5 DU
Matrix: Solid
Analysis Batch: 565507

Client Sample ID: WC-S. TRK-WEST-05 (4-6)
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit	
Percent Solids	80.7		78.1		%		3	20	
Percent Moisture	19.3		21.9		%		13	20	

Lab Sample ID: 240-181894-15 DU
Matrix: Solid
Analysis Batch: 565507

Client Sample ID: WC-S. TRK-WEST-14 (14-16)
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	RPD
	Result	Qualifier	Result	Qualifier				Limit	
Percent Solids	77.5		77.4		%		0.3	20	
Percent Moisture	22.5		22.6		%		0.9	20	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS VOA

Composite Batch: 565478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	Composite	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	

Prep Batch: 565503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Total/NA	Solid	5035	
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	5035	
240-181894-3	WC-S. TRK-WEST-03 (2-4)	Total/NA	Solid	5035	
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Total/NA	Solid	5035	
240-181894-5	WC-S. TRK-WEST-05 (4-6)	Total/NA	Solid	5035	
240-181894-6	WC-S. TRK-WEST-06 (6-8)	Total/NA	Solid	5035	
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	5035	
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	5035	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	5035	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	5035	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	5035	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	5035	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	5035	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	5035	
MB 240-565503/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-565503/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	5035	
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	5035	

Leach Batch: 565528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	1311	565478
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478
LB 240-565528/1-A MB	Method Blank	TCLP	Solid	1311	
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478

Analysis Batch: 565699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Total/NA	Solid	8260D	565503
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	8260D	565503
240-181894-3	WC-S. TRK-WEST-03 (2-4)	Total/NA	Solid	8260D	565503
240-181894-5	WC-S. TRK-WEST-05 (4-6)	Total/NA	Solid	8260D	565503
240-181894-6	WC-S. TRK-WEST-06 (6-8)	Total/NA	Solid	8260D	565503
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	8260D	565503
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8260D	565503
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	8260D	565503
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
MB 240-565503/1-A	Method Blank	Total/NA	Solid	8260D	565503
LCS 240-565503/2-A	Lab Control Sample	Total/NA	Solid	8260D	565503
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS VOA

Analysis Batch: 565727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Total/NA	Solid	8260D	565503
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	8260D	565503
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Total/NA	Solid	8260D	565503
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	8260D	565503
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	8260D	565503
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8260D	565503
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	8260D	565503
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	8260D	565503
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	8260D	565503
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
MB 240-565503/1-A	Method Blank	Total/NA	Solid	8260D	565503
LCS 240-565503/2-A	Lab Control Sample	Total/NA	Solid	8260D	565503
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503

Analysis Batch: 565827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	8260D	565528
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8260D	565528
LB 240-565528/1-A MB	Method Blank	TCLP	Solid	8260D	565528
LCS 240-565827/10	Lab Control Sample	Total/NA	Solid	8260D	
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8260D	565528
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8260D	565528

Analysis Batch: 565878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	8260D	565503
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Total/NA	Solid	8260D	565503
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	8260D	565503
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8260D	565503
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	8260D	565503
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	8260D	565503
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	8260D	565503

Analysis Batch: 565888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	8260D	565503

GC/MS Semi VOA

Prep Batch: 565464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Total/NA	Solid	3540C	
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	3540C	
240-181894-3	WC-S. TRK-WEST-03 (2-4)	Total/NA	Solid	3540C	
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Total/NA	Solid	3540C	
240-181894-5	WC-S. TRK-WEST-05 (4-6)	Total/NA	Solid	3540C	
240-181894-6	WC-S. TRK-WEST-06 (6-8)	Total/NA	Solid	3540C	
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	3540C	
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	3540C	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	3540C	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS Semi VOA (Continued)

Prep Batch: 565464 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	3540C	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	3540C	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	3540C	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	3540C	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	3540C	
MB 240-565464/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-565464/2-A	Lab Control Sample	Total/NA	Solid	3540C	

Composite Batch: 565478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	Composite	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	

Leach Batch: 565516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	1311	565478
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478

Prep Batch: 565653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	3510C	565516
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	3510C	565516
MB 240-565653/8-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-565653/9-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 565783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Total/NA	Solid	8270E	565464
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	8270E	565464
240-181894-3	WC-S. TRK-WEST-03 (2-4)	Total/NA	Solid	8270E	565464
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Total/NA	Solid	8270E	565464
240-181894-5	WC-S. TRK-WEST-05 (4-6)	Total/NA	Solid	8270E	565464
240-181894-6	WC-S. TRK-WEST-06 (6-8)	Total/NA	Solid	8270E	565464
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	8270E	565464
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	8270E	565464
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8270E	565464
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	8270E	565464
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	8270E	565464
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	8270E	565464
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	8270E	565464
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8270E	565464
MB 240-565464/1-A	Method Blank	Total/NA	Solid	8270E	565464

Analysis Batch: 565910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	8270E	565653
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8270E	565653
MB 240-565653/8-A	Method Blank	Total/NA	Solid	8270E	565653
LCS 240-565653/9-A	Lab Control Sample	Total/NA	Solid	8270E	565653

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS Semi VOA

Analysis Batch: 566020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-565464/2-A	Lab Control Sample	Total/NA	Solid	8270E	565464

GC Semi VOA

Leach Batch: 354756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	1311	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	

Prep Batch: 355463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	8151A	354756
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8151A	354756
MB 410-355463/1-A	Method Blank	Total/NA	Solid	8151A	
MB 410-355463/2-A	Method Blank	Total/NA	Solid	8151A	
MB 410-355463/3-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-355463/4-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 355545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	8151A	355463
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8151A	355463
MB 410-355463/1-A	Method Blank	Total/NA	Solid	8151A	355463
MB 410-355463/2-A	Method Blank	Total/NA	Solid	8151A	355463
MB 410-355463/3-A	Method Blank	Total/NA	Solid	8151A	355463
LCS 410-355463/4-A	Lab Control Sample	Total/NA	Solid	8151A	355463

Composite Batch: 565477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	Composite	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	Composite	

Composite Batch: 565478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	Composite	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	

Leach Batch: 565516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	1311	565478
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478

Analysis Batch: 565569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	8082A	565605
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	8082A	565605
MB 240-565605/1-A	Method Blank	Total/NA	Solid	8082A	565605
LCS 240-565605/2-A	Lab Control Sample	Total/NA	Solid	8082A	565605

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC Semi VOA

Prep Batch: 565605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	3546	565477
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	3546	565477
MB 240-565605/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-565605/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 565654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	3510C	565516
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	3510C	565516
MB 240-565654/6-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-565654/7-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 565762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	TCLP	Solid	8081B	565654
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8081B	565654
MB 240-565654/6-A	Method Blank	Total/NA	Solid	8081B	565654
LCS 240-565654/7-A	Lab Control Sample	Total/NA	Solid	8081B	565654

Specialty Organics

Prep Batch: 354736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-354736/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-354736/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 355523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	8290A	354736
MB 410-354736/1-A	Method Blank	Total/NA	Solid	8290A	354736
LCS 410-354736/2-A	Lab Control Sample	Total/NA	Solid	8290A	354736

Metals

Leach Batch: 565526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	1311	
240-181894-2	WC-S. TRK-WEST-02 (6-8)	TCLP	Solid	1311	
240-181894-3	WC-S. TRK-WEST-03 (2-4)	TCLP	Solid	1311	
240-181894-4	WC-S. TRK-WEST-04 (4-6)	TCLP	Solid	1311	
240-181894-5	WC-S. TRK-WEST-05 (4-6)	TCLP	Solid	1311	
240-181894-6	WC-S. TRK-WEST-06 (6-8)	TCLP	Solid	1311	
240-181894-7	WC-S. TRK-WEST-07 (8-10)	TCLP	Solid	1311	
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	1311	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	1311	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	1311	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	1311	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	1311	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	1311	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	1311	
LB 240-565526/1-B	Method Blank	TCLP	Solid	1311	

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Metals (Continued)

Leach Batch: 565526 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 240-565526/1-C	Method Blank	TCLP	Solid	1311	
240-181894-1 MS	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	1311	
240-181894-1 MSD	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	1311	

Prep Batch: 565630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	3010A	565526
240-181894-2	WC-S. TRK-WEST-02 (6-8)	TCLP	Solid	3010A	565526
240-181894-3	WC-S. TRK-WEST-03 (2-4)	TCLP	Solid	3010A	565526
240-181894-4	WC-S. TRK-WEST-04 (4-6)	TCLP	Solid	3010A	565526
240-181894-5	WC-S. TRK-WEST-05 (4-6)	TCLP	Solid	3010A	565526
240-181894-6	WC-S. TRK-WEST-06 (6-8)	TCLP	Solid	3010A	565526
240-181894-7	WC-S. TRK-WEST-07 (8-10)	TCLP	Solid	3010A	565526
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	3010A	565526
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	3010A	565526
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	3010A	565526
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	3010A	565526
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	3010A	565526
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	3010A	565526
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	3010A	565526
LB 240-565526/1-B	Method Blank	TCLP	Solid	3010A	565526
MB 240-565630/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-565630/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-181894-1 MS	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	3010A	565526
240-181894-1 MSD	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	3010A	565526

Prep Batch: 565632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	7470A	565526
240-181894-2	WC-S. TRK-WEST-02 (6-8)	TCLP	Solid	7470A	565526
240-181894-3	WC-S. TRK-WEST-03 (2-4)	TCLP	Solid	7470A	565526
240-181894-4	WC-S. TRK-WEST-04 (4-6)	TCLP	Solid	7470A	565526
240-181894-5	WC-S. TRK-WEST-05 (4-6)	TCLP	Solid	7470A	565526
240-181894-6	WC-S. TRK-WEST-06 (6-8)	TCLP	Solid	7470A	565526
240-181894-7	WC-S. TRK-WEST-07 (8-10)	TCLP	Solid	7470A	565526
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	7470A	565526
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	7470A	565526
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	7470A	565526
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	7470A	565526
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	7470A	565526
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	7470A	565526
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	7470A	565526
LB 240-565526/1-C	Method Blank	TCLP	Solid	7470A	565526
MB 240-565632/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-565632/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-181894-1 MS	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	7470A	565526
240-181894-1 MSD	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	7470A	565526

Analysis Batch: 565882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	6010D	565630

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Metals (Continued)

Analysis Batch: 565882 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-2	WC-S. TRK-WEST-02 (6-8)	TCLP	Solid	6010D	565630
240-181894-3	WC-S. TRK-WEST-03 (2-4)	TCLP	Solid	6010D	565630
240-181894-4	WC-S. TRK-WEST-04 (4-6)	TCLP	Solid	6010D	565630
240-181894-5	WC-S. TRK-WEST-05 (4-6)	TCLP	Solid	6010D	565630
240-181894-6	WC-S. TRK-WEST-06 (6-8)	TCLP	Solid	6010D	565630
240-181894-7	WC-S. TRK-WEST-07 (8-10)	TCLP	Solid	6010D	565630
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	6010D	565630
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	6010D	565630
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	6010D	565630
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	6010D	565630
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	6010D	565630
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	6010D	565630
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	6010D	565630
LB 240-565526/1-B	Method Blank	TCLP	Solid	6010D	565630
MB 240-565630/2-A	Method Blank	Total/NA	Solid	6010D	565630
LCS 240-565630/3-A	Lab Control Sample	Total/NA	Solid	6010D	565630
240-181894-1 MS	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	6010D	565630
240-181894-1 MSD	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	6010D	565630

Analysis Batch: 566117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	7470A	565632
240-181894-2	WC-S. TRK-WEST-02 (6-8)	TCLP	Solid	7470A	565632
240-181894-3	WC-S. TRK-WEST-03 (2-4)	TCLP	Solid	7470A	565632
240-181894-4	WC-S. TRK-WEST-04 (4-6)	TCLP	Solid	7470A	565632
240-181894-5	WC-S. TRK-WEST-05 (4-6)	TCLP	Solid	7470A	565632
240-181894-6	WC-S. TRK-WEST-06 (6-8)	TCLP	Solid	7470A	565632
240-181894-7	WC-S. TRK-WEST-07 (8-10)	TCLP	Solid	7470A	565632
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	7470A	565632
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	7470A	565632
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	7470A	565632
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	7470A	565632
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	7470A	565632
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	7470A	565632
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	7470A	565632
LB 240-565526/1-C	Method Blank	TCLP	Solid	7470A	565632
MB 240-565632/2-A	Method Blank	Total/NA	Solid	7470A	565632
LCS 240-565632/3-A	Lab Control Sample	Total/NA	Solid	7470A	565632
240-181894-1 MS	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	7470A	565632
240-181894-1 MSD	WC-S. TRK-WEST-01 (2-4)	TCLP	Solid	7470A	565632

General Chemistry

Composite Batch: 565477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	Composite	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	Composite	

Analysis Batch: 565507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-1	WC-S. TRK-WEST-01 (2-4)	Total/NA	Solid	Moisture	

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QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

General Chemistry (Continued)

Analysis Batch: 565507 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-2	WC-S. TRK-WEST-02 (6-8)	Total/NA	Solid	Moisture	
240-181894-3	WC-S. TRK-WEST-03 (2-4)	Total/NA	Solid	Moisture	
240-181894-4	WC-S. TRK-WEST-04 (4-6)	Total/NA	Solid	Moisture	
240-181894-5	WC-S. TRK-WEST-05 (4-6)	Total/NA	Solid	Moisture	
240-181894-6	WC-S. TRK-WEST-06 (6-8)	Total/NA	Solid	Moisture	
240-181894-7	WC-S. TRK-WEST-07 (8-10)	Total/NA	Solid	Moisture	
240-181894-8	WC-S. TRK-WEST-COMP (01-07)	Total/NA	Solid	Moisture	565477
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	Moisture	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	Moisture	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	Moisture	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	Moisture	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	Moisture	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	Moisture	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	Moisture	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	Moisture	565477
240-181894-5 DU	WC-S. TRK-WEST-05 (4-6)	Total/NA	Solid	Moisture	
240-181894-15 DU	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	Moisture	

Preliminary Data

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Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Date Collected: 03/14/23 10:44

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 19:10
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:29
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-01 (2-4)

Lab Sample ID: 240-181894-1

Date Collected: 03/14/23 10:44

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 10:07
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		66.6666	565699	CS	EET CAN	03/16/23 20:50
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		10	565783	JMG	EET CAN	03/17/23 19:37

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Date Collected: 03/14/23 11:15

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 19:40
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:42
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-02 (6-8)

Lab Sample ID: 240-181894-2

Date Collected: 03/14/23 11:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 08:08
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		2	565699	CS	EET CAN	03/17/23 03:09
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		2.5	565878	CS	EET CAN	03/17/23 22:18
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		10	565783	JMG	EET CAN	03/17/23 20:02

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Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Date Collected: 03/14/23 11:45

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 19:45
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:44
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-03 (2-4)

Lab Sample ID: 240-181894-3

Date Collected: 03/14/23 11:45

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565699	CS	EET CAN	03/16/23 21:16
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		5	565783	JMG	EET CAN	03/17/23 15:08

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Date Collected: 03/14/23 12:00

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 19:49
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:46
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-04 (4-6)

Lab Sample ID: 240-181894-4

Date Collected: 03/14/23 12:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 90.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 08:32
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		4	565878	CS	EET CAN	03/17/23 21:48
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		10	565783	JMG	EET CAN	03/17/23 20:26

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Date Collected: 03/14/23 12:15

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 19:54
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:48
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-05 (4-6)

Lab Sample ID: 240-181894-5

Date Collected: 03/14/23 12:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565699	CS	EET CAN	03/16/23 22:06
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		4	565783	JMG	EET CAN	03/17/23 16:22

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Date Collected: 03/14/23 12:50

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 19:58
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:50
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-06 (6-8)

Lab Sample ID: 240-181894-6

Date Collected: 03/14/23 12:50

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565699	CS	EET CAN	03/16/23 22:31
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		1	565783	JMG	EET CAN	03/17/23 14:44

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Date Collected: 03/14/23 13:10

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:03
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:52
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-07 (8-10)

Lab Sample ID: 240-181894-7

Date Collected: 03/14/23 13:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 10:55
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		50	565699	CS	EET CAN	03/16/23 22:56
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		100	565888	TJL2	EET CAN	03/18/23 06:32
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		50	565783	JMG	EET CAN	03/17/23 17:35

Client Sample ID: WC-S. TRK-WEST-COMP (01-07)

Lab Sample ID: 240-181894-8

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565528	DRJ	EET CAN	03/15/23 15:00 - 03/16/23 08:20 ¹
TCLP	Analysis	8260D		1	565827	AJS	EET CAN	03/17/23 15:32
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565516	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3510C			565653	SDE	EET CAN	03/16/23 11:22
TCLP	Analysis	8270E		1	565910	MRU	EET CAN	03/18/23 15:39
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565516	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3510C			565654	SDE	EET CAN	03/16/23 11:26
TCLP	Analysis	8081B		1	565762	BPM	EET CAN	03/17/23 11:42
TCLP	Leach	1311			354756	N3PD	ELLE	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	8151A			355463	K2IL	ELLE	03/20/23 19:00
TCLP	Analysis	8151A		1	355545	UAMZ	ELLE	03/21/23 06:22
Total/NA	Composite	Composite			565477	DRJ	EET CAN	03/15/23 10:16
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 14:34

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (01-07)

Lab Sample ID: 240-181894-8

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			565477	DRJ	EET CAN	03/15/23 10:16
Total/NA	Prep	3546			565605	AJ	EET CAN	03/16/23 08:44
Total/NA	Analysis	8082A		1	565569	LSH	EET CAN	03/16/23 18:40
Total/NA	Prep	HRMS-Soxtherm			354736	UJSZ	ELLE	03/17/23 11:07
Total/NA	Analysis	8290A		1	355523	DZ6A	ELLE	03/21/23 07:02

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:08
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:54
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 08:55
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		5.26315 789	565878	CS	EET CAN	03/17/23 20:32
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		2.5	565783	JMG	EET CAN	03/17/23 18:24

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:12
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:56
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 07:44
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		5	565699	CS	EET CAN	03/16/23 23:47
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		10	565878	CS	EET CAN	03/17/23 20:57
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		2.5	565783	JMG	EET CAN	03/17/23 18:49

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:17
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:03
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565699	CS	EET CAN	03/17/23 00:12
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		100	565783	JMG	EET CAN	03/17/23 16:46

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:22
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:05
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 09:19
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		8.3333	565878	CS	EET CAN	03/17/23 20:07
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		5	565783	JMG	EET CAN	03/17/23 15:33

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:35
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:07
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 11:43
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		16.6666	565878	CS	EET CAN	03/17/23 19:42
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		20	565783	JMG	EET CAN	03/17/23 18:00

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:39
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:09
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 12:31
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		16.6666	565878	CS	EET CAN	03/17/23 18:16
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		2.5	565783	JMG	EET CAN	03/17/23 19:13

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:44
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:11
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 13:19
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		100	565699	CS	EET CAN	03/17/23 01:53
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		100	565783	JMG	EET CAN	03/17/23 17:11

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565528	DRJ	EET CAN	03/15/23 15:00 - 03/16/23 08:20 ¹
TCLP	Analysis	8260D		1	565827	AJS	EET CAN	03/17/23 15:56
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565516	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3510C			565653	SDE	EET CAN	03/16/23 11:22
TCLP	Analysis	8270E		1	565910	MRU	EET CAN	03/18/23 16:01

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565516	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3510C			565654	SDE	EET CAN	03/16/23 11:26
TCLP	Analysis	8081B		1	565762	BPM	EET CAN	03/17/23 11:58
TCLP	Leach	1311			354756	N3PD	ELLE	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	8151A			355463	K2IL	ELLE	03/20/23 19:00
TCLP	Analysis	8151A		1	355545	UAMZ	ELLE	03/21/23 06:50
Total/NA	Composite	Composite			565477	DRJ	EET CAN	03/15/23 10:16
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 14:34

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			565477	DRJ	EET CAN	03/15/23 10:16
Total/NA	Prep	3546			565605	AJ	EET CAN	03/16/23 08:44
Total/NA	Analysis	8082A		1	565569	LSH	EET CAN	03/16/23 18:56

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

Address: ELYD*IN

Chain of Custody Record

645685



Environment Testing America

TAL-8210

Regulatory Program: DW NPDES RCRA Other: _____

Client Contact: **ASCADIS** | Project Manager: **Michelle Clayton** | Site Contact: **Mike DeMunn** | Date: **02/14/23** | COC No.: _____ of _____ COCs

Company Name: **ASCADIS** | Lab Contact: **Mike DeMunn** | Carrier: _____ | Sampler: **DAVID LOEWEN**

Address: **55 MIDWINTER (VTLR) SR 200** | For Lab Use Only: _____

City/State/Zip: **INDIANAPOLIS IN 46203** | Walk-in Client: _____

Phone: _____ | Lab Sampling: _____

Fax: _____ | Job / SDG No.: _____

Project Name: **NOYOK JOINTHERN** | Sample Specific Notes: _____

Site: **E. PALETTINE OH** | **LAB TO GENERATE COMPOSITE**

P O #: _____

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Analysis Turnaround Time		Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	TCL VOC	TCL SVOC	TCL PEST	TCL HERE	DIOXINS/FURANS-GRAB	TOTAL PCBs
						CALENDAR DAYS	WORKING DAYS								
WC-S-TYK-WEST-D1(2-4)	3/14/23	1044	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D2(6-8)	3/14/23	1115	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D3(2-4)	3/14/23	1145	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D4(4-6)	3/14/23	1200	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D5(4-8)	3/14/23	1215	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D6(6-8)	3/14/23	1290	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D7(8-10)	3/14/23	1310	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-COMP(01-07)	3/14/23	---	LAB COMP	S	X			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D8(8-10)	3/14/23	1415	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D9(10-12)	3/14/23	1435	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D10(10-12)	3/14/23	1530	G	S	9			N	N	X	X	X	X	X	X
WC-S-TYK-WEST-D11(12-14)	3/14/23	1551	G	S	9			N	N	X	X	X	X	X	X



240-181894 Chain of Custody

LAB TO GENERATE COMPOSITE

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments: LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 7 GRAB SAMPLES

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.: _____

Relinquished by: **David Loewen** | Company: **ASCADIS** | Date/Time: **3/14/23 17:40**

Relinquished by: **Michelle Clayton** | Company: **EETNC** | Date/Time: **3-14-23 1920**

Relinquished by: _____ | Company: _____ | Date/Time: _____

Relinquished by: _____ | Company: _____ | Date/Time: _____

Relinquished by: _____ | Company: _____ | Date/Time: _____

Relinquished by: _____ | Company: _____ | Date/Time: _____

Relinquished by: _____ | Company: _____ | Date/Time: _____

Relinquished by: _____ | Company: _____ | Date/Time: _____



Address: EUROFINS

Chain of Custody Record

645684



Environment Testing America

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact
 Company Name: ARCADIS
 Address: 55 Monument Circle Ste 300B
 City/State/Zip: Indianapolis, IN 46203
 Phone: _____
 Fax: _____
 Project Name: Norfolk Southern
 Site: E Palestine, OH
 PO #: _____

Project Manager: MURRAY GANTON
 Tel/Email: _____

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from below: PUSH
 2 weeks
 1 week
 2 days
 1 day

Site Contact: _____ of _____ COCs
 Lab Contact: MURRAY GANTON
 Sampler: DAVID LOEWEN
 For Lab Use Only:
 Walk-in Client:
 Lab Sampling:
 Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		Sample Specific Notes:
						Total VOC	Total SVOC	Total VOC	Total SVOC	
WG-S-TRK-WEST-12(12-14)	3/14/23	1551	G	S	9	XX	XX	XX	XX	Lab to generate composite
WG-S-TRK-WEST-13(14-16)	3/14/23	1610	G	S	9	XX	XX	XX	XX	
WG-S-TRK-WEST-14(14-16)	3/14/23	1630	G	S	9	XX	XX	XX	XX	
WG-S-TRK-WEST-COMP(08-14)	3/14/23	---	LAB COMP	S	X	XX	XX	XX	XX	

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other _____

Possible Hazard Identification: Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. None, BMYL ACRYLATE

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:
LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 7 GRAB SAMPLES

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Relinquished by:	Relinquished by:	Relinquished by:	Relinquished by:
<u>David Loewen</u>	<u>ARCADIS</u>	<u>3/14/23 17:40</u>	<u>3/14/23 17:40</u>
<u>David Loewen</u>	<u>EUROFINS</u>	<u>3/14/23</u>	<u>3/14/23 19:20</u>



Eurofins - Canton Sample Receipt Form/Narrative Login #: 181894
Barberton Facility

Client Acadus Site Name NSRR-ER Cooler unpacked by: Jul
Cooler Received on 3-14-23 Opened on 3-14-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____


Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

Eurofins Cooler # EL Foam Box _____ Client Cooler _____ Box _____ Other _____
Packing material used: Bubble Wrap _____ Foam Plastic Bag None _____ Other _____
COOLANT: Wet Ice Blue Ice _____ Dry Ice _____ Water _____ None _____

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 181894

Eurofins - Canton Sample Receipt Multiple Cooler Form									
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
<input checked="" type="radio"/> EC	Client	Box	Other	IR GUN #: <u>13</u>	<u>3.7</u>	<u>3.5</u>	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
<input checked="" type="radio"/> EC	Client	Box	Other	IR GUN #: <u>13</u>	<u>4.0</u>	<u>3.8</u>	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
<input checked="" type="radio"/> EC	Client	Box	Other	IR GUN #: <u>13</u>	<u>4.2</u>	<u>4.0</u>	<input checked="" type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	
EC	Client	Box	Other	IR GUN #: _____			<input type="radio"/> Wet Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
							<input type="radio"/> Water	<input type="radio"/> None	

See Temperature Excursion Form

Eurofins Canton

180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Form containing client information (Eurofins Lancaster Laboratories Environm), analysis requested table (Sample Identification - Client ID, Sample Date, Sample Time, Matrix), and a signature section for the Chain of Custody with names like Rachelle H... and dates like 3/15/23.



Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)			Sampler:		Lab PM: DelMonico, Michael		Carrier Tracking No(s):		COC No: 240-165093.1																							
Client Contact: Shipping/Receiving			Phone:		E-Mail: Michael.DelMonico@et.eurofinsus.com		State of Origin: Ohio		Page: Page 1 of 1																							
Company: Eurofins Lancaster Laboratories Environm			Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:		Due Date Requested: 3/22/2023 TAT Requested (days):		Accreditations Required (See note):		Job #: 240-181894-1																							
Project Name: NS East Palestine Site:			Project #: 24030745 SSOW#:		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)																					
Sample Identification - Client ID (Lab ID)			Sample Date		Sample Time		Sample Type (C=comp, G=grab)		MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Field Filtered Sample (Yes or No)										Perform MS/MSD (Yes or No)										Total Number of containers	Special Instructions/Note:
WC-S. TRK-WEST-COMP (01-07) (240-181894-8)			3/14/23		Eastern		Solid				X X X										1											
WC-S. TRK-WEST-COMP (08-14) (240-181894-16)			3/14/23		Eastern		Solid				X X X										1											
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.																																
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)																										
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																										
Deliverable Requested: I, II, III, IV, Other (specify)						Primary Deliverable Rank: 2						Special Instructions/QC Requirements:																				
Empty Kit Relinquished by:			Date:			Time:			Method of Shipment:																							
Relinquished by: <i>Rachelle W...</i>			Date/Time: 3/16/23 1500			Company: EBINC			Received by: <i>Z</i>			Date/Time: <i>3-17-23 1000</i>			Company: <i>UE</i>																	
Relinquished by: <i>Z</i>			Date/Time:			Company:			Received by: <i>AH</i>			Date/Time:			Company:																	
Relinquished by:			Date/Time:			Company:			Received by:			Date/Time:			Company:																	
Custody Seals Intact:			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:																										
△ Yes △ No						2.5																										

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-181894-1

Login Number: 181894

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 03/16/23 09:53 AM

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



PROHIBITORY DATA

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-181894-1

Login Number: 181894

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 3

List Creation: 03/17/23 02:47 PM

Creator: Foreman, Leah M

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	



PROHIBITORY DATA

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	90	95	84	84	93	78	77	88
LCS 410-354736/2-A	Lab Control Sample	85	87	79	78	85	84	83	84
MB 410-354736/1-A	Method Blank	98	99	86	86	93	94	97	94

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	91	87	84	86	83	79	79	79
LCS 410-354736/2-A	Lab Control Sample	81	78	88	82	82	85	81	84
MB 410-354736/1-A	Method Blank	89	85	100	93	94	93	92	96

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-181894-8	WC-S. TRK-WEST-COMP (01-0	85
LCS 410-354736/2-A	Lab Control Sample	85
MB 410-354736/1-A	Method Blank	96

Surrogate Legend

OCDF = 13C-OCDF
 OCDD = 13C-OCDD
 TCDF = 13C-2,3,7,8-TCDF
 TCDD = 13C-2,3,7,8-TCDD
 PeCF = 13C-2,3,4,7,8-PeCDF
 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
 HxCF = 13C-1,2,3,7,8,9-HxCDF
 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
 PeCDF = 13C-1,2,3,7,8-PeCDF
 PeCDD = 13C-1,2,3,7,8-PeCDD
 HxDF = 13C-1,2,3,6,7,8-HxCDF
 HxDD = 13C-1,2,3,6,7,8-HxCDD
 HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
 HxCDF = 13C-1,2,3,4,7,8-HxCDF
 HxCDD = 13C-1,2,3,4,7,8-HxCDD
 HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
 HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

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ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/23/2023 6:23:50 AM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-181894-1

Eurofins Canton

Job Notes

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Authorization



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Job ID: 240-181894-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-181894-1

Receipt

The samples were received on 3/14/2023 7:20 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 3.5°C, 3.8°C and 4.0°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-565827 was outside the method criteria for the following analyte: Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte is considered estimated.

Method 8260D: The following sample(s) were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results: WC-S. TRK-WEST-08 (8-10) (240-181894-9), WC-S. TRK-WEST-09 (10-12) (240-181894-10), WC-S. TRK-WEST-10 (10-12) (240-181894-11), WC-S. TRK-WEST-11 (12-14) (240-181894-12), WC-S. TRK-WEST-12 (12-14) (240-181894-13), WC-S. TRK-WEST-13 (14-16) (240-181894-14), WC-S. TRK-WEST-14 (14-16) (240-181894-15), (240-181894-C-15 MS) and (240-181894-C-15 MSD).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-565699 recovered above the upper control limit for Bromomethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The MS/MSD for preparation batch 240-565503 and analytical batch 240-565878 is not reported because it was analyzed in another batch.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-565878 recovered above the upper control limit for Bromomethane, Dichlorodifluoromethane, Trichlorofluoromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-565910 recovered outside acceptance criteria, low biased, for Pentachlorophenol. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for the analyte, the data are reported. The following samples were impacted: WC-S. TRK-WEST-COMP (08-14) (240-181894-16) and (240-181902-A-1-J).

Method 8270E: The following samples were diluted to bring the concentration of target analytes within the calibration range: WC-S. TRK-WEST-08 (8-10) (240-181894-9), WC-S. TRK-WEST-09 (10-12) (240-181894-10), WC-S. TRK-WEST-10 (10-12) (240-181894-11), WC-S. TRK-WEST-11 (12-14) (240-181894-12), WC-S. TRK-WEST-12 (12-14) (240-181894-13), WC-S. TRK-WEST-13 (14-16) (240-181894-14) and WC-S. TRK-WEST-14 (14-16) (240-181894-15). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-S. TRK-WEST-COMP (08-14) (240-181894-16).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Job ID: 240-181894-1 (Continued)

Laboratory: Eurofins Canton (Continued)

Pesticides

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.



Method Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Solid	03/14/23 14:15	03/14/23 19:20
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Solid	03/14/23 14:35	03/14/23 19:20
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Solid	03/14/23 15:30	03/14/23 19:20
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Solid	03/14/23 15:51	03/14/23 19:20
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Solid	03/14/23 15:51	03/14/23 19:20
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Solid	03/14/23 16:10	03/14/23 19:20
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Solid	03/14/23 16:30	03/14/23 19:20
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Solid	03/14/23 00:00	03/14/23 19:20

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Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.084	J	0.40	0.076	mg/Kg	1	✖	8260D	Total/NA
Isopropylbenzene	0.098	J	0.40	0.061	mg/Kg	1	✖	8260D	Total/NA
Methyl acetate	0.38	J	2.0	0.27	mg/Kg	1	✖	8260D	Total/NA
Methylcyclohexane	0.91		0.80	0.11	mg/Kg	1	✖	8260D	Total/NA
Xylenes, Total	0.80		0.80	0.15	mg/Kg	1	✖	8260D	Total/NA
Butyl acrylate	25		21	11	mg/Kg	5.26315	✖	8260D	Total/NA
						789			
2-Ethylhexyl acrylate	98		21	16	mg/Kg	5.26315	✖	8260D	Total/NA
						789			
1,1'-Biphenyl	0.072	J	0.16	0.054	mg/Kg	2.5	✖	8270E	Total/NA
2-Methylnaphthalene	0.68		0.048	0.0062	mg/Kg	2.5	✖	8270E	Total/NA
Acenaphthene	0.16		0.048	0.0091	mg/Kg	2.5	✖	8270E	Total/NA
Acenaphthylene	0.18		0.048	0.013	mg/Kg	2.5	✖	8270E	Total/NA
Anthracene	0.39		0.048	0.0076	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[a]anthracene	0.98		0.048	0.011	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[a]pyrene	0.67		0.048	0.030	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[b]fluoranthene	1.5		0.048	0.021	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[g,h,i]perylene	0.43		0.048	0.022	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[k]fluoranthene	0.45		0.048	0.022	mg/Kg	2.5	✖	8270E	Total/NA
Carbazole	0.15	J	0.16	0.060	mg/Kg	2.5	✖	8270E	Total/NA
Chrysene	1.3		0.048	0.0047	mg/Kg	2.5	✖	8270E	Total/NA
Dibenz(a,h)anthracene	0.13		0.048	0.022	mg/Kg	2.5	✖	8270E	Total/NA
Dibenzofuran	0.31		0.16	0.041	mg/Kg	2.5	✖	8270E	Total/NA
Fluoranthene	1.7		0.048	0.014	mg/Kg	2.5	✖	8270E	Total/NA
Fluorene	0.17		0.048	0.0087	mg/Kg	2.5	✖	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.42		0.048	0.023	mg/Kg	2.5	✖	8270E	Total/NA
Naphthalene	0.41		0.048	0.0076	mg/Kg	2.5	✖	8270E	Total/NA
Phenanthrene	1.1		0.048	0.0071	mg/Kg	2.5	✖	8270E	Total/NA
Pyrene	1.7		0.048	0.0068	mg/Kg	2.5	✖	8270E	Total/NA
2-Butoxyethanol	2.4		0.22	0.21	mg/Kg	2.5	✖	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.60	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Isopropylbenzene	0.055	J	0.34	0.052	mg/Kg	1	✖	8260D	Total/NA
Methylcyclohexane	0.69		0.69	0.091	mg/Kg	1	✖	8260D	Total/NA
Xylenes, Total	0.42	J	0.69	0.13	mg/Kg	1	✖	8260D	Total/NA
Butyl acrylate	41		17	9.3	mg/Kg	5	✖	8260D	Total/NA
2-Ethylhexyl acrylate	99		34	26	mg/Kg	10	✖	8260D	Total/NA
1,1'-Biphenyl	0.074	J	0.15	0.052	mg/Kg	2.5	✖	8270E	Total/NA
2-Methylnaphthalene	0.55		0.046	0.0060	mg/Kg	2.5	✖	8270E	Total/NA
Acenaphthene	0.11		0.046	0.0088	mg/Kg	2.5	✖	8270E	Total/NA
Acenaphthylene	0.10		0.046	0.012	mg/Kg	2.5	✖	8270E	Total/NA
Anthracene	0.28		0.046	0.0074	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[a]anthracene	0.83		0.046	0.010	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[a]pyrene	0.55		0.046	0.029	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[b]fluoranthene	1.0		0.046	0.020	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[g,h,i]perylene	0.31		0.046	0.022	mg/Kg	2.5	✖	8270E	Total/NA
Benzo[k]fluoranthene	0.41		0.046	0.021	mg/Kg	2.5	✖	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12) (Continued)

Lab Sample ID: 240-181894-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbazole	0.15		0.15	0.058	mg/Kg	2.5	✳	8270E	Total/NA
Chrysene	1.1		0.046	0.0046	mg/Kg	2.5	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.092		0.046	0.021	mg/Kg	2.5	✳	8270E	Total/NA
Dibenzofuran	0.30		0.15	0.040	mg/Kg	2.5	✳	8270E	Total/NA
Fluoranthene	1.7		0.046	0.014	mg/Kg	2.5	✳	8270E	Total/NA
Fluorene	0.17		0.046	0.0084	mg/Kg	2.5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.27		0.046	0.023	mg/Kg	2.5	✳	8270E	Total/NA
Naphthalene	0.35		0.046	0.0074	mg/Kg	2.5	✳	8270E	Total/NA
Phenanthrene	1.0		0.046	0.0069	mg/Kg	2.5	✳	8270E	Total/NA
Pyrene	1.6		0.046	0.0066	mg/Kg	2.5	✳	8270E	Total/NA
2-Butoxyethanol	2.5		0.22	0.20	mg/Kg	2.5	✳	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.50	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.26	J	0.68	0.22	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.058	J	0.34	0.052	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.99		0.68	0.090	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.52	J	0.68	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	3.3	J	3.4	1.8	mg/Kg	1	✳	8260D	Total/NA
2-Ethylhexyl acrylate	11		3.4	2.5	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	1.0	J	1.8	0.24	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	1.1	J	1.8	0.55	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	0.91	J	1.8	0.27	mg/Kg	100	✳	8270E	Total/NA
Pyrene	1.0	J	1.8	0.26	mg/Kg	100	✳	8270E	Total/NA
2-Butoxyethanol	130		8.6	8.1	mg/Kg	100	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.36	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methylcyclohexane	0.62	J	0.73	0.097	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.24	J	0.37	0.18	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.41	J	0.73	0.13	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	40		31	17	mg/Kg	8.3333	✳	8260D	Total/NA
2-Ethylhexyl acrylate	130		31	23	mg/Kg	8.3333	✳	8260D	Total/NA
2-Methylnaphthalene	0.76		0.096	0.013	mg/Kg	5	✳	8270E	Total/NA
Acenaphthene	0.074	J	0.096	0.018	mg/Kg	5	✳	8270E	Total/NA
Acenaphthylene	0.12		0.096	0.026	mg/Kg	5	✳	8270E	Total/NA
Anthracene	0.17		0.096	0.015	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]anthracene	0.40		0.096	0.022	mg/Kg	5	✳	8270E	Total/NA
Benzo[a]pyrene	0.35		0.096	0.060	mg/Kg	5	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.82		0.096	0.042	mg/Kg	5	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.26		0.096	0.046	mg/Kg	5	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.21		0.096	0.045	mg/Kg	5	✳	8270E	Total/NA
Chrysene	0.63		0.096	0.0096	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	0.28	J	0.32	0.084	mg/Kg	5	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14) (Continued)

Lab Sample ID: 240-181894-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.69		0.096	0.029	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.079	J	0.096	0.018	mg/Kg	5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.25		0.096	0.047	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.49		0.096	0.015	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.71		0.096	0.014	mg/Kg	5	✳	8270E	Total/NA
Pyrene	0.68		0.096	0.014	mg/Kg	5	✳	8270E	Total/NA
2-Butoxyethanol	5.0		0.45	0.42	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.012	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.86	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.12	J	0.29	0.049	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.62	J	1.5	0.20	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.28	J	0.58	0.077	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	2.2		0.29	0.14	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.19	J	0.58	0.11	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	67		49	26	mg/Kg	16.6666	✳	8260D	Total/NA
2-Ethylhexyl acrylate	190		49	36	mg/Kg	16.6666	✳	8260D	Total/NA
2-Methylnaphthalene	0.41		0.37	0.049	mg/Kg	20	✳	8270E	Total/NA
Acenaphthylene	0.11	J	0.37	0.10	mg/Kg	20	✳	8270E	Total/NA
Anthracene	0.28	J	0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]anthracene	1.4		0.37	0.085	mg/Kg	20	✳	8270E	Total/NA
Benzo[a]pyrene	0.53		0.37	0.23	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.1		0.37	0.16	mg/Kg	20	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.34	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.54		0.37	0.17	mg/Kg	20	✳	8270E	Total/NA
Chrysene	2.0		0.37	0.037	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	2.4		0.37	0.11	mg/Kg	20	✳	8270E	Total/NA
Fluorene	0.11	J	0.37	0.068	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.34	J	0.37	0.18	mg/Kg	20	✳	8270E	Total/NA
Naphthalene	0.27	J	0.37	0.060	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	0.78		0.37	0.055	mg/Kg	20	✳	8270E	Total/NA
Pyrene	2.1		0.37	0.053	mg/Kg	20	✳	8270E	Total/NA
2-Butoxyethanol	18		1.7	1.6	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.48	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl acetate	0.23	J	1.6	0.22	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.41	J	0.65	0.086	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.31	J	0.65	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	61		54	29	mg/Kg	16.6666	✳	8260D	Total/NA
2-Ethylhexyl acrylate	160		54	40	mg/Kg	16.6666	✳	8260D	Total/NA
1,1'-Biphenyl	0.068	J	0.15	0.052	mg/Kg	2.5	✳	8270E	Total/NA
2-Methylnaphthalene	0.70		0.046	0.0060	mg/Kg	2.5	✳	8270E	Total/NA
Acenaphthene	0.12		0.046	0.0088	mg/Kg	2.5	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16) (Continued)

Lab Sample ID: 240-181894-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	0.16		0.046	0.012	mg/Kg	2.5	✳	8270E	Total/NA
Anthracene	0.28		0.046	0.0074	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[a]anthracene	0.62		0.046	0.010	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[a]pyrene	0.51		0.046	0.029	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.2		0.046	0.020	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.35		0.046	0.022	mg/Kg	2.5	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.32		0.046	0.021	mg/Kg	2.5	✳	8270E	Total/NA
Carbazole	0.14	J	0.15	0.058	mg/Kg	2.5	✳	8270E	Total/NA
Chrysene	0.98		0.046	0.0046	mg/Kg	2.5	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.12		0.046	0.021	mg/Kg	2.5	✳	8270E	Total/NA
Dibenzofuran	0.28		0.15	0.040	mg/Kg	2.5	✳	8270E	Total/NA
Fluoranthene	1.2		0.046	0.014	mg/Kg	2.5	✳	8270E	Total/NA
Fluorene	0.14		0.046	0.0084	mg/Kg	2.5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.37		0.046	0.023	mg/Kg	2.5	✳	8270E	Total/NA
Naphthalene	0.43		0.046	0.0074	mg/Kg	2.5	✳	8270E	Total/NA
Phenanthrene	0.91		0.046	0.0069	mg/Kg	2.5	✳	8270E	Total/NA
Pyrene	1.2		0.046	0.0066	mg/Kg	2.5	✳	8270E	Total/NA
2-Butoxyethanol	3.0		0.22	0.20	mg/Kg	2.5	✳	8270E	Total/NA
Arsenic	0.013	J B	0.050	0.0041	mg/L	1		6010D	TCPLP
Barium	0.53	B	0.50	0.0013	mg/L	1		6010D	TCPLP
Cadmium	0.0015	J	0.050	0.00020	mg/L	1		6010D	TCPLP
Lead	0.0036	J	0.050	0.0028	mg/L	1		6010D	TCPLP

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.35	J	1.4	0.33	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.068	J	0.34	0.058	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.059	J	0.34	0.052	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.71		0.69	0.091	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.25	J	0.34	0.17	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.55	J	0.69	0.12	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	340		340	190	mg/Kg	100	✳	8260D	Total/NA
2-Ethylhexyl acrylate	720		340	260	mg/Kg	100	✳	8260D	Total/NA
2-Methylnaphthalene	0.74	J	2.0	0.26	mg/Kg	100	✳	8270E	Total/NA
Anthracene	0.49	J	2.0	0.32	mg/Kg	100	✳	8270E	Total/NA
Benzo[a]anthracene	1.6	J	2.0	0.45	mg/Kg	100	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.8	J	2.0	0.85	mg/Kg	100	✳	8270E	Total/NA
Chrysene	1.8	J	2.0	0.19	mg/Kg	100	✳	8270E	Total/NA
Fluoranthene	3.8		2.0	0.58	mg/Kg	100	✳	8270E	Total/NA
Naphthalene	0.58	J	2.0	0.32	mg/Kg	100	✳	8270E	Total/NA
Phenanthrene	1.5	J	2.0	0.29	mg/Kg	100	✳	8270E	Total/NA
Pyrene	3.8		2.0	0.28	mg/Kg	100	✳	8270E	Total/NA
2-Butoxyethanol	120		9.2	8.6	mg/Kg	100	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCPLP
Barium	0.44	J B	0.50	0.0013	mg/L	1		6010D	TCPLP
Cadmium	0.0016	J	0.050	0.00020	mg/L	1		6010D	TCPLP
Lead	0.013	J	0.050	0.0028	mg/L	1		6010D	TCPLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.027	J B	0.25	0.0012	mg/L	1		8260D	TCLP
Vinyl chloride	0.0075	J F2	0.025	0.00045	mg/L	1		8260D	TCLP
1,2,3,4,6,7,8-HpCDD	69	B	5.9	0.097	ng/Kg	1	*	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	14	B	5.9	0.028	ng/Kg	1	*	8290A	Total/NA
1,2,3,4,7,8-HxCDD	0.89	J B	5.9	0.025	ng/Kg	1	*	8290A	Total/NA
1,2,3,4,7,8-HxCDF	2.2	J	5.9	0.047	ng/Kg	1	*	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	1.5	J B	5.9	0.036	ng/Kg	1	*	8290A	Total/NA
1,2,3,6,7,8-HxCDD	1.8	J B	5.9	0.024	ng/Kg	1	*	8290A	Total/NA
1,2,3,6,7,8-HxCDF	1.5	J B	5.9	0.047	ng/Kg	1	*	8290A	Total/NA
1,2,3,7,8-PeCDD	0.83	J I B	5.9	0.014	ng/Kg	1	*	8290A	Total/NA
1,2,3,7,8-PeCDF	1.0	J I B	5.9	0.043	ng/Kg	1	*	8290A	Total/NA
1,2,3,7,8,9-HxCDD	1.3	J B	5.9	0.023	ng/Kg	1	*	8290A	Total/NA
1,2,3,7,8,9-HxCDF	0.49	J B	5.9	0.050	ng/Kg	1	*	8290A	Total/NA
2,3,4,6,7,8-HxCDF	1.5	J B	5.9	0.045	ng/Kg	1	*	8290A	Total/NA
2,3,4,7,8-PeCDF	2.3	J B	5.9	0.036	ng/Kg	1	*	8290A	Total/NA
2,3,7,8-TCDD	0.15	J	1.2	0.0082	ng/Kg	1	*	8290A	Total/NA
2,3,7,8-TCDF	0.51	J B	1.2	0.030	ng/Kg	1	*	8290A	Total/NA
OCDD	680	B	12	0.062	ng/Kg	1	*	8290A	Total/NA
OCDF	46	B	12	0.025	ng/Kg	1	*	8290A	Total/NA
Total HxCDD	29	B	5.9	0.024	ng/Kg	1	*	8290A	Total/NA
Total HxCDF	22	I B	5.9	0.047	ng/Kg	1	*	8290A	Total/NA
Total HpCDD	200	B	5.9	0.097	ng/Kg	1	*	8290A	Total/NA
Total HpCDF	39	B	5.9	0.032	ng/Kg	1	*	8290A	Total/NA
Total PeCDD	8.1	I B	5.9	0.014	ng/Kg	1	*	8290A	Total/NA
Total PeCDF	23	I B	5.9	0.040	ng/Kg	1	*	8290A	Total/NA
Total TCDD	6.2	I B	1.2	0.0082	ng/Kg	1	*	8290A	Total/NA
Total TCDF	12	I B	1.2	0.030	ng/Kg	1	*	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1,2,2-Tetrachloroethane	ND		0.40	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1,2-Trichloroethane	ND		0.40	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1-Dichloroethane	ND		0.40	0.077	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,1-Dichloroethene	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2,4-Trichlorobenzene	ND		0.40	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dibromo-3-Chloropropane	ND		0.80	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Ethylene Dibromide	ND		0.40	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dichlorobenzene	ND		0.40	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dichloroethane	ND		0.40	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,2-Dichloropropane	ND		0.40	0.060	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,3-Dichlorobenzene	ND		0.40	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
1,4-Dichlorobenzene	ND		0.40	0.089	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
2-Butanone (MEK)	ND		1.6	0.25	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
2-Hexanone	ND		1.6	0.42	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	0.38	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Acetone	ND		1.6	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Benzene	ND		0.40	0.068	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Dichlorobromomethane	ND		0.40	0.098	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Bromoform	ND		0.40	0.37	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Bromomethane	ND		0.40	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Carbon disulfide	ND		0.40	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Carbon tetrachloride	ND		0.40	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chlorobenzene	ND		0.40	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chloroethane	ND		0.40	0.24	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chloroform	ND		0.40	0.087	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chloromethane	ND		0.40	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
cis-1,2-Dichloroethene	ND		0.40	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
cis-1,3-Dichloropropene	ND		0.40	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Cyclohexane	ND		0.80	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Chlorodibromomethane	ND		0.40	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Dichlorodifluoromethane	ND		0.40	0.085	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Ethylbenzene	0.084	J	0.40	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Isopropylbenzene	0.098	J	0.40	0.061	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methyl acetate	0.38	J	2.0	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methyl tert-butyl ether	ND		0.40	0.060	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methylcyclohexane	0.91		0.80	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Methylene Chloride	ND		0.80	0.62	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Styrene	ND		0.40	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Tetrachloroethene	ND		0.40	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Toluene	ND		0.40	0.39	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
trans-1,2-Dichloroethene	ND		0.40	0.10	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
trans-1,3-Dichloropropene	ND		0.40	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Trichloroethene	ND		0.40	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Trichlorofluoromethane	ND		0.40	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Vinyl chloride	ND		0.40	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Xylenes, Total	0.80		0.80	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 08:55	1
Butyl acrylate	25		21	11	mg/Kg	✱	03/15/23 13:01	03/17/23 20:32	5.26315 789

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		4.2	1.0	mg/Kg	☼	03/15/23 13:01	03/17/23 20:32	5.26315 789
2-Ethylhexyl acrylate	98		21	16	mg/Kg	☼	03/15/23 13:01	03/17/23 20:32	5.26315 789
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		56 - 125				03/15/23 13:01	03/17/23 08:55	1
Toluene-d8 (Surr)	108		56 - 125				03/15/23 13:01	03/17/23 20:32	5.26315 789
Dibromofluoromethane (Surr)	80		41 - 138				03/15/23 13:01	03/17/23 08:55	1
Dibromofluoromethane (Surr)	94		41 - 138				03/15/23 13:01	03/17/23 20:32	5.26315 789
4-Bromofluorobenzene (Surr)	104		41 - 143				03/15/23 13:01	03/17/23 08:55	1
4-Bromofluorobenzene (Surr)	113		41 - 143				03/15/23 13:01	03/17/23 20:32	5.26315 789
1,2-Dichloroethane-d4 (Surr)	79		58 - 125				03/15/23 13:01	03/17/23 08:55	1
1,2-Dichloroethane-d4 (Surr)	104		58 - 125				03/15/23 13:01	03/17/23 20:32	5.26315 789

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.072	J	0.16	0.054	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
bis (2-chloroisopropyl) ether	ND		0.32	0.032	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4,5-Trichlorophenol	ND		0.48	0.22	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4,6-Trichlorophenol	ND		0.48	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dichlorophenol	ND		0.48	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dimethylphenol	ND		0.48	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dinitrophenol	ND		1.0	0.45	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,4-Dinitrotoluene	ND		0.63	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2,6-Dinitrotoluene	ND		0.63	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Chloronaphthalene	ND		0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Chlorophenol	ND		0.16	0.032	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Methylnaphthalene	0.68		0.048	0.0062	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Methylphenol	ND		0.63	0.098	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Nitroaniline	ND		0.63	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
2-Nitrophenol	ND		0.16	0.041	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
3,3'-Dichlorobenzidine	ND		0.32	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
3-Nitroaniline	ND		0.63	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4,6-Dinitro-2-methylphenol	ND		1.0	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Bromophenyl phenyl ether	ND		0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Chloro-3-methylphenol	ND		0.48	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Chloroaniline	ND		0.48	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Chlorophenyl phenyl ether	ND		0.16	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Nitroaniline	ND		0.63	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
4-Nitrophenol	ND		1.0	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Acenaphthene	0.16		0.048	0.0091	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Acenaphthylene	0.18		0.048	0.013	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Acetophenone	ND		0.32	0.035	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Anthracene	0.39		0.048	0.0076	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Atrazine	ND		0.63	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5
Benzaldehyde	ND		0.32	0.073	mg/Kg	☼	03/15/23 09:31	03/17/23 18:24	2.5

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	0.98		0.048	0.011	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[a]pyrene	0.67		0.048	0.030	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[b]fluoranthene	1.5		0.048	0.021	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[g,h,i]perylene	0.43		0.048	0.022	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Benzo[k]fluoranthene	0.45		0.048	0.022	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Bis(2-chloroethoxy)methane	ND		0.32	0.038	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Bis(2-chloroethyl)ether	ND		0.32	0.038	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Bis(2-ethylhexyl) phthalate	ND		0.22	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Butyl benzyl phthalate	ND		0.22	0.070	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Caprolactam	ND		1.0	0.24	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Carbazole	0.15	J	0.16	0.060	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Chrysene	1.3		0.048	0.0047	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Dibenz(a,h)anthracene	0.13		0.048	0.022	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Dibenzofuran	0.31		0.16	0.041	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Diethyl phthalate	ND		0.22	0.098	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Dimethyl phthalate	ND		0.22	0.044	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Di-n-butyl phthalate	ND		0.22	0.16	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Di-n-octyl phthalate	ND		0.22	0.089	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Fluoranthene	1.7		0.048	0.014	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Fluorene	0.17		0.048	0.0087	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Hexachlorobenzene	ND		0.048	0.0090	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Hexachlorobutadiene	ND		0.16	0.038	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Hexachlorocyclopentadiene	ND		1.0	0.20	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Hexachloroethane	ND		0.16	0.029	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Indeno[1,2,3-cd]pyrene	0.42		0.048	0.023	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Isophorone	ND		0.16	0.038	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
N-Nitrosodi-n-propylamine	ND		0.16	0.035	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
N-Nitrosodiphenylamine	ND		0.16	0.038	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Naphthalene	0.41		0.048	0.0076	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Nitrobenzene	ND		0.32	0.041	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Pentachlorophenol	ND		0.48	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Phenanthrene	1.1		0.048	0.0071	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Phenol	ND		0.16	0.025	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
Pyrene	1.7		0.048	0.0068	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
3 & 4 Methylphenol	ND		1.3	0.092	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5
2-Butoxyethanol	2.4		0.22	0.21	mg/Kg	✳	03/15/23 09:31	03/17/23 18:24	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	52		46 - 137	03/15/23 09:31	03/17/23 18:24	2.5
Phenol-d5 (Surr)	40		26 - 120	03/15/23 09:31	03/17/23 18:24	2.5
Nitrobenzene-d5 (Surr)	32		25 - 120	03/15/23 09:31	03/17/23 18:24	2.5
2-Fluorophenol (Surr)	35		20 - 120	03/15/23 09:31	03/17/23 18:24	2.5
2-Fluorobiphenyl (Surr)	42		34 - 120	03/15/23 09:31	03/17/23 18:24	2.5
2,4,6-Tribromophenol (Surr)	32		10 - 120	03/15/23 09:31	03/17/23 18:24	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:08	1
Barium	0.60	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:08	1
Cadmium	0.0018	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:08	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:08	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:08	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:08	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.8		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	22.2		0.1	0.1	%			03/15/23 13:31	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1,2-Trichloroethane	ND		0.34	0.079	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1-Dichloroethane	ND		0.34	0.066	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dibromo-3-Chloropropane	ND		0.69	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dichlorobenzene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dichloroethane	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,2-Dichloropropane	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
1,4-Dichlorobenzene	ND		0.34	0.076	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
2-Butanone (MEK)	ND		1.4	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Acetone	ND		1.4	0.34	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Benzene	ND		0.34	0.058	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Dichlorobromomethane	ND		0.34	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chloromethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
cis-1,2-Dichloroethene	ND		0.34	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Cyclohexane	ND		0.69	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Dichlorodifluoromethane	ND		0.34	0.073	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Ethylbenzene	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Isopropylbenzene	0.055	J	0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methyl tert-butyl ether	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methylcyclohexane	0.69		0.69	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Methylene Chloride	ND		0.69	0.53	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Styrene	ND		0.34	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
trans-1,2-Dichloroethene	ND		0.34	0.085	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Trichloroethene	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Vinyl chloride	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Xylenes, Total	0.42	J	0.69	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 07:44	1
Butyl acrylate	41		17	9.3	mg/Kg	✱	03/15/23 13:01	03/16/23 23:47	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		3.4	0.81	mg/Kg	☼	03/15/23 13:01	03/16/23 23:47	5
2-Ethylhexyl acrylate	99		34	26	mg/Kg	☼	03/15/23 13:01	03/17/23 20:57	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		56 - 125				03/15/23 13:01	03/16/23 23:47	5
Toluene-d8 (Surr)	90		56 - 125				03/15/23 13:01	03/17/23 07:44	1
Toluene-d8 (Surr)	109		56 - 125				03/15/23 13:01	03/17/23 20:57	10
Dibromofluoromethane (Surr)	89		41 - 138				03/15/23 13:01	03/16/23 23:47	5
Dibromofluoromethane (Surr)	81		41 - 138				03/15/23 13:01	03/17/23 07:44	1
Dibromofluoromethane (Surr)	94		41 - 138				03/15/23 13:01	03/17/23 20:57	10
4-Bromofluorobenzene (Surr)	111		41 - 143				03/15/23 13:01	03/16/23 23:47	5
4-Bromofluorobenzene (Surr)	102		41 - 143				03/15/23 13:01	03/17/23 07:44	1
4-Bromofluorobenzene (Surr)	114		41 - 143				03/15/23 13:01	03/17/23 20:57	10
1,2-Dichloroethane-d4 (Surr)	101		58 - 125				03/15/23 13:01	03/16/23 23:47	5
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				03/15/23 13:01	03/17/23 07:44	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125				03/15/23 13:01	03/17/23 20:57	10

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.074	J	0.15	0.052	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
bis (2-chloroisopropyl) ether	ND		0.31	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,4,5-Trichlorophenol	ND		0.46	0.21	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,4,6-Trichlorophenol	ND		0.46	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dichlorophenol	ND		0.46	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dimethylphenol	ND		0.46	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dinitrophenol	ND		1.0	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,4-Dinitrotoluene	ND		0.61	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2,6-Dinitrotoluene	ND		0.61	0.17	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Chloronaphthalene	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Chlorophenol	ND		0.15	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Methylnaphthalene	0.55		0.046	0.0060	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Methylphenol	ND		0.61	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Nitroaniline	ND		0.61	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Nitrophenol	ND		0.15	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
3,3'-Dichlorobenzidine	ND		0.31	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
3-Nitroaniline	ND		0.61	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4,6-Dinitro-2-methylphenol	ND		1.0	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4-Bromophenyl phenyl ether	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4-Chloro-3-methylphenol	ND		0.46	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4-Chloroaniline	ND		0.46	0.092	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4-Chlorophenyl phenyl ether	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4-Nitroaniline	ND		0.61	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
4-Nitrophenol	ND		1.0	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Acenaphthene	0.11		0.046	0.0088	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Acenaphthylene	0.10		0.046	0.012	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Acetophenone	ND		0.31	0.034	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Anthracene	0.28		0.046	0.0074	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Atrazine	ND		0.61	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Benzaldehyde	ND		0.31	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[a]anthracene	0.83		0.046	0.010	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	0.55		0.046	0.029	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[b]fluoranthene	1.0		0.046	0.020	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[g,h,i]perylene	0.31		0.046	0.022	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Benzo[k]fluoranthene	0.41		0.046	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Bis(2-chloroethoxy)methane	ND		0.31	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Bis(2-chloroethyl)ether	ND		0.31	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Bis(2-ethylhexyl) phthalate	ND		0.22	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Butyl benzyl phthalate	ND		0.22	0.068	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Caprolactam	ND		1.0	0.23	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Carbazole	0.15		0.15	0.058	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Chrysene	1.1		0.046	0.0046	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Dibenz(a,h)anthracene	0.092		0.046	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Dibenzofuran	0.30		0.15	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Diethyl phthalate	ND		0.22	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Dimethyl phthalate	ND		0.22	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Di-n-butyl phthalate	ND		0.22	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Di-n-octyl phthalate	ND		0.22	0.086	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Fluoranthene	1.7		0.046	0.014	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Fluorene	0.17		0.046	0.0084	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Hexachlorobenzene	ND		0.046	0.0088	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Hexachlorobutadiene	ND		0.15	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Hexachlorocyclopentadiene	ND		1.0	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Hexachloroethane	ND		0.15	0.028	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Indeno[1,2,3-cd]pyrene	0.27		0.046	0.023	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Isophorone	ND		0.15	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
N-Nitrosodi-n-propylamine	ND		0.15	0.034	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
N-Nitrosodiphenylamine	ND		0.15	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Naphthalene	0.35		0.046	0.0074	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Nitrobenzene	ND		0.31	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Pentachlorophenol	ND		0.46	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Phenanthrene	1.0		0.046	0.0069	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Phenol	ND		0.15	0.025	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
Pyrene	1.6		0.046	0.0066	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
3 & 4 Methylphenol	ND		1.2	0.089	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5
2-Butoxyethanol	2.5		0.22	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:49	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	53		46 - 137	03/15/23 09:31	03/17/23 18:49	2.5
Phenol-d5 (Surr)	47		26 - 120	03/15/23 09:31	03/17/23 18:49	2.5
Nitrobenzene-d5 (Surr)	33		25 - 120	03/15/23 09:31	03/17/23 18:49	2.5
2-Fluorophenol (Surr)	42		20 - 120	03/15/23 09:31	03/17/23 18:49	2.5
2-Fluorobiphenyl (Surr)	47		34 - 120	03/15/23 09:31	03/17/23 18:49	2.5
2,4,6-Tribromophenol (Surr)	34		10 - 120	03/15/23 09:31	03/17/23 18:49	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:12	1
Barium	0.50	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:12	1
Cadmium	0.0011	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:12	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Method: SW846 6010D - Metals (ICP) - TCLP (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:12	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:12	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:12	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.0		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.0		0.1	0.1	%			03/15/23 13:31	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1-Dichloroethane	ND		0.34	0.065	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dibromo-3-Chloropropane	ND		0.68	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,2-Dichloropropane	ND		0.34	0.050	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
2-Butanone (MEK)	ND		1.4	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.32	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Acetone	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Benzene	ND		0.34	0.057	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chloroethane	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chloromethane	ND		0.34	0.090	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
cis-1,2-Dichloroethene	ND		0.34	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Cyclohexane	0.26	J	0.68	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Dichlorodifluoromethane	ND		0.34	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Ethylbenzene	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Isopropylbenzene	0.058	J	0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methyl tert-butyl ether	ND		0.34	0.050	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methylcyclohexane	0.99		0.68	0.090	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Methylene Chloride	ND		0.68	0.52	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Styrene	ND		0.34	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
trans-1,2-Dichloroethene	ND		0.34	0.084	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Trichloroethene	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Vinyl chloride	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Xylenes, Total	0.52	J	0.68	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1
Butyl acrylate	3.3	J	3.4	1.8	mg/Kg	✱	03/15/23 13:01	03/17/23 00:12	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.68	0.16	mg/Kg	☼	03/15/23 13:01	03/17/23 00:12	1
2-Ethylhexyl acrylate	11		3.4	2.5	mg/Kg	☼	03/15/23 13:01	03/17/23 00:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		56 - 125				03/15/23 13:01	03/17/23 00:12	1
Dibromofluoromethane (Surr)	88		41 - 138				03/15/23 13:01	03/17/23 00:12	1
4-Bromofluorobenzene (Surr)	113		41 - 143				03/15/23 13:01	03/17/23 00:12	1
1,2-Dichloroethane-d4 (Surr)	103		58 - 125				03/15/23 13:01	03/17/23 00:12	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.2	2.1	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
bis (2-chloroisopropyl) ether	ND		12	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4,5-Trichlorophenol	ND		18	8.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4,6-Trichlorophenol	ND		18	7.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dichlorophenol	ND		18	5.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dimethylphenol	ND		18	4.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dinitrophenol	ND		41	17	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,4-Dinitrotoluene	ND		25	7.6	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2,6-Dinitrotoluene	ND		25	6.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Chloronaphthalene	ND		6.2	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Chlorophenol	ND		6.2	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Methylnaphthalene	1.0	J	1.8	0.24	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Methylphenol	ND		25	3.8	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Nitroaniline	ND		25	4.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
2-Nitrophenol	ND		6.2	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
3,3'-Dichlorobenzidine	ND		12	5.3	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
3-Nitroaniline	ND		25	6.0	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4,6-Dinitro-2-methylphenol	ND		41	9.9	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Bromophenyl phenyl ether	ND		6.2	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Chloro-3-methylphenol	ND		18	5.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Chloroaniline	ND		18	3.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Chlorophenyl phenyl ether	ND		6.2	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Nitroaniline	ND		25	7.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
4-Nitrophenol	ND		41	12	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Acenaphthene	ND		1.8	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Acenaphthylene	ND		1.8	0.49	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Acetophenone	ND		12	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Anthracene	ND		1.8	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Atrazine	ND		25	4.4	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzaldehyde	ND		12	2.8	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[a]anthracene	ND		1.8	0.42	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[a]pyrene	ND		1.8	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[b]fluoranthene	ND		1.8	0.80	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[g,h,i]perylene	ND		1.8	0.87	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Benzo[k]fluoranthene	ND		1.8	0.85	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Bis(2-chloroethoxy)methane	ND		12	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Bis(2-chloroethyl)ether	ND		12	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Bis(2-ethylhexyl) phthalate	ND		8.6	6.3	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100
Butyl benzyl phthalate	ND		8.6	2.7	mg/Kg	☼	03/15/23 09:31	03/17/23 16:46	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		41	9.2	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Carbazole	ND		6.2	2.3	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Chrysene	ND		1.8	0.18	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Dibenz(a,h)anthracene	ND		1.8	0.85	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Dibenzofuran	ND		6.2	1.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Diethyl phthalate	ND		8.6	3.8	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Dimethyl phthalate	ND		8.6	1.7	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Di-n-butyl phthalate	ND		8.6	6.2	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Di-n-octyl phthalate	ND		8.6	3.4	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Fluoranthene	1.1	J	1.8	0.55	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Fluorene	ND		1.8	0.34	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachlorobenzene	ND		1.8	0.35	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachlorobutadiene	ND		6.2	1.5	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachlorocyclopentadiene	ND		41	7.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Hexachloroethane	ND		6.2	1.1	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Indeno[1,2,3-cd]pyrene	ND		1.8	0.91	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Isophorone	ND		6.2	1.5	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
N-Nitrosodi-n-propylamine	ND		6.2	1.4	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
N-Nitrosodiphenylamine	ND		6.2	1.5	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Naphthalene	ND		1.8	0.30	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Nitrobenzene	ND		12	1.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Pentachlorophenol	ND		18	7.1	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Phenanthrene	0.91	J	1.8	0.27	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Phenol	ND		6.2	0.99	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
Pyrene	1.0	J	1.8	0.26	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
3 & 4 Methylphenol	ND		49	3.6	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100
2-Butoxyethanol	130		8.6	8.1	mg/Kg	✳	03/15/23 09:31	03/17/23 16:46	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	49		46 - 137	03/15/23 09:31	03/17/23 16:46	100
Phenol-d5 (Surr)	40		26 - 120	03/15/23 09:31	03/17/23 16:46	100
Nitrobenzene-d5 (Surr)	24	S1-	25 - 120	03/15/23 09:31	03/17/23 16:46	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	03/15/23 09:31	03/17/23 16:46	100
2-Fluorobiphenyl (Surr)	36		34 - 120	03/15/23 09:31	03/17/23 16:46	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/15/23 09:31	03/17/23 16:46	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:17	1
Barium	0.36	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:17	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:17	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:17	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:17	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:17	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:17	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:03	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.7		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.3		0.1	0.1	%			03/15/23 13:31	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.37	0.11	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,1,2,2-Tetrachloroethane	ND		0.37	0.22	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.37	0.098	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,1,2-Trichloroethane	ND		0.37	0.084	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,1-Dichloroethane	ND		0.37	0.070	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,1-Dichloroethene	ND		0.37	0.12	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,2,4-Trichlorobenzene	ND		0.37	0.19	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,2-Dibromo-3-Chloropropane	ND		0.73	0.32	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Ethylene Dibromide	ND		0.37	0.12	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,2-Dichlorobenzene	ND		0.37	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,2-Dichloroethane	ND		0.37	0.069	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,2-Dichloropropane	ND		0.37	0.054	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,3-Dichlorobenzene	ND		0.37	0.067	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
1,4-Dichlorobenzene	ND		0.37	0.081	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
2-Butanone (MEK)	ND		1.5	0.23	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
2-Hexanone	ND		1.5	0.39	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.35	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Acetone	ND		1.5	0.36	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Benzene	ND		0.37	0.062	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Dichlorobromomethane	ND		0.37	0.089	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Bromoform	ND		0.37	0.33	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Bromomethane	ND		0.37	0.24	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Carbon disulfide	ND		0.37	0.16	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Carbon tetrachloride	ND		0.37	0.15	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Chlorobenzene	ND		0.37	0.051	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Chloroethane	ND		0.37	0.22	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Chloroform	ND		0.37	0.079	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Chloromethane	ND		0.37	0.097	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
cis-1,2-Dichloroethene	ND		0.37	0.059	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
cis-1,3-Dichloropropene	ND		0.37	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Cyclohexane	ND		0.73	0.24	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Chlorodibromomethane	ND		0.37	0.17	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Dichlorodifluoromethane	ND		0.37	0.078	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Ethylbenzene	ND		0.37	0.069	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Isopropylbenzene	ND		0.37	0.056	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Methyl acetate	ND		1.8	0.25	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Methyl tert-butyl ether	ND		0.37	0.054	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Methylcyclohexane	0.62	J	0.73	0.097	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Methylene Chloride	ND		0.73	0.56	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Styrene	ND		0.37	0.076	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Tetrachloroethene	ND		0.37	0.14	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Toluene	ND		0.37	0.35	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
trans-1,2-Dichloroethene	ND		0.37	0.091	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
trans-1,3-Dichloropropene	ND		0.37	0.15	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Trichloroethene	ND		0.37	0.21	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Trichlorofluoromethane	ND		0.37	0.20	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Vinyl chloride	0.24	J	0.37	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Xylenes, Total	0.41	J	0.73	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 09:19	1
Butyl acrylate	40		31	17	mg/Kg	✳	03/15/23 13:01	03/17/23 20:07	8.3333

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		6.1	1.4	mg/Kg	☼	03/15/23 13:01	03/17/23 20:07	8.3333
2-Ethylhexyl acrylate	130		31	23	mg/Kg	☼	03/15/23 13:01	03/17/23 20:07	8.3333
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		56 - 125				03/15/23 13:01	03/17/23 09:19	1
Toluene-d8 (Surr)	109		56 - 125				03/15/23 13:01	03/17/23 20:07	8.3333
Dibromofluoromethane (Surr)	79		41 - 138				03/15/23 13:01	03/17/23 09:19	1
Dibromofluoromethane (Surr)	94		41 - 138				03/15/23 13:01	03/17/23 20:07	8.3333
4-Bromofluorobenzene (Surr)	97		41 - 143				03/15/23 13:01	03/17/23 09:19	1
4-Bromofluorobenzene (Surr)	114		41 - 143				03/15/23 13:01	03/17/23 20:07	8.3333
1,2-Dichloroethane-d4 (Surr)	80		58 - 125				03/15/23 13:01	03/17/23 09:19	1
1,2-Dichloroethane-d4 (Surr)	103		58 - 125				03/15/23 13:01	03/17/23 20:07	8.3333

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.32	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
bis (2-chloroisopropyl) ether	ND		0.64	0.064	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4,5-Trichlorophenol	ND		0.96	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4,6-Trichlorophenol	ND		0.96	0.41	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dichlorophenol	ND		0.96	0.28	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dimethylphenol	ND		0.96	0.26	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dinitrophenol	ND		2.1	0.91	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,4-Dinitrotoluene	ND		1.3	0.40	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2,6-Dinitrotoluene	ND		1.3	0.36	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Chloronaphthalene	ND		0.32	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Chlorophenol	ND		0.32	0.064	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Methylnaphthalene	0.76		0.096	0.013	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Methylphenol	ND		1.3	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Nitroaniline	ND		1.3	0.26	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Nitrophenol	ND		0.32	0.084	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
3,3'-Dichlorobenzidine	ND		0.64	0.28	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
3-Nitroaniline	ND		1.3	0.31	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4,6-Dinitro-2-methylphenol	ND		2.1	0.51	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Bromophenyl phenyl ether	ND		0.32	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Chloro-3-methylphenol	ND		0.96	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Chloroaniline	ND		0.96	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Chlorophenyl phenyl ether	ND		0.32	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Nitroaniline	ND		1.3	0.39	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
4-Nitrophenol	ND		2.1	0.60	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Acenaphthene	0.074	J	0.096	0.018	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Acenaphthylene	0.12		0.096	0.026	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Acetophenone	ND		0.64	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Anthracene	0.17		0.096	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Atrazine	ND		1.3	0.23	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzaldehyde	ND		0.64	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[a]anthracene	0.40		0.096	0.022	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[a]pyrene	0.35		0.096	0.060	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[b]fluoranthene	0.82		0.096	0.042	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[g,h,i]perylene	0.26		0.096	0.046	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Benzo[k]fluoranthene	0.21		0.096	0.045	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.64	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Bis(2-chloroethyl)ether	ND		0.64	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Bis(2-ethylhexyl) phthalate	ND		0.45	0.33	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Butyl benzyl phthalate	ND		0.45	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Caprolactam	ND		2.1	0.48	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Carbazole	ND		0.32	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Chrysene	0.63		0.096	0.0096	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Dibenz(a,h)anthracene	ND		0.096	0.044	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Dibenzofuran	0.28	J	0.32	0.084	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Diethyl phthalate	ND		0.45	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Dimethyl phthalate	ND		0.45	0.090	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Di-n-butyl phthalate	ND		0.45	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Di-n-octyl phthalate	ND		0.45	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Fluoranthene	0.69		0.096	0.029	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Fluorene	0.079	J	0.096	0.018	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Hexachlorobenzene	ND		0.096	0.018	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Hexachlorobutadiene	ND		0.32	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Hexachlorocyclopentadiene	ND		2.1	0.40	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Hexachloroethane	ND		0.32	0.058	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Indeno[1,2,3-cd]pyrene	0.25		0.096	0.047	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Isophorone	ND		0.32	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
N-Nitrosodi-n-propylamine	ND		0.32	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
N-Nitrosodiphenylamine	ND		0.32	0.077	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Naphthalene	0.49		0.096	0.015	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Nitrobenzene	ND		0.64	0.084	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Pentachlorophenol	ND		0.96	0.37	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Phenanthrene	0.71		0.096	0.014	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Phenol	ND		0.32	0.051	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
Pyrene	0.68		0.096	0.014	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
3 & 4 Methylphenol	ND		2.6	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5
2-Butoxyethanol	5.0		0.45	0.42	mg/Kg	☼	03/15/23 09:31	03/17/23 15:33	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	47		46 - 137	03/15/23 09:31	03/17/23 15:33	5
Phenol-d5 (Surr)	45		26 - 120	03/15/23 09:31	03/17/23 15:33	5
Nitrobenzene-d5 (Surr)	43		25 - 120	03/15/23 09:31	03/17/23 15:33	5
2-Fluorophenol (Surr)	39		20 - 120	03/15/23 09:31	03/17/23 15:33	5
2-Fluorobiphenyl (Surr)	43		34 - 120	03/15/23 09:31	03/17/23 15:33	5
2,4,6-Tribromophenol (Surr)	35		10 - 120	03/15/23 09:31	03/17/23 15:33	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:22	1
Barium	0.86	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:22	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:22	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:22	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:22	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:22	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:22	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.7		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	22.3		0.1	0.1	%			03/15/23 13:31	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.29	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1,2,2-Tetrachloroethane	ND		0.29	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.29	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1,2-Trichloroethane	ND		0.29	0.067	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1-Dichloroethane	ND		0.29	0.056	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,1-Dichloroethene	ND		0.29	0.096	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2,4-Trichlorobenzene	ND		0.29	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dibromo-3-Chloropropane	ND		0.58	0.26	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Ethylene Dibromide	ND		0.29	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dichlorobenzene	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dichloroethane	ND		0.29	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,2-Dichloropropane	ND		0.29	0.043	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,3-Dichlorobenzene	ND		0.29	0.054	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
1,4-Dichlorobenzene	ND		0.29	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
2-Butanone (MEK)	ND		1.2	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
2-Hexanone	ND		1.2	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
4-Methyl-2-pentanone (MIBK)	ND		1.2	0.28	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Acetone	ND		1.2	0.29	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Benzene	0.12	J	0.29	0.049	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Dichlorobromomethane	ND		0.29	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Bromoform	ND		0.29	0.27	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Bromomethane	ND		0.29	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Carbon disulfide	ND		0.29	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Carbon tetrachloride	ND		0.29	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chlorobenzene	ND		0.29	0.041	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chloroethane	ND		0.29	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chloroform	ND		0.29	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chloromethane	ND		0.29	0.077	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
cis-1,2-Dichloroethene	ND		0.29	0.047	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
cis-1,3-Dichloropropene	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Cyclohexane	ND		0.58	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Chlorodibromomethane	ND		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Dichlorodifluoromethane	ND		0.29	0.062	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Ethylbenzene	ND		0.29	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Isopropylbenzene	ND		0.29	0.044	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methyl acetate	0.62	J	1.5	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methyl tert-butyl ether	ND		0.29	0.043	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methylcyclohexane	0.28	J	0.58	0.077	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Methylene Chloride	ND		0.58	0.45	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Styrene	ND		0.29	0.061	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Tetrachloroethene	ND		0.29	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Toluene	ND		0.29	0.28	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
trans-1,2-Dichloroethene	ND		0.29	0.072	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
trans-1,3-Dichloropropene	ND		0.29	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Trichloroethene	ND		0.29	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Trichlorofluoromethane	ND		0.29	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Vinyl chloride	2.2		0.29	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Xylenes, Total	0.19	J	0.58	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 11:43	1
Butyl acrylate	67		49	26	mg/Kg	✱	03/15/23 13:01	03/17/23 19:42	16.6666

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		9.7	2.3	mg/Kg	☼	03/15/23 13:01	03/17/23 19:42	16.6666
2-Ethylhexyl acrylate	190		49	36	mg/Kg	☼	03/15/23 13:01	03/17/23 19:42	16.6666
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		56 - 125				03/15/23 13:01	03/17/23 11:43	1
Toluene-d8 (Surr)	105		56 - 125				03/15/23 13:01	03/17/23 19:42	16.6666
Dibromofluoromethane (Surr)	79		41 - 138				03/15/23 13:01	03/17/23 11:43	1
Dibromofluoromethane (Surr)	93		41 - 138				03/15/23 13:01	03/17/23 19:42	16.6666
4-Bromofluorobenzene (Surr)	95		41 - 143				03/15/23 13:01	03/17/23 11:43	1
4-Bromofluorobenzene (Surr)	112		41 - 143				03/15/23 13:01	03/17/23 19:42	16.6666
1,2-Dichloroethane-d4 (Surr)	77		58 - 125				03/15/23 13:01	03/17/23 11:43	1
1,2-Dichloroethane-d4 (Surr)	106		58 - 125				03/15/23 13:01	03/17/23 19:42	16.6666

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.42	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
bis (2-chloroisopropyl) ether	ND		2.5	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4,5-Trichlorophenol	ND		3.7	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4,6-Trichlorophenol	ND		3.7	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dichlorophenol	ND		3.7	1.1	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dimethylphenol	ND		3.7	0.99	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dinitrophenol	ND		8.2	3.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,4-Dinitrotoluene	ND		5.0	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2,6-Dinitrotoluene	ND		5.0	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Chloronaphthalene	ND		1.2	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Chlorophenol	ND		1.2	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Methylnaphthalene	0.41		0.37	0.049	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Methylphenol	ND		5.0	0.77	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Nitroaniline	ND		5.0	0.99	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Nitrophenol	ND		1.2	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
3,3'-Dichlorobenzidine	ND		2.5	1.1	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
3-Nitroaniline	ND		5.0	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4,6-Dinitro-2-methylphenol	ND		8.2	2.0	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Bromophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Chloro-3-methylphenol	ND		3.7	1.1	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Chloroaniline	ND		3.7	0.74	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Chlorophenyl phenyl ether	ND		1.2	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Nitroaniline	ND		5.0	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
4-Nitrophenol	ND		8.2	2.3	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Acenaphthene	ND		0.37	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Acenaphthylene	0.11	J	0.37	0.10	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Acetophenone	ND		2.5	0.27	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Anthracene	0.28	J	0.37	0.060	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Atrazine	ND		5.0	0.89	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzaldehyde	ND		2.5	0.57	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[a]anthracene	1.4		0.37	0.085	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[a]pyrene	0.53		0.37	0.23	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[b]fluoranthene	1.1		0.37	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[g,h,i]perylene	0.34	J	0.37	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Benzo[k]fluoranthene	0.54		0.37	0.17	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		2.5	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Bis(2-chloroethyl)ether	ND		2.5	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Bis(2-ethylhexyl) phthalate	ND		1.7	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Butyl benzyl phthalate	ND		1.7	0.55	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Caprolactam	ND		8.2	1.9	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Carbazole	ND		1.2	0.47	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Chrysene	2.0		0.37	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Dibenz(a,h)anthracene	ND		0.37	0.17	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Dibenzofuran	ND		1.2	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Diethyl phthalate	ND		1.7	0.77	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Dimethyl phthalate	ND		1.7	0.35	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Di-n-butyl phthalate	ND		1.7	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Di-n-octyl phthalate	ND		1.7	0.70	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Fluoranthene	2.4		0.37	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Fluorene	0.11	J	0.37	0.068	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Hexachlorobenzene	ND		0.37	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Hexachlorobutadiene	ND		1.2	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Hexachlorocyclopentadiene	ND		8.2	1.5	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Hexachloroethane	ND		1.2	0.22	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Indeno[1,2,3-cd]pyrene	0.34	J	0.37	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Isophorone	ND		1.2	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
N-Nitrosodi-n-propylamine	ND		1.2	0.27	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
N-Nitrosodiphenylamine	ND		1.2	0.30	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Naphthalene	0.27	J	0.37	0.060	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Nitrobenzene	ND		2.5	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Pentachlorophenol	ND		3.7	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Phenanthrene	0.78		0.37	0.055	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Phenol	ND		1.2	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
Pyrene	2.1		0.37	0.053	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
3 & 4 Methylphenol	ND		9.9	0.72	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20
2-Butoxyethanol	18		1.7	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 18:00	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	46		46 - 137	03/15/23 09:31	03/17/23 18:00	20
Phenol-d5 (Surr)	33		26 - 120	03/15/23 09:31	03/17/23 18:00	20
Nitrobenzene-d5 (Surr)	33		25 - 120	03/15/23 09:31	03/17/23 18:00	20
2-Fluorophenol (Surr)	33		20 - 120	03/15/23 09:31	03/17/23 18:00	20
2-Fluorobiphenyl (Surr)	43		34 - 120	03/15/23 09:31	03/17/23 18:00	20
2,4,6-Tribromophenol (Surr)	21		10 - 120	03/15/23 09:31	03/17/23 18:00	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:35	1
Barium	0.48	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:35	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:35	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:35	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:35	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:35	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:35	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.9		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.1		0.1	0.1	%			03/15/23 13:31	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.32	0.10	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,1,2,2-Tetrachloroethane	ND		0.32	0.19	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.32	0.087	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,1,2-Trichloroethane	ND		0.32	0.074	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,1-Dichloroethane	ND		0.32	0.062	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,1-Dichloroethene	ND		0.32	0.11	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,2,4-Trichlorobenzene	ND		0.32	0.17	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,2-Dibromo-3-Chloropropane	ND		0.65	0.29	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Ethylene Dibromide	ND		0.32	0.10	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,2-Dichlorobenzene	ND		0.32	0.16	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,2-Dichloroethane	ND		0.32	0.061	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,2-Dichloropropane	ND		0.32	0.048	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,3-Dichlorobenzene	ND		0.32	0.060	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
1,4-Dichlorobenzene	ND		0.32	0.071	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
2-Butanone (MEK)	ND		1.3	0.20	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
2-Hexanone	ND		1.3	0.34	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
4-Methyl-2-pentanone (MIBK)	ND		1.3	0.31	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Acetone	ND		1.3	0.32	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Benzene	ND		0.32	0.054	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Dichlorobromomethane	ND		0.32	0.079	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Bromoform	ND		0.32	0.30	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Bromomethane	ND		0.32	0.22	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Carbon disulfide	ND		0.32	0.14	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Carbon tetrachloride	ND		0.32	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Chlorobenzene	ND		0.32	0.045	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Chloroethane	ND		0.32	0.19	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Chloroform	ND		0.32	0.070	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Chloromethane	ND		0.32	0.086	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
cis-1,2-Dichloroethene	ND		0.32	0.052	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
cis-1,3-Dichloropropene	ND		0.32	0.16	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Cyclohexane	ND		0.65	0.21	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Chlorodibromomethane	ND		0.32	0.15	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Dichlorodifluoromethane	ND		0.32	0.069	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Ethylbenzene	ND		0.32	0.061	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Isopropylbenzene	ND		0.32	0.049	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Methyl acetate	0.23	J	1.6	0.22	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Methyl tert-butyl ether	ND		0.32	0.048	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Methylcyclohexane	0.41	J	0.65	0.086	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Methylene Chloride	ND		0.65	0.50	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Styrene	ND		0.32	0.067	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Tetrachloroethene	ND		0.32	0.13	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Toluene	ND		0.32	0.31	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
trans-1,2-Dichloroethene	ND		0.32	0.080	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
trans-1,3-Dichloropropene	ND		0.32	0.14	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Trichloroethene	ND		0.32	0.19	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Trichlorofluoromethane	ND		0.32	0.18	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Vinyl chloride	ND		0.32	0.16	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Xylenes, Total	0.31	J	0.65	0.12	mg/Kg	✳	03/15/23 13:01	03/17/23 12:31	1
Butyl acrylate	61		54	29	mg/Kg	✳	03/15/23 13:01	03/17/23 18:16	16.6666

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		11	2.6	mg/Kg	☼	03/15/23 13:01	03/17/23 18:16	16.6666
2-Ethylhexyl acrylate	160		54	40	mg/Kg	☼	03/15/23 13:01	03/17/23 18:16	16.6666
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		56 - 125				03/15/23 13:01	03/17/23 12:31	1
Toluene-d8 (Surr)	107		56 - 125				03/15/23 13:01	03/17/23 18:16	16.6666
Dibromofluoromethane (Surr)	79		41 - 138				03/15/23 13:01	03/17/23 12:31	1
Dibromofluoromethane (Surr)	93		41 - 138				03/15/23 13:01	03/17/23 18:16	16.6666
4-Bromofluorobenzene (Surr)	97		41 - 143				03/15/23 13:01	03/17/23 12:31	1
4-Bromofluorobenzene (Surr)	112		41 - 143				03/15/23 13:01	03/17/23 18:16	16.6666
1,2-Dichloroethane-d4 (Surr)	78		58 - 125				03/15/23 13:01	03/17/23 12:31	1
1,2-Dichloroethane-d4 (Surr)	105		58 - 125				03/15/23 13:01	03/17/23 18:16	16.6666

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.068	J	0.15	0.052	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
bis (2-chloroisopropyl) ether	ND		0.31	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4,5-Trichlorophenol	ND		0.46	0.21	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4,6-Trichlorophenol	ND		0.46	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dichlorophenol	ND		0.46	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dimethylphenol	ND		0.46	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dinitrophenol	ND		1.0	0.44	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,4-Dinitrotoluene	ND		0.61	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2,6-Dinitrotoluene	ND		0.61	0.17	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Chloronaphthalene	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Chlorophenol	ND		0.15	0.031	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Methylnaphthalene	0.70		0.046	0.0060	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Methylphenol	ND		0.61	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Nitroaniline	ND		0.61	0.12	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Nitrophenol	ND		0.15	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
3,3'-Dichlorobenzidine	ND		0.31	0.13	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
3-Nitroaniline	ND		0.61	0.15	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4,6-Dinitro-2-methylphenol	ND		1.0	0.25	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Bromophenyl phenyl ether	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Chloro-3-methylphenol	ND		0.46	0.14	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Chloroaniline	ND		0.46	0.092	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Chlorophenyl phenyl ether	ND		0.15	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Nitroaniline	ND		0.61	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
4-Nitrophenol	ND		1.0	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Acenaphthene	0.12		0.046	0.0088	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Acenaphthylene	0.16		0.046	0.012	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Acetophenone	ND		0.31	0.034	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Anthracene	0.28		0.046	0.0074	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Atrazine	ND		0.61	0.11	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzaldehyde	ND		0.31	0.071	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[a]anthracene	0.62		0.046	0.010	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[a]pyrene	0.51		0.046	0.029	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[b]fluoranthene	1.2		0.046	0.020	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[g,h,i]perylene	0.35		0.046	0.022	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Benzo[k]fluoranthene	0.32		0.046	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.31	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Bis(2-chloroethyl)ether	ND		0.31	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Bis(2-ethylhexyl) phthalate	ND		0.22	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Butyl benzyl phthalate	ND		0.22	0.068	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Caprolactam	ND		1.0	0.23	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Carbazole	0.14	J	0.15	0.058	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Chrysene	0.98		0.046	0.0046	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Dibenz(a,h)anthracene	0.12		0.046	0.021	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Dibenzofuran	0.28		0.15	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Diethyl phthalate	ND		0.22	0.095	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Dimethyl phthalate	ND		0.22	0.043	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Di-n-butyl phthalate	ND		0.22	0.16	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Di-n-octyl phthalate	ND		0.22	0.086	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Fluoranthene	1.2		0.046	0.014	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Fluorene	0.14		0.046	0.0084	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Hexachlorobenzene	ND		0.046	0.0088	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Hexachlorobutadiene	ND		0.15	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Hexachlorocyclopentadiene	ND		1.0	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Hexachloroethane	ND		0.15	0.028	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Indeno[1,2,3-cd]pyrene	0.37		0.046	0.023	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Isophorone	ND		0.15	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
N-Nitrosodi-n-propylamine	ND		0.15	0.034	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
N-Nitrosodiphenylamine	ND		0.15	0.037	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Naphthalene	0.43		0.046	0.0074	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Nitrobenzene	ND		0.31	0.040	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Pentachlorophenol	ND		0.46	0.18	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Phenanthrene	0.91		0.046	0.0069	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Phenol	ND		0.15	0.025	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
Pyrene	1.2		0.046	0.0066	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
3 & 4 Methylphenol	ND		1.2	0.089	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5
2-Butoxyethanol	3.0		0.22	0.20	mg/Kg	☼	03/15/23 09:31	03/17/23 19:13	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	84		46 - 137	03/15/23 09:31	03/17/23 19:13	2.5
Phenol-d5 (Surr)	82		26 - 120	03/15/23 09:31	03/17/23 19:13	2.5
Nitrobenzene-d5 (Surr)	69		25 - 120	03/15/23 09:31	03/17/23 19:13	2.5
2-Fluorophenol (Surr)	78		20 - 120	03/15/23 09:31	03/17/23 19:13	2.5
2-Fluorobiphenyl (Surr)	78		34 - 120	03/15/23 09:31	03/17/23 19:13	2.5
2,4,6-Tribromophenol (Surr)	60		10 - 120	03/15/23 09:31	03/17/23 19:13	2.5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.013	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:39	1
Barium	0.53	B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:39	1
Cadmium	0.0015	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:39	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:39	1
Lead	0.0036	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:39	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:39	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:39	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.1		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	19.9		0.1	0.1	%			03/15/23 13:31	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1,2,2-Tetrachloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.34	0.092	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1,2-Trichloroethane	ND		0.34	0.078	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1-Dichloroethane	ND		0.34	0.066	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,1-Dichloroethene	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2,4-Trichlorobenzene	ND		0.34	0.18	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dibromo-3-Chloropropane	ND		0.69	0.30	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Ethylene Dibromide	ND		0.34	0.11	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dichlorobenzene	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dichloroethane	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,2-Dichloropropane	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,3-Dichlorobenzene	ND		0.34	0.063	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
1,4-Dichlorobenzene	ND		0.34	0.075	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
2-Butanone (MEK)	ND		1.4	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
2-Hexanone	ND		1.4	0.36	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
4-Methyl-2-pentanone (MIBK)	ND		1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Acetone	0.35	J	1.4	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Benzene	0.068	J	0.34	0.058	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Dichlorobromomethane	ND		0.34	0.083	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Bromoform	ND		0.34	0.31	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Bromomethane	ND		0.34	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Carbon disulfide	ND		0.34	0.15	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Carbon tetrachloride	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chlorobenzene	ND		0.34	0.048	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chloroethane	ND		0.34	0.21	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chloroform	ND		0.34	0.074	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chloromethane	ND		0.34	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
cis-1,2-Dichloroethene	ND		0.34	0.055	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
cis-1,3-Dichloropropene	ND		0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Cyclohexane	ND		0.69	0.22	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Chlorodibromomethane	ND		0.34	0.16	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Dichlorodifluoromethane	ND		0.34	0.073	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Ethylbenzene	ND		0.34	0.064	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Isopropylbenzene	0.059	J	0.34	0.052	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methyl acetate	ND		1.7	0.23	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methyl tert-butyl ether	ND		0.34	0.051	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methylcyclohexane	0.71		0.69	0.091	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Methylene Chloride	ND		0.69	0.53	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Styrene	ND		0.34	0.071	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Tetrachloroethene	ND		0.34	0.13	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Toluene	ND		0.34	0.33	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
trans-1,2-Dichloroethene	ND		0.34	0.085	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
trans-1,3-Dichloropropene	ND		0.34	0.14	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Trichloroethene	ND		0.34	0.20	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Trichlorofluoromethane	ND		0.34	0.19	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Vinyl chloride	0.25	J	0.34	0.17	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Xylenes, Total	0.55	J	0.69	0.12	mg/Kg	✱	03/15/23 13:01	03/17/23 13:19	1
Butyl acrylate	340		340	190	mg/Kg	✱	03/15/23 13:01	03/17/23 01:53	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		69	16	mg/Kg	☼	03/15/23 13:01	03/17/23 01:53	100
2-Ethylhexyl acrylate	720		340	260	mg/Kg	☼	03/15/23 13:01	03/17/23 01:53	100
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125				03/15/23 13:01	03/17/23 01:53	100
Toluene-d8 (Surr)	96		56 - 125				03/15/23 13:01	03/17/23 13:19	1
Dibromofluoromethane (Surr)	92		41 - 138				03/15/23 13:01	03/17/23 01:53	100
Dibromofluoromethane (Surr)	80		41 - 138				03/15/23 13:01	03/17/23 13:19	1
4-Bromofluorobenzene (Surr)	110		41 - 143				03/15/23 13:01	03/17/23 01:53	100
4-Bromofluorobenzene (Surr)	88		41 - 143				03/15/23 13:01	03/17/23 13:19	1
1,2-Dichloroethane-d4 (Surr)	102		58 - 125				03/15/23 13:01	03/17/23 01:53	100
1,2-Dichloroethane-d4 (Surr)	78		58 - 125				03/15/23 13:01	03/17/23 13:19	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.5	2.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
bis (2-chloroisopropyl) ether	ND		13	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4,5-Trichlorophenol	ND		20	9.0	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4,6-Trichlorophenol	ND		20	8.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dichlorophenol	ND		20	5.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dimethylphenol	ND		20	5.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dinitrophenol	ND		43	19	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,4-Dinitrotoluene	ND		26	8.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2,6-Dinitrotoluene	ND		26	7.3	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Chloronaphthalene	ND		6.5	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Chlorophenol	ND		6.5	1.3	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Methylnaphthalene	0.74	J	2.0	0.26	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Methylphenol	ND		26	4.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Nitroaniline	ND		26	5.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Nitrophenol	ND		6.5	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
3,3'-Dichlorobenzidine	ND		13	5.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
3-Nitroaniline	ND		26	6.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4,6-Dinitro-2-methylphenol	ND		43	10	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Bromophenyl phenyl ether	ND		6.5	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Chloro-3-methylphenol	ND		20	5.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Chloroaniline	ND		20	3.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Chlorophenyl phenyl ether	ND		6.5	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Nitroaniline	ND		26	7.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
4-Nitrophenol	ND		43	12	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Acenaphthene	ND		2.0	0.37	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Acenaphthylene	ND		2.0	0.52	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Acetophenone	ND		13	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Anthracene	0.49	J	2.0	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Atrazine	ND		26	4.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzaldehyde	ND		13	3.0	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[a]anthracene	1.6	J	2.0	0.45	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[a]pyrene	ND		2.0	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[b]fluoranthene	1.8	J	2.0	0.85	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[g,h,i]perylene	ND		2.0	0.93	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Benzo[k]fluoranthene	ND		2.0	0.91	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		13	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Bis(2-chloroethyl)ether	ND		13	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Bis(2-ethylhexyl) phthalate	ND		9.2	6.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Butyl benzyl phthalate	ND		9.2	2.9	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Caprolactam	ND		43	9.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Carbazole	ND		6.5	2.5	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Chrysene	1.8	J	2.0	0.19	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Dibenz(a,h)anthracene	ND		2.0	0.91	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Dibenzofuran	ND		6.5	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Diethyl phthalate	ND		9.2	4.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Dimethyl phthalate	ND		9.2	1.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Di-n-butyl phthalate	ND		9.2	6.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Di-n-octyl phthalate	ND		9.2	3.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Fluoranthene	3.8		2.0	0.58	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Fluorene	ND		2.0	0.36	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachlorobenzene	ND		2.0	0.37	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachlorobutadiene	ND		6.5	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachlorocyclopentadiene	ND		43	8.1	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Hexachloroethane	ND		6.5	1.2	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Indeno[1,2,3-cd]pyrene	ND		2.0	0.96	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Isophorone	ND		6.5	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
N-Nitrosodi-n-propylamine	ND		6.5	1.4	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
N-Nitrosodiphenylamine	ND		6.5	1.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Naphthalene	0.58	J	2.0	0.32	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Nitrobenzene	ND		13	1.7	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Pentachlorophenol	ND		20	7.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Phenanthrene	1.5	J	2.0	0.29	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Phenol	ND		6.5	1.0	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
Pyrene	3.8		2.0	0.28	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
3 & 4 Methylphenol	ND		52	3.8	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100
2-Butoxyethanol	120		9.2	8.6	mg/Kg	☼	03/15/23 09:31	03/17/23 17:11	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	43	S1-	46 - 137	03/15/23 09:31	03/17/23 17:11	100
Phenol-d5 (Surr)	44		26 - 120	03/15/23 09:31	03/17/23 17:11	100
Nitrobenzene-d5 (Surr)	23	S1-	25 - 120	03/15/23 09:31	03/17/23 17:11	100
2-Fluorophenol (Surr)	0	S1-	20 - 120	03/15/23 09:31	03/17/23 17:11	100
2-Fluorobiphenyl (Surr)	33	S1-	34 - 120	03/15/23 09:31	03/17/23 17:11	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/15/23 09:31	03/17/23 17:11	100

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 20:44	1
Barium	0.44	J B	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 20:44	1
Cadmium	0.0016	J	0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 20:44	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 20:44	1
Lead	0.013	J	0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 20:44	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 20:44	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 20:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 15:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	77.5		0.1	0.1	%			03/15/23 13:31	1
Percent Moisture (EPA Moisture)	22.5		0.1	0.1	%			03/15/23 13:31	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 84.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/17/23 15:56	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/17/23 15:56	1
2-Butanone (MEK)	0.027	J B	0.25	0.0012	mg/L			03/17/23 15:56	1
Benzene	ND		0.025	0.00042	mg/L			03/17/23 15:56	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/17/23 15:56	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/17/23 15:56	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/17/23 15:56	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/17/23 15:56	1
Vinyl chloride	0.0075	J F2	0.025	0.00045	mg/L			03/17/23 15:56	1
Chloroform	ND		0.025	0.00047	mg/L			03/17/23 15:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	95		80 - 120					03/17/23 15:56	1
<i>Dibromofluoromethane (Surr)</i>	98		71 - 121					03/17/23 15:56	1
<i>4-Bromofluorobenzene (Surr)</i>	95		80 - 120					03/17/23 15:56	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		76 - 120					03/17/23 15:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/16/23 11:22	03/18/23 16:01	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/16/23 11:22	03/18/23 16:01	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/16/23 11:22	03/18/23 16:01	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/16/23 11:22	03/18/23 16:01	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/16/23 11:22	03/18/23 16:01	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/16/23 11:22	03/18/23 16:01	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/16/23 11:22	03/18/23 16:01	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/16/23 11:22	03/18/23 16:01	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/16/23 11:22	03/18/23 16:01	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/16/23 11:22	03/18/23 16:01	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/16/23 11:22	03/18/23 16:01	1
Pyridine	ND		0.0040	0.00036	mg/L		03/16/23 11:22	03/18/23 16:01	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	116		46 - 137				03/16/23 11:22	03/18/23 16:01	1
<i>Phenol-d5 (Surr)</i>	62		26 - 120				03/16/23 11:22	03/18/23 16:01	1
<i>Nitrobenzene-d5 (Surr)</i>	71		24 - 120				03/16/23 11:22	03/18/23 16:01	1
<i>2-Fluorophenol (Surr)</i>	69		19 - 120				03/16/23 11:22	03/18/23 16:01	1
<i>2-Fluorobiphenyl (Surr)</i>	93		33 - 120				03/16/23 11:22	03/18/23 16:01	1
<i>2,4,6-Tribromophenol (Surr)</i>	90		10 - 120				03/16/23 11:22	03/18/23 16:01	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/16/23 11:26	03/17/23 11:58	1
Endrin	ND		0.00050	0.0000065	mg/L		03/16/23 11:26	03/17/23 11:58	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/16/23 11:26	03/17/23 11:58	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/16/23 11:26	03/17/23 11:58	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/16/23 11:26	03/17/23 11:58	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/16/23 11:26	03/17/23 11:58	1
Toxaphene	ND		0.020	0.000058	mg/L		03/16/23 11:26	03/17/23 11:58	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 84.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	71		10 - 145	03/16/23 11:26	03/17/23 11:58	1
DCB Decachlorobiphenyl	70		10 - 145	03/16/23 11:26	03/17/23 11:58	1
Tetrachloro-m-xylene	57		10 - 123	03/16/23 11:26	03/17/23 11:58	1
Tetrachloro-m-xylene	54		10 - 123	03/16/23 11:26	03/17/23 11:58	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		60	30	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1221	ND		60	36	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1232	ND		60	25	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1242	ND		60	23	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1248	ND		60	20	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1254	ND		60	25	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1260	ND		60	25	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1262	ND		60	26	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1
Aroclor-1268	ND		60	19	ug/Kg	✱	03/16/23 08:44	03/16/23 18:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	77		10 - 149	03/16/23 08:44	03/16/23 18:56	1
DCB Decachlorobiphenyl	64		10 - 174	03/16/23 08:44	03/16/23 18:56	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 06:50	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 06:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136	03/20/23 19:00	03/21/23 06:50	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	69	B	5.9	0.097	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,4,6,7,8-HpCDF	14	B	5.9	0.028	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,4,7,8-HxCDD	0.89	J B	5.9	0.025	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,4,7,8-HxCDF	2.2	J	5.9	0.047	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,4,7,8,9-HpCDF	1.5	J B	5.9	0.036	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,6,7,8-HxCDD	1.8	J B	5.9	0.024	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,6,7,8-HxCDF	1.5	J B	5.9	0.047	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,7,8-PeCDD	0.83	J I B	5.9	0.014	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,7,8-PeCDF	1.0	J I B	5.9	0.043	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,7,8,9-HxCDD	1.3	J B	5.9	0.023	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
1,2,3,7,8,9-HxCDF	0.49	J B	5.9	0.050	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
2,3,4,6,7,8-HxCDF	1.5	J B	5.9	0.045	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
2,3,4,7,8-PeCDF	2.3	J B	5.9	0.036	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
2,3,7,8-TCDD	0.15	J	1.2	0.0082	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
2,3,7,8-TCDF	0.51	J B	1.2	0.030	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
OCDD	680	B	12	0.062	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
OCDF	46	B	12	0.025	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
Total HxCDD	29	B	5.9	0.024	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
Total HxCDF	22	I B	5.9	0.047	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1
Total HpCDD	200	B	5.9	0.097	ng/Kg	✱	03/17/23 11:07	03/22/23 09:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 84.7

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDF	39	B	5.9	0.032	ng/Kg	☼	03/17/23 11:07	03/22/23 09:08	1
Total PeCDD	8.1	IB	5.9	0.014	ng/Kg	☼	03/17/23 11:07	03/22/23 09:08	1
Total PeCDF	23	IB	5.9	0.040	ng/Kg	☼	03/17/23 11:07	03/22/23 09:08	1
Total TCDD	6.2	IB	1.2	0.0082	ng/Kg	☼	03/17/23 11:07	03/22/23 09:08	1
Total TCDF	12	IB	1.2	0.030	ng/Kg	☼	03/17/23 11:07	03/22/23 09:08	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	88		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-OCDD	91		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-2,3,7,8-TCDF	90		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-2,3,7,8-TCDD	91		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-2,3,4,7,8-PeCDF	93		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-2,3,4,6,7,8-HxCDF	90		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,7,8,9-HxCDF	94		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,7,8,9-HxCDD	97		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,7,8-PeCDD	91		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,6,7,8-HxCDF	91		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,6,7,8-HxCDD	92		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,4,7,8,9-HpCDF	91		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,4,7,8-HxCDF	89		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,4,7,8-HxCDD	91		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,4,6,7,8-HpCDF	88		40 - 135				03/17/23 11:07	03/22/23 09:08	1
13C-1,2,3,4,6,7,8-HpCDD	92		40 - 135				03/17/23 11:07	03/22/23 09:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.7		0.1	0.1	%			03/15/23 14:34	1
Percent Moisture (EPA Moisture)	15.3		0.1	0.1	%			03/15/23 14:34	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-181894-9	WC-S. TRK-WEST-08 (8-10)	91	80	104	79
240-181894-9	WC-S. TRK-WEST-08 (8-10)	108	94	113	104
240-181894-10	WC-S. TRK-WEST-09 (10-12)	110	89	111	101
240-181894-10	WC-S. TRK-WEST-09 (10-12)	90	81	102	84
240-181894-10	WC-S. TRK-WEST-09 (10-12)	109	94	114	105
240-181894-11	WC-S. TRK-WEST-10 (10-12)	110	88	113	103
240-181894-12	WC-S. TRK-WEST-11 (12-14)	89	79	97	80
240-181894-12	WC-S. TRK-WEST-11 (12-14)	109	94	114	103
240-181894-13	WC-S. TRK-WEST-12 (12-14)	91	79	95	77
240-181894-13	WC-S. TRK-WEST-12 (12-14)	105	93	112	106
240-181894-14	WC-S. TRK-WEST-13 (14-16)	89	79	97	78
240-181894-14	WC-S. TRK-WEST-13 (14-16)	107	93	112	105
240-181894-15	WC-S. TRK-WEST-14 (14-16)	107	92	110	102
240-181894-15	WC-S. TRK-WEST-14 (14-16)	96	80	88	78
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	108	96	112	98
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	103	87	89	81
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	112	99	115	101
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	95	82	86	77
LCS 240-565503/2-A	Lab Control Sample	114	97	118	98
LCS 240-565503/2-A	Lab Control Sample	92	86	101	84
MB 240-565503/1-A	Method Blank	113	91	116	104
MB 240-565503/1-A	Method Blank	90	85	104	89

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	95	98	95	101
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	101	99	100	96
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	94	96	96	97

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-181894-9	WC-S. TRK-WEST-08 (8-10)	52	40	32	35	42	32
240-181894-10	WC-S. TRK-WEST-09 (10-12)	53	47	33	42	47	34
240-181894-11	WC-S. TRK-WEST-10 (10-12)	49	40	24 S1-	0 S1-	36	0 S1-
240-181894-12	WC-S. TRK-WEST-11 (12-14)	47	45	43	39	43	35
240-181894-13	WC-S. TRK-WEST-12 (12-14)	46	33	33	33	43	21
240-181894-14	WC-S. TRK-WEST-13 (14-16)	84	82	69	78	78	60
240-181894-15	WC-S. TRK-WEST-14 (14-16)	43 S1-	44	23 S1-	0 S1-	33 S1-	0 S1-
LCS 240-565464/2-A	Lab Control Sample	96	76	74	69	78	65
MB 240-565464/1-A	Method Blank	106	67	76	54	83	34

Surrogate Legend

- TPHL = Terphenyl-d14 (Surr)
- PHL = Phenol-d5 (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- 2FP = 2-Fluorophenol (Surr)
- FBP = 2-Fluorobiphenyl (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	116	62	71	69	93	90

Surrogate Legend

- TPHL = Terphenyl-d14 (Surr)
- PHL = Phenol-d5 (Surr)
- NBZ = Nitrobenzene-d5 (Surr)
- 2FP = 2-Fluorophenol (Surr)
- FBP = 2-Fluorobiphenyl (Surr)
- TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-565654/7-A	Lab Control Sample	74	73	61	69
MB 240-565654/6-A	Method Blank	72	73	52	59

Surrogate Legend

- DCBP = DCB Decachlorobiphenyl
- TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	71	70	57	54

Surrogate Legend
 DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (10-149)	DCBP1 (10-174)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	77	64
LCS 240-565605/2-A	Lab Control Sample	112	97
MB 240-565605/1-A	Method Blank	92	76

Surrogate Legend
 TCX = Tetrachloro-m-xylene
 DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
LCS 410-355463/4-A	Lab Control Sample	61	66
MB 410-355463/3-A	Method Blank	63	67

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1 (26-136)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	60

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-565503/1-A
Matrix: Solid
Analysis Batch: 565699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Acetone	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Benzene	ND		0.25	0.042	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Bromoform	ND		0.25	0.23	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chloroform	ND		0.25	0.054	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Styrene	ND		0.25	0.052	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Toluene	ND		0.25	0.24	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/15/23 13:01	03/16/23 17:51	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-565503/1-A

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Butyl acrylate	ND		2.5	1.4	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Methyl acrylate	ND		0.50	0.12	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg		03/15/23 13:01	03/16/23 17:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	113		56 - 125				03/15/23 13:01	03/16/23 17:51	1
Dibromofluoromethane (Surr)	91		41 - 138				03/15/23 13:01	03/16/23 17:51	1
4-Bromofluorobenzene (Surr)	116		41 - 143				03/15/23 13:01	03/16/23 17:51	1
1,2-Dichloroethane-d4 (Surr)	104		58 - 125				03/15/23 13:01	03/16/23 17:51	1

Lab Sample ID: MB 240-565503/1-A

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Acetone	ND		1.0	0.24	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Benzene	ND		0.25	0.042	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Bromoform	ND		0.25	0.23	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chloroform	ND		0.25	0.054	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/15/23 13:01	03/17/23 04:55	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-565503/1-A

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565503

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Styrene	ND		0.25	0.052	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Toluene	ND		0.25	0.24	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Butyl acrylate	ND		2.5	1.4	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
Methyl acrylate	ND		0.50	0.12	mg/Kg		03/15/23 13:01	03/17/23 04:55	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg		03/15/23 13:01	03/17/23 04:55	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	90		56 - 125	03/15/23 13:01	03/17/23 04:55	1
Dibromofluoromethane (Surr)	85		41 - 138	03/15/23 13:01	03/17/23 04:55	1
4-Bromofluorobenzene (Surr)	104		41 - 143	03/15/23 13:01	03/17/23 04:55	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125	03/15/23 13:01	03/17/23 04:55	1

Lab Sample ID: LCS 240-565503/2-A

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.33		mg/Kg		107	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.30		mg/Kg		104	64 - 148
1,1,2-Trichloroethane	1.25	1.33		mg/Kg		106	79 - 120
1,1-Dichloroethane	1.25	1.27		mg/Kg		101	74 - 121
1,1-Dichloroethene	1.25	1.27		mg/Kg		101	68 - 141
1,2,4-Trichlorobenzene	1.25	1.31		mg/Kg		104	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	1.03		mg/Kg		83	52 - 133
Ethylene Dibromide	1.25	1.25		mg/Kg		100	80 - 121
1,2-Dichlorobenzene	1.25	1.37		mg/Kg		109	73 - 120
1,2-Dichloroethane	1.25	1.24		mg/Kg		99	71 - 123
1,2-Dichloropropane	1.25	1.20		mg/Kg		96	76 - 126
1,3-Dichlorobenzene	1.25	1.37		mg/Kg		109	73 - 120
1,4-Dichlorobenzene	1.25	1.40		mg/Kg		112	74 - 120
2-Butanone (MEK)	2.50	2.44		mg/Kg		97	63 - 142
2-Hexanone	2.50	2.54		mg/Kg		101	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.49		mg/Kg		99	62 - 142
Acetone	2.50	2.80		mg/Kg		112	58 - 160

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565503/2-A

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.25	1.32		mg/Kg		106	76 - 121
Dichlorobromomethane	1.25	1.14		mg/Kg		91	71 - 138
Bromoform	1.25	0.964		mg/Kg		77	57 - 140
Bromomethane	1.25	1.18		mg/Kg		94	10 - 171
Carbon disulfide	1.25	1.04		mg/Kg		83	43 - 152
Carbon tetrachloride	1.25	1.20		mg/Kg		96	64 - 144
Chlorobenzene	1.25	1.35		mg/Kg		108	80 - 120
Chloroethane	1.25	0.815		mg/Kg		65	11 - 164
Chloroform	1.25	1.31		mg/Kg		105	78 - 120
Chloromethane	1.25	1.26		mg/Kg		101	41 - 142
cis-1,2-Dichloroethene	1.25	1.28		mg/Kg		103	78 - 124
cis-1,3-Dichloropropene	1.25	1.17		mg/Kg		93	70 - 133
Cyclohexane	1.25	1.27		mg/Kg		101	65 - 137
Chlorodibromomethane	1.25	1.07		mg/Kg		85	68 - 131
Dichlorodifluoromethane	1.25	1.62		mg/Kg		129	21 - 150
Ethylbenzene	1.25	1.40		mg/Kg		112	80 - 120
Isopropylbenzene	1.25	1.46		mg/Kg		117	80 - 130
Methyl acetate	2.50	2.21		mg/Kg		89	60 - 133
Methyl tert-butyl ether	1.25	1.18		mg/Kg		95	70 - 130
Methylcyclohexane	1.25	1.37		mg/Kg		109	70 - 138
Methylene Chloride	1.25	1.37		mg/Kg		110	71 - 124
Styrene	1.25	1.39		mg/Kg		111	75 - 140
Tetrachloroethene	1.25	1.49		mg/Kg		119	76 - 127
Toluene	1.25	1.44		mg/Kg		115	80 - 120
trans-1,2-Dichloroethene	1.25	1.25		mg/Kg		100	76 - 130
trans-1,3-Dichloropropene	1.25	1.28		mg/Kg		102	61 - 121
Trichloroethene	1.25	1.29		mg/Kg		103	74 - 130
Trichlorofluoromethane	1.25	1.30		mg/Kg		104	50 - 154
Vinyl chloride	1.25	1.41		mg/Kg		113	49 - 146
Xylenes, Total	2.50	2.80		mg/Kg		112	80 - 122
m-Xylene & p-Xylene	1.25	1.42		mg/Kg		113	80 - 122
o-Xylene	1.25	1.38		mg/Kg		110	80 - 124
Butyl acrylate	5.00	4.79		mg/Kg		96	61 - 120
Methyl acrylate	5.00	4.86		mg/Kg		97	76 - 120
2-Ethylhexyl acrylate	5.00	4.43		mg/Kg		89	57 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	114		56 - 125
Dibromofluoromethane (Surr)	97		41 - 138
4-Bromofluorobenzene (Surr)	118		41 - 143
1,2-Dichloroethane-d4 (Surr)	98		58 - 125

Lab Sample ID: LCS 240-565503/2-A

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	1.25	1.11		mg/Kg		89	74 - 136

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565503/2-A

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
1,1,2,2-Tetrachloroethane	1.25	1.30		mg/Kg		104	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.04		mg/Kg		83	64 - 148
1,1,2-Trichloroethane	1.25	1.21		mg/Kg		97	79 - 120
1,1-Dichloroethane	1.25	1.10		mg/Kg		88	74 - 121
1,1-Dichloroethene	1.25	1.07		mg/Kg		86	68 - 141
1,2,4-Trichlorobenzene	1.25	1.12		mg/Kg		89	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	1.09		mg/Kg		87	52 - 133
Ethylene Dibromide	1.25	1.20		mg/Kg		96	80 - 121
1,2-Dichlorobenzene	1.25	1.14		mg/Kg		91	73 - 120
1,2-Dichloroethane	1.25	1.24		mg/Kg		99	71 - 123
1,2-Dichloropropane	1.25	1.20		mg/Kg		96	76 - 126
1,3-Dichlorobenzene	1.25	1.12		mg/Kg		90	73 - 120
1,4-Dichlorobenzene	1.25	1.12		mg/Kg		90	74 - 120
2-Butanone (MEK)	2.50	2.62		mg/Kg		105	63 - 142
2-Hexanone	2.50	2.90		mg/Kg		116	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.66		mg/Kg		106	62 - 142
Acetone	2.50	3.42		mg/Kg		137	58 - 160
Benzene	1.25	1.15		mg/Kg		92	76 - 121
Dichlorobromomethane	1.25	1.14		mg/Kg		92	71 - 138
Bromoform	1.25	1.02		mg/Kg		81	57 - 140
Bromomethane	1.25	0.740		mg/Kg		59	10 - 171
Carbon disulfide	1.25	0.926		mg/Kg		74	43 - 152
Carbon tetrachloride	1.25	1.04		mg/Kg		83	64 - 144
Chlorobenzene	1.25	1.13		mg/Kg		90	80 - 120
Chloroethane	1.25	0.711		mg/Kg		57	11 - 164
Chloroform	1.25	1.15		mg/Kg		92	78 - 120
Chloromethane	1.25	1.06		mg/Kg		85	41 - 142
cis-1,2-Dichloroethene	1.25	1.12		mg/Kg		90	78 - 124
cis-1,3-Dichloropropene	1.25	1.16		mg/Kg		93	70 - 133
Cyclohexane	1.25	1.13		mg/Kg		90	65 - 137
Chlorodibromomethane	1.25	1.10		mg/Kg		88	68 - 131
Dichlorodifluoromethane	1.25	0.878		mg/Kg		70	21 - 150
Ethylbenzene	1.25	1.18		mg/Kg		94	80 - 120
Isopropylbenzene	1.25	1.22		mg/Kg		97	80 - 130
Methyl acetate	2.50	2.67		mg/Kg		107	60 - 133
Methyl tert-butyl ether	1.25	1.24		mg/Kg		99	70 - 130
Methylcyclohexane	1.25	1.10		mg/Kg		88	70 - 138
Methylene Chloride	1.25	1.14		mg/Kg		91	71 - 124
Styrene	1.25	1.19		mg/Kg		95	75 - 140
Tetrachloroethene	1.25	1.10		mg/Kg		88	76 - 127
Toluene	1.25	1.12		mg/Kg		90	80 - 120
trans-1,2-Dichloroethene	1.25	1.08		mg/Kg		87	76 - 130
trans-1,3-Dichloropropene	1.25	1.12		mg/Kg		89	61 - 121
Trichloroethene	1.25	1.08		mg/Kg		86	74 - 130
Trichlorofluoromethane	1.25	0.976		mg/Kg		78	50 - 154
Vinyl chloride	1.25	1.04		mg/Kg		83	49 - 146
Xylenes, Total	2.50	2.40		mg/Kg		96	80 - 122
m-Xylene & p-Xylene	1.25	1.20		mg/Kg		96	80 - 122

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-565503/2-A

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	1.25	1.20		mg/Kg		96	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	92		56 - 125
Dibromofluoromethane (Surr)	86		41 - 138
4-Bromofluorobenzene (Surr)	101		41 - 143
1,2-Dichloroethane-d4 (Surr)	84		58 - 125

Lab Sample ID: 240-181894-15 MS

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Butyl acrylate	340		686	1140		mg/Kg	⊛	116	10 - 150
Methyl acrylate	ND		686	782		mg/Kg	⊛	114	10 - 150
2-Ethylhexyl acrylate	720		686	1470		mg/Kg	⊛	109	10 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	108		56 - 125
Dibromofluoromethane (Surr)	96		41 - 138
4-Bromofluorobenzene (Surr)	112		41 - 143
1,2-Dichloroethane-d4 (Surr)	98		58 - 125

Lab Sample ID: 240-181894-15 MS

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		1.71	1.67		mg/Kg	⊛	97	46 - 144
1,1,2,2-Tetrachloroethane	ND		1.71	1.48		mg/Kg	⊛	86	26 - 159
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.71	1.62		mg/Kg	⊛	94	35 - 164
1,1,2-Trichloroethane	ND		1.71	1.68		mg/Kg	⊛	98	26 - 149
1,1-Dichloroethane	ND		1.71	1.66		mg/Kg	⊛	97	46 - 135
1,1-Dichloroethene	ND		1.71	1.72		mg/Kg	⊛	100	44 - 160
1,2,4-Trichlorobenzene	ND		1.71	1.57		mg/Kg	⊛	92	10 - 120
1,2-Dibromo-3-Chloropropane	ND		1.71	1.64		mg/Kg	⊛	96	12 - 144
Ethylene Dibromide	ND		1.71	1.79		mg/Kg	⊛	104	31 - 142
1,2-Dichlorobenzene	ND		1.71	1.66		mg/Kg	⊛	97	10 - 126
1,2-Dichloroethane	ND		1.71	1.66		mg/Kg	⊛	97	40 - 132
1,2-Dichloropropane	ND		1.71	1.71		mg/Kg	⊛	100	45 - 133
1,3-Dichlorobenzene	ND		1.71	1.56		mg/Kg	⊛	91	10 - 131
1,4-Dichlorobenzene	ND		1.71	1.56		mg/Kg	⊛	91	10 - 129
2-Butanone (MEK)	ND		3.43	3.32		mg/Kg	⊛	97	30 - 157
2-Hexanone	ND		3.43	4.92		mg/Kg	⊛	143	20 - 166
4-Methyl-2-pentanone (MIBK)	ND		3.43	4.48		mg/Kg	⊛	131	31 - 159
Acetone	0.35	J	3.43	3.95		mg/Kg	⊛	105	35 - 167
Benzene	0.068	J	1.71	1.78		mg/Kg	⊛	100	39 - 134

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-15 MS

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Dichlorobromomethane	ND		1.71	1.49		mg/Kg	⊛	87	32 - 146	
Bromoform	ND		1.71	1.41		mg/Kg	⊛	82	12 - 144	
Bromomethane	ND		1.71	1.39		mg/Kg	⊛	81	10 - 161	
Carbon disulfide	ND		1.71	1.42		mg/Kg	⊛	83	24 - 153	
Carbon tetrachloride	ND		1.71	1.56		mg/Kg	⊛	91	37 - 145	
Chlorobenzene	ND		1.71	1.65		mg/Kg	⊛	96	18 - 134	
Chloroethane	ND		1.71	1.31		mg/Kg	⊛	76	14 - 159	
Chloroform	ND		1.71	1.65		mg/Kg	⊛	96	43 - 134	
Chloromethane	ND		1.71	1.63		mg/Kg	⊛	95	32 - 151	
cis-1,2-Dichloroethene	ND		1.71	1.68		mg/Kg	⊛	98	48 - 132	
cis-1,3-Dichloropropene	ND		1.71	1.56		mg/Kg	⊛	91	23 - 139	
Cyclohexane	ND		1.71	1.89		mg/Kg	⊛	110	31 - 147	
Chlorodibromomethane	ND		1.71	1.48		mg/Kg	⊛	86	25 - 143	
Dichlorodifluoromethane	ND		1.71	1.34		mg/Kg	⊛	78	16 - 157	
Ethylbenzene	ND		1.71	1.78		mg/Kg	⊛	104	17 - 137	
Isopropylbenzene	0.059	J	1.71	1.84		mg/Kg	⊛	104	10 - 146	
Methyl acetate	ND		3.43	4.06		mg/Kg	⊛	118	13 - 164	
Methyl tert-butyl ether	ND		1.71	1.84		mg/Kg	⊛	107	55 - 134	
Methylcyclohexane	0.71		1.71	2.40		mg/Kg	⊛	98	20 - 153	
Methylene Chloride	ND		1.71	1.56		mg/Kg	⊛	91	38 - 145	
Styrene	ND		1.71	1.82		mg/Kg	⊛	106	10 - 149	
Tetrachloroethene	ND		1.71	1.76		mg/Kg	⊛	102	19 - 147	
Toluene	ND		1.71	1.94		mg/Kg	⊛	113	30 - 137	
trans-1,2-Dichloroethene	ND		1.71	1.71		mg/Kg	⊛	100	41 - 145	
trans-1,3-Dichloropropene	ND		1.71	1.62		mg/Kg	⊛	95	19 - 130	
Trichloroethene	ND		1.71	1.81		mg/Kg	⊛	105	21 - 158	
Trichlorofluoromethane	ND		1.71	1.50		mg/Kg	⊛	88	36 - 161	
Vinyl chloride	0.25	J	1.71	1.80		mg/Kg	⊛	90	32 - 163	
Xylenes, Total	0.55	J	3.43	4.04		mg/Kg	⊛	102	17 - 138	
m-Xylene & p-Xylene	0.28	J	1.71	2.11		mg/Kg	⊛	107	10 - 141	
o-Xylene	0.27	J	1.71	1.93		mg/Kg	⊛	97	18 - 139	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	103		56 - 125
Dibromofluoromethane (Surr)	87		41 - 138
4-Bromofluorobenzene (Surr)	89		41 - 143
1,2-Dichloroethane-d4 (Surr)	81		58 - 125

Lab Sample ID: 240-181894-15 MSD

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						RPD	Limit
Butyl acrylate	340		686	1100		mg/Kg	⊛	111	10 - 150	3	30	
Methyl acrylate	ND		686	753		mg/Kg	⊛	110	10 - 150	4	30	
2-Ethylhexyl acrylate	720		686	1440		mg/Kg	⊛	105	10 - 150	2	30	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-15 MSD

Matrix: Solid

Analysis Batch: 565699

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Toluene-d8 (Surr)	112		56 - 125
Dibromofluoromethane (Surr)	99		41 - 138
4-Bromofluorobenzene (Surr)	115		41 - 143
1,2-Dichloroethane-d4 (Surr)	101		58 - 125

Lab Sample ID: 240-181894-15 MSD

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample	Sample	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
1,1,1-Trichloroethane	ND		1.71	1.67		mg/Kg	☼	97	46 - 144	0	37	
1,1,2,2-Tetrachloroethane	ND		1.71	1.64		mg/Kg	☼	96	26 - 159	10	40	
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.71	1.58		mg/Kg	☼	92	35 - 164	2	37	
1,1,2-Trichloroethane	ND		1.71	1.69		mg/Kg	☼	99	26 - 149	0	40	
1,1-Dichloroethane	ND		1.71	1.51		mg/Kg	☼	88	46 - 135	9	36	
1,1-Dichloroethene	ND		1.71	1.60		mg/Kg	☼	93	44 - 160	7	37	
1,2,4-Trichlorobenzene	ND		1.71	1.55		mg/Kg	☼	91	10 - 120	1	40	
1,2-Dibromo-3-Chloropropane	ND		1.71	1.79		mg/Kg	☼	104	12 - 144	9	40	
Ethylene Dibromide	ND		1.71	1.73		mg/Kg	☼	101	31 - 142	3	40	
1,2-Dichlorobenzene	ND		1.71	1.62		mg/Kg	☼	94	10 - 126	2	40	
1,2-Dichloroethane	ND		1.71	1.61		mg/Kg	☼	94	40 - 132	3	35	
1,2-Dichloropropane	ND		1.71	1.64		mg/Kg	☼	96	45 - 133	4	37	
1,3-Dichlorobenzene	ND		1.71	1.51		mg/Kg	☼	88	10 - 131	3	40	
1,4-Dichlorobenzene	ND		1.71	1.52		mg/Kg	☼	88	10 - 129	3	40	
2-Butanone (MEK)	ND		3.43	3.75		mg/Kg	☼	109	30 - 157	12	40	
2-Hexanone	ND		3.43	4.89		mg/Kg	☼	143	20 - 166	1	40	
4-Methyl-2-pentanone (MIBK)	ND		3.43	4.26		mg/Kg	☼	124	31 - 159	5	40	
Acetone	0.35 J		3.43	4.54		mg/Kg	☼	122	35 - 167	14	40	
Benzene	0.068 J		1.71	1.72		mg/Kg	☼	97	39 - 134	3	40	
Dichlorobromomethane	ND		1.71	1.43		mg/Kg	☼	83	32 - 146	4	39	
Bromoform	ND		1.71	1.43		mg/Kg	☼	84	12 - 144	2	40	
Bromomethane	ND		1.71	1.28		mg/Kg	☼	75	10 - 161	8	40	
Carbon disulfide	ND		1.71	1.34		mg/Kg	☼	78	24 - 153	6	40	
Carbon tetrachloride	ND		1.71	1.54		mg/Kg	☼	90	37 - 145	1	38	
Chlorobenzene	ND		1.71	1.60		mg/Kg	☼	93	18 - 134	3	40	
Chloroethane	ND		1.71	1.29		mg/Kg	☼	75	14 - 159	1	40	
Chloroform	ND		1.71	1.60		mg/Kg	☼	94	43 - 134	3	36	
Chloromethane	ND		1.71	1.68		mg/Kg	☼	98	32 - 151	3	38	
cis-1,2-Dichloroethene	ND		1.71	1.63		mg/Kg	☼	95	48 - 132	3	37	
cis-1,3-Dichloropropene	ND		1.71	1.54		mg/Kg	☼	90	23 - 139	1	39	
Cyclohexane	ND		1.71	1.87		mg/Kg	☼	109	31 - 147	1	39	
Chlorodibromomethane	ND		1.71	1.40		mg/Kg	☼	81	25 - 143	6	40	
Dichlorodifluoromethane	ND		1.71	1.39		mg/Kg	☼	81	16 - 157	4	40	
Ethylbenzene	ND		1.71	1.76		mg/Kg	☼	103	17 - 137	1	40	
Isopropylbenzene	0.059 J		1.71	1.86		mg/Kg	☼	105	10 - 146	1	40	
Methyl acetate	ND		3.43	3.76		mg/Kg	☼	110	13 - 164	8	40	
Methyl tert-butyl ether	ND		1.71	1.66		mg/Kg	☼	97	55 - 134	10	37	
Methylcyclohexane	0.71		1.71	2.43		mg/Kg	☼	100	20 - 153	1	40	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-15 MSD

Matrix: Solid

Analysis Batch: 565727

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Prep Type: Total/NA

Prep Batch: 565503

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Methylene Chloride	ND		1.71	1.40		mg/Kg	☼	82	38 - 145	11	40
Styrene	ND		1.71	1.79		mg/Kg	☼	105	10 - 149	1	40
Tetrachloroethene	ND		1.71	1.74		mg/Kg	☼	102	19 - 147	1	40
Toluene	ND		1.71	1.87		mg/Kg	☼	109	30 - 137	3	40
trans-1,2-Dichloroethene	ND		1.71	1.55		mg/Kg	☼	91	41 - 145	10	37
trans-1,3-Dichloropropene	ND		1.71	1.55		mg/Kg	☼	90	19 - 130	5	40
Trichloroethene	ND		1.71	1.67		mg/Kg	☼	98	21 - 158	8	40
Trichlorofluoromethane	ND		1.71	1.55		mg/Kg	☼	90	36 - 161	3	40
Vinyl chloride	0.25	J	1.71	1.85		mg/Kg	☼	93	32 - 163	3	38
Xylenes, Total	0.55	J	3.43	3.84		mg/Kg	☼	96	17 - 138	5	40
m-Xylene & p-Xylene	0.28	J	1.71	1.98		mg/Kg	☼	99	10 - 141	6	40
o-Xylene	0.27	J	1.71	1.86		mg/Kg	☼	93	18 - 139	4	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	95		56 - 125
Dibromofluoromethane (Surr)	82		41 - 138
4-Bromofluorobenzene (Surr)	86		41 - 143
1,2-Dichloroethane-d4 (Surr)	77		58 - 125

Lab Sample ID: 240-181894-16 MS

Matrix: Solid

Analysis Batch: 565827

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1-Dichloroethene	ND		1.00	0.981		mg/L		98	72 - 127		
1,2-Dichloroethane	ND		1.00	0.896		mg/L		90	70 - 120		
2-Butanone (MEK)	0.027	J B	2.00	2.24		mg/L		111	76 - 127		
Benzene	ND		1.00	0.994		mg/L		99	80 - 124		
Carbon tetrachloride	ND		1.00	0.848		mg/L		85	63 - 120		
Chlorobenzene	ND		1.00	0.958		mg/L		96	80 - 120		
Chloroform	ND		1.00	0.947		mg/L		95	75 - 121		
Tetrachloroethene	ND		1.00	0.980		mg/L		98	68 - 120		
Trichloroethene	ND		1.00	1.01		mg/L		101	70 - 120		
Vinyl chloride	0.0075	J F2	1.00	0.835		mg/L		83	55 - 144		

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	99		71 - 121
4-Bromofluorobenzene (Surr)	100		80 - 120
1,2-Dichloroethane-d4 (Surr)	96		76 - 120

Lab Sample ID: 240-181894-16 MSD

Matrix: Solid

Analysis Batch: 565827

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Prep Type: TCLP

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
1,1-Dichloroethene	ND		1.00	1.02		mg/L		102	72 - 127	4	11
1,2-Dichloroethane	ND		1.00	0.983		mg/L		98	70 - 120	9	10

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-181894-16 MSD

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Matrix: Solid

Prep Type: TCLP

Analysis Batch: 565827

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
2-Butanone (MEK)	0.027	J B	2.00	2.43		mg/L		120	76 - 127	8	17
Benzene	ND		1.00	1.03		mg/L		103	80 - 124	4	10
Carbon tetrachloride	ND		1.00	0.914		mg/L		91	63 - 120	7	11
Chlorobenzene	ND		1.00	0.999		mg/L		100	80 - 120	4	10
Chloroform	ND		1.00	1.00		mg/L		100	75 - 121	5	10
Tetrachloroethene	ND		1.00	1.01		mg/L		101	68 - 120	3	10
Trichloroethene	ND		1.00	0.956		mg/L		96	70 - 120	6	10
Vinyl chloride	0.0075	J F2	1.00	0.697	F2	mg/L		69	55 - 144	18	11

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	96		71 - 121
4-Bromofluorobenzene (Surr)	96		80 - 120
1,2-Dichloroethane-d4 (Surr)	97		76 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-565464/1-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 565783

Prep Batch: 565464

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/15/23 09:31	03/17/23 12:41	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-565464/1-A

Matrix: Solid

Analysis Batch: 565783

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565464

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Anthracene	ND		0.015	0.0024	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Atrazine	ND		0.20	0.036	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Carbazole	ND		0.050	0.019	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Isophorone	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Phenol	ND		0.050	0.0080	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/15/23 09:31	03/17/23 12:41	1
2-Butoxyethanol	ND		0.070	0.066	mg/Kg		03/15/23 09:31	03/17/23 12:41	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	106		46 - 137	03/15/23 09:31	03/17/23 12:41	1
Phenol-d5 (Surr)	67		26 - 120	03/15/23 09:31	03/17/23 12:41	1
Nitrobenzene-d5 (Surr)	76		25 - 120	03/15/23 09:31	03/17/23 12:41	1
2-Fluorophenol (Surr)	54		20 - 120	03/15/23 09:31	03/17/23 12:41	1
2-Fluorobiphenyl (Surr)	83		34 - 120	03/15/23 09:31	03/17/23 12:41	1
2,4,6-Tribromophenol (Surr)	34		10 - 120	03/15/23 09:31	03/17/23 12:41	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-565464/2-A

Matrix: Solid

Analysis Batch: 566020

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565464

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
1,1'-Biphenyl	0.667	0.469		mg/Kg		70	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.452		mg/Kg		68	38 - 120
2,4,5-Trichlorophenol	0.667	0.457		mg/Kg		69	50 - 120
2,4,6-Trichlorophenol	0.667	0.473		mg/Kg		71	50 - 120
2,4-Dichlorophenol	0.667	0.480		mg/Kg		72	50 - 120
2,4-Dimethylphenol	0.667	0.426		mg/Kg		64	24 - 120
2,4-Dinitrophenol	1.33	0.840		mg/Kg		63	19 - 132
2,4-Dinitrotoluene	0.667	0.551		mg/Kg		83	64 - 120
2,6-Dinitrotoluene	0.667	0.525		mg/Kg		79	62 - 120
2-Chloronaphthalene	0.667	0.496		mg/Kg		74	51 - 120
2-Chlorophenol	0.667	0.445		mg/Kg		67	47 - 120
2-Methylnaphthalene	0.667	0.457		mg/Kg		69	38 - 120
2-Methylphenol	0.667	0.470		mg/Kg		70	45 - 120
2-Nitroaniline	0.667	0.574		mg/Kg		86	57 - 120
2-Nitrophenol	0.667	0.476		mg/Kg		71	51 - 120
3,3'-Dichlorobenzidine	1.33	0.873		mg/Kg		65	27 - 199
3-Nitroaniline	0.667	0.478		mg/Kg		72	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.03		mg/Kg		77	46 - 126
4-Bromophenyl phenyl ether	0.667	0.528		mg/Kg		79	65 - 120
4-Chloro-3-methylphenol	0.667	0.513		mg/Kg		77	51 - 120
4-Chloroaniline	0.667	0.370		mg/Kg		55	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.506		mg/Kg		76	59 - 120
4-Nitroaniline	0.667	0.516		mg/Kg		77	48 - 128
4-Nitrophenol	1.33	1.15		mg/Kg		86	43 - 120
Acenaphthene	0.667	0.520		mg/Kg		78	52 - 120
Acenaphthylene	0.667	0.479		mg/Kg		72	52 - 120
Acetophenone	0.667	0.461		mg/Kg		69	47 - 120
Anthracene	0.667	0.537		mg/Kg		81	64 - 120
Atrazine	1.33	1.25		mg/Kg		93	71 - 125
Benzaldehyde	1.33	0.941		mg/Kg		71	42 - 120
Benzo[a]anthracene	0.667	0.564		mg/Kg		85	70 - 120
Benzo[a]pyrene	0.667	0.506		mg/Kg		76	63 - 125
Benzo[b]fluoranthene	0.667	0.546		mg/Kg		82	64 - 121
Benzo[g,h,i]perylene	0.667	0.496		mg/Kg		74	62 - 120
Benzo[k]fluoranthene	0.667	0.528		mg/Kg		79	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.475		mg/Kg		71	50 - 120
Bis(2-chloroethyl)ether	0.667	0.465		mg/Kg		70	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.603		mg/Kg		90	63 - 133
Butyl benzyl phthalate	0.667	0.604		mg/Kg		91	66 - 127
Caprolactam	1.33	1.11		mg/Kg		83	67 - 120
Carbazole	0.667	0.563		mg/Kg		84	61 - 129
Chrysene	0.667	0.549		mg/Kg		82	67 - 120
Dibenz(a,h)anthracene	0.667	0.495		mg/Kg		74	62 - 120
Dibenzofuran	0.667	0.505		mg/Kg		76	55 - 120
Diethyl phthalate	0.667	0.549		mg/Kg		82	61 - 120
Dimethyl phthalate	0.667	0.562		mg/Kg		84	64 - 120
Di-n-butyl phthalate	0.667	0.587		mg/Kg		88	70 - 129
Di-n-octyl phthalate	0.667	0.588		mg/Kg		88	64 - 129

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-565464/2-A

Matrix: Solid

Analysis Batch: 566020

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565464

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Fluoranthene	0.667	0.561		mg/Kg		84	71 - 124	
Fluorene	0.667	0.522		mg/Kg		78	58 - 120	
Hexachlorobenzene	0.667	0.498		mg/Kg		75	59 - 120	
Hexachlorobutadiene	0.667	0.462		mg/Kg		69	45 - 120	
Hexachlorocyclopentadiene	0.667	0.197	J	mg/Kg		30	10 - 120	
Hexachloroethane	0.667	0.399		mg/Kg		60	39 - 120	
Indeno[1,2,3-cd]pyrene	0.667	0.515		mg/Kg		77	65 - 122	
Isophorone	0.667	0.476		mg/Kg		71	50 - 120	
N-Nitrosodi-n-propylamine	0.667	0.465		mg/Kg		70	48 - 120	
N-Nitrosodiphenylamine	0.667	0.526		mg/Kg		79	64 - 120	
Naphthalene	0.667	0.463		mg/Kg		69	34 - 120	
Nitrobenzene	0.667	0.479		mg/Kg		72	48 - 120	
Pentachlorophenol	1.33	0.634		mg/Kg		48	10 - 120	
Phenanthrene	0.667	0.530		mg/Kg		79	60 - 120	
Phenol	0.667	0.485		mg/Kg		73	48 - 120	
Pyrene	0.667	0.568		mg/Kg		85	67 - 120	
3 & 4 Methylphenol	0.667	0.466		mg/Kg		70	49 - 120	
2-Butoxyethanol	0.667	0.419		mg/Kg		63	10 - 120	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	96		46 - 137
Phenol-d5 (Surr)	76		26 - 120
Nitrobenzene-d5 (Surr)	74		25 - 120
2-Fluorophenol (Surr)	69		20 - 120
2-Fluorobiphenyl (Surr)	78		34 - 120
2,4,6-Tribromophenol (Surr)	65		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-565654/6-A

Matrix: Solid

Analysis Batch: 565762

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565654

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/16/23 11:26	03/17/23 11:11	1
Endrin	ND		0.00050	0.0000065	mg/L		03/16/23 11:26	03/17/23 11:11	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/16/23 11:26	03/17/23 11:11	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/16/23 11:26	03/17/23 11:11	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/16/23 11:26	03/17/23 11:11	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/16/23 11:26	03/17/23 11:11	1
Toxaphene	ND		0.020	0.000058	mg/L		03/16/23 11:26	03/17/23 11:11	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	72		10 - 145	03/16/23 11:26	03/17/23 11:11	1
DCB Decachlorobiphenyl	73		10 - 145	03/16/23 11:26	03/17/23 11:11	1
Tetrachloro-m-xylene	52		10 - 123	03/16/23 11:26	03/17/23 11:11	1
Tetrachloro-m-xylene	59		10 - 123	03/16/23 11:26	03/17/23 11:11	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 240-565654/7-A

Matrix: Solid

Analysis Batch: 565762

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565654

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Endrin	0.00100	0.000863		mg/L		86	36 - 120
Heptachlor	0.00100	0.000788		mg/L		79	29 - 120
Heptachlor epoxide	0.00100	0.000806		mg/L		81	36 - 120
gamma-BHC (Lindane)	0.00100	0.000792		mg/L		79	23 - 120
Methoxychlor	0.00100	0.00106		mg/L		106	23 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	74		10 - 145
DCB Decachlorobiphenyl	73		10 - 145
Tetrachloro-m-xylene	61		10 - 123
Tetrachloro-m-xylene	69		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-565605/1-A

Matrix: Solid

Analysis Batch: 565569

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565605

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1221	ND		50	30	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1232	ND		50	21	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1242	ND		50	19	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1248	ND		50	17	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1254	ND		50	21	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1260	ND		50	21	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1262	ND		50	22	ug/Kg		03/16/23 08:44	03/16/23 17:38	1
Aroclor-1268	ND		50	16	ug/Kg		03/16/23 08:44	03/16/23 17:38	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	92		10 - 149	03/16/23 08:44	03/16/23 17:38	1
DCB Decachlorobiphenyl	76		10 - 174	03/16/23 08:44	03/16/23 17:38	1

Lab Sample ID: LCS 240-565605/2-A

Matrix: Solid

Analysis Batch: 565569

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565605

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	908		ug/Kg		91	28 - 140
Aroclor-1260	1000	906		ug/Kg		91	39 - 153

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	112		10 - 149
DCB Decachlorobiphenyl	97		10 - 174

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-355463/3-A
Matrix: Solid
Analysis Batch: 355545

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 355463

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/20/23 19:00	03/21/23 05:26	1
2,4-D	ND		0.050	0.016	mg/L		03/20/23 19:00	03/21/23 05:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136				03/20/23 19:00	03/21/23 05:26	1
2,4-Dichlorophenylacetic acid (Surr)	67		26 - 136				03/20/23 19:00	03/21/23 05:26	1

Lab Sample ID: LCS 410-355463/4-A
Matrix: Solid
Analysis Batch: 355545

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 355463

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Silvex (2,4,5-TP)	0.00500	0.00337	J	mg/L		67	58 - 148
2,4-D	0.0502	0.0304	J	mg/L		61	42 - 147
Surrogate	%Recovery	Qualifier	Limits				
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136				
2,4-Dichlorophenylacetic acid (Surr)	66		26 - 136				

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-354736/1-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354736

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3,4,6,7,8-HpCDD	0.109	J I	5.0	0.011	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,6,7,8-HpCDF	0.0245	J I	5.0	0.0017	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,7,8-HxCDD	0.0330	J	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,7,8-HxCDF	ND		5.0	0.0031	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,4,7,8,9-HpCDF	0.0247	J I	5.0	0.0024	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,6,7,8-HxCDD	0.0232	J I	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,6,7,8-HxCDF	0.0121	J I	5.0	0.0031	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8-PeCDD	0.0346	J I	5.0	0.0034	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8-PeCDF	0.0550	J I	5.0	0.0075	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8,9-HxCDD	0.0272	J I	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
1,2,3,7,8,9-HxCDF	0.0470	J I	5.0	0.0034	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,4,6,7,8-HxCDF	0.0531	J I	5.0	0.0030	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,4,7,8-PeCDF	0.0437	J I	5.0	0.0055	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,7,8-TCDD	ND		1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
2,3,7,8-TCDF	0.00755	J	1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
OCDD	0.270	J	10	0.0091	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
OCDF	0.0892	J	10	0.0024	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HxCDD	0.218	J I	5.0	0.0026	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HxCDF	0.135	J I	5.0	0.0031	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HpCDD	0.109	J I	5.0	0.011	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total HpCDF	0.0493	J I	5.0	0.0020	ng/Kg		03/17/23 11:07	03/21/23 02:11	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 410-354736/1-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 354736

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total PeCDD	0.0997	J I	5.0	0.0034	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total PeCDF	0.115	J I	5.0	0.0065	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total TCDD	0.0236	J	1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1
Total TCDF	0.0277	J I	1.0	0.0040	ng/Kg		03/17/23 11:07	03/21/23 02:11	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-OCDF	98		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-OCDD	99		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,7,8-TCDF	86		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,7,8-TCDD	86		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,4,7,8-PeCDF	93		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-2,3,4,6,7,8-HxCDF	94		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8,9-HxCDF	97		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8,9-HxCDD	94		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8-PeCDF	89		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,7,8-PeCDD	85		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,6,7,8-HxCDF	100		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,6,7,8-HxCDD	93		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,7,8,9-HpCDF	94		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,7,8-HxCDF	93		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,7,8-HxCDD	92		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,6,7,8-HpCDF	96		40 - 135	03/17/23 11:07	03/21/23 02:11	1
13C-1,2,3,4,6,7,8-HpCDD	96		40 - 135	03/17/23 11:07	03/21/23 02:11	1

Lab Sample ID: LCS 410-354736/2-A
Matrix: Solid
Analysis Batch: 355523

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 354736

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3,4,6,7,8-HpCDF	100	89.4		ng/Kg		89	77 - 127
1,2,3,4,7,8-HxCDD	100	97.2		ng/Kg		97	77 - 127
1,2,3,4,7,8-HxCDF	100	95.3		ng/Kg		95	77 - 129
1,2,3,4,7,8,9-HpCDF	100	94.7		ng/Kg		95	77 - 127
1,2,3,6,7,8-HxCDD	100	97.3		ng/Kg		97	76 - 127
1,2,3,6,7,8-HxCDF	100	93.1		ng/Kg		93	77 - 129
1,2,3,7,8-PeCDD	100	102		ng/Kg		102	77 - 127
1,2,3,7,8-PeCDF	100	97.8		ng/Kg		98	75 - 129
1,2,3,7,8,9-HxCDD	100	99.3		ng/Kg		99	76 - 127
1,2,3,7,8,9-HxCDF	100	94.2		ng/Kg		94	76 - 126
2,3,4,6,7,8-HxCDF	100	93.0		ng/Kg		93	78 - 128
2,3,4,7,8-PeCDF	100	98.4		ng/Kg		98	75 - 131
2,3,7,8-TCDD	20.0	18.4		ng/Kg		92	68 - 142
2,3,7,8-TCDF	20.0	19.3		ng/Kg		96	70 - 133
OCDD	200	189		ng/Kg		95	77 - 125
OCDF	200	188		ng/Kg		94	75 - 128

Isotope Dilution	LCS	LCS	Limits
	%Recovery	Qualifier	
13C-OCDF	85		40 - 135

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-354736/2-A

Matrix: Solid

Analysis Batch: 355523

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 354736

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-OCDD	87		40 - 135
13C-2,3,7,8-TCDF	79		40 - 135
13C-2,3,7,8-TCDD	78		40 - 135
13C-2,3,4,7,8-PeCDF	85		40 - 135
13C-2,3,4,6,7,8-HxCDF	84		40 - 135
13C-1,2,3,7,8,9-HxCDF	83		40 - 135
13C-1,2,3,7,8,9-HxCDD	84		40 - 135
13C-1,2,3,7,8-PeCDD	81		40 - 135
13C-1,2,3,7,8-HxCDD	78		40 - 135
13C-1,2,3,6,7,8-HxCDF	88		40 - 135
13C-1,2,3,6,7,8-HxCDD	82		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	82		40 - 135
13C-1,2,3,4,7,8-HxCDF	85		40 - 135
13C-1,2,3,4,7,8-HxCDD	81		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	84		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	85		40 - 135

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-565630/2-A

Matrix: Solid

Analysis Batch: 565882

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 565630

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 19:01	1
Barium	ND		0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 19:01	1
Cadmium	ND		0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 19:01	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 19:01	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 19:01	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 19:01	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 19:01	1

Lab Sample ID: LCS 240-565630/3-A

Matrix: Solid

Analysis Batch: 565882

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 565630

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Arsenic	2.00	2.09		mg/L		105	50 - 150
Barium	2.00	1.93		mg/L		97	50 - 150
Cadmium	1.00	1.03		mg/L		103	50 - 150
Chromium	1.00	0.950		mg/L		95	50 - 150
Lead	1.00	0.951		mg/L		95	50 - 150
Selenium	2.00	2.10		mg/L		105	50 - 150
Silver	0.100	0.101		mg/L		101	50 - 150

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LB 240-565526/1-B
Matrix: Solid
Analysis Batch: 565882

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565630

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	0.00596	J	0.050	0.0041	mg/L		03/16/23 14:00	03/17/23 18:57	1
Barium	0.00179	J	0.50	0.0013	mg/L		03/16/23 14:00	03/17/23 18:57	1
Cadmium	ND		0.050	0.00020	mg/L		03/16/23 14:00	03/17/23 18:57	1
Chromium	ND		0.050	0.0040	mg/L		03/16/23 14:00	03/17/23 18:57	1
Lead	ND		0.050	0.0028	mg/L		03/16/23 14:00	03/17/23 18:57	1
Selenium	ND		0.050	0.0060	mg/L		03/16/23 14:00	03/17/23 18:57	1
Silver	ND		0.050	0.00062	mg/L		03/16/23 14:00	03/17/23 18:57	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-565632/2-A
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565632

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:25	1

Lab Sample ID: LCS 240-565632/3-A
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565632

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Mercury	0.00500	0.00518		mg/L		104	80 - 120

Lab Sample ID: LB 240-565526/1-C
Matrix: Solid
Analysis Batch: 566117

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 565632

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/16/23 14:00	03/20/23 14:23	1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-181894-15 DU
Matrix: Solid
Analysis Batch: 565507

Client Sample ID: WC-S. TRK-WEST-14 (14-16)
Prep Type: Total/NA

Analyte	Sample Sample		DU DU		Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Percent Solids	77.5		77.4		%		0.3	20
Percent Moisture	22.5		22.6		%		0.9	20

QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS VOA

Composite Batch: 565478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	

Prep Batch: 565503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	5035	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	5035	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	5035	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	5035	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	5035	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	5035	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	5035	
MB 240-565503/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-565503/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	5035	
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	5035	

Leach Batch: 565528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478

Analysis Batch: 565699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8260D	565503
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	8260D	565503
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
MB 240-565503/1-A	Method Blank	Total/NA	Solid	8260D	565503
LCS 240-565503/2-A	Lab Control Sample	Total/NA	Solid	8260D	565503
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503

Analysis Batch: 565727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	8260D	565503
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8260D	565503
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	8260D	565503
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	8260D	565503
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	8260D	565503
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
MB 240-565503/1-A	Method Blank	Total/NA	Solid	8260D	565503
LCS 240-565503/2-A	Lab Control Sample	Total/NA	Solid	8260D	565503
240-181894-15 MS	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503
240-181894-15 MSD	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8260D	565503

Analysis Batch: 565827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8260D	565528
240-181894-16 MS	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8260D	565528

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QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS VOA (Continued)

Analysis Batch: 565827 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16 MSD	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8260D	565528

Analysis Batch: 565878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	8260D	565503
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8260D	565503
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	8260D	565503
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	8260D	565503
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	8260D	565503

GC/MS Semi VOA

Prep Batch: 565464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	3540C	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	3540C	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	3540C	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	3540C	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	3540C	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	3540C	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	3540C	
MB 240-565464/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-565464/2-A	Lab Control Sample	Total/NA	Solid	3540C	

Composite Batch: 565478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	

Leach Batch: 565516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478

Prep Batch: 565653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	3510C	565516

Analysis Batch: 565783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	8270E	565464
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	8270E	565464
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	8270E	565464
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	8270E	565464
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	8270E	565464
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	8270E	565464
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	8270E	565464
MB 240-565464/1-A	Method Blank	Total/NA	Solid	8270E	565464

Analysis Batch: 565910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8270E	565653

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC/MS Semi VOA

Analysis Batch: 566020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-565464/2-A	Lab Control Sample	Total/NA	Solid	8270E	565464

GC Semi VOA

Leach Batch: 354756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	

Prep Batch: 355463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8151A	354756
MB 410-355463/3-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-355463/4-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 355545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8151A	355463
MB 410-355463/3-A	Method Blank	Total/NA	Solid	8151A	355463
LCS 410-355463/4-A	Lab Control Sample	Total/NA	Solid	8151A	355463

Composite Batch: 565477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	Composite	

Composite Batch: 565478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	Composite	

Leach Batch: 565516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	1311	565478

Analysis Batch: 565569

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	8082A	565605
MB 240-565605/1-A	Method Blank	Total/NA	Solid	8082A	565605
LCS 240-565605/2-A	Lab Control Sample	Total/NA	Solid	8082A	565605

Prep Batch: 565605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	3546	565477
MB 240-565605/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-565605/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 565654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	3510C	565516
MB 240-565654/6-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-565654/7-A	Lab Control Sample	Total/NA	Solid	3510C	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

GC Semi VOA

Analysis Batch: 565762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	TCLP	Solid	8081B	565654
MB 240-565654/6-A	Method Blank	Total/NA	Solid	8081B	565654
LCS 240-565654/7-A	Lab Control Sample	Total/NA	Solid	8081B	565654

Specialty Organics

Prep Batch: 354736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	HRMS-Soxtherm	
MB 410-354736/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-354736/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 355523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-354736/1-A	Method Blank	Total/NA	Solid	8290A	354736
LCS 410-354736/2-A	Lab Control Sample	Total/NA	Solid	8290A	354736

Analysis Batch: 355676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	8290A	354736

Metals

Leach Batch: 565526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	1311	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	1311	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	1311	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	1311	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	1311	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	1311	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	1311	
LB 240-565526/1-B	Method Blank	TCLP	Solid	1311	
LB 240-565526/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 565630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	3010A	565526
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	3010A	565526
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	3010A	565526
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	3010A	565526
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	3010A	565526
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	3010A	565526
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	3010A	565526
LB 240-565526/1-B	Method Blank	TCLP	Solid	3010A	565526
MB 240-565630/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-565630/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 565632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	7470A	565526
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	7470A	565526

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QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Metals (Continued)

Prep Batch: 565632 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	7470A	565526
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	7470A	565526
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	7470A	565526
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	7470A	565526
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	7470A	565526
LB 240-565526/1-C	Method Blank	TCLP	Solid	7470A	565526
MB 240-565632/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-565632/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 565882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	6010D	565630
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	6010D	565630
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	6010D	565630
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	6010D	565630
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	6010D	565630
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	6010D	565630
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	6010D	565630
LB 240-565526/1-B	Method Blank	TCLP	Solid	6010D	565630
MB 240-565630/2-A	Method Blank	Total/NA	Solid	6010D	565630
LCS 240-565630/3-A	Lab Control Sample	Total/NA	Solid	6010D	565630

Analysis Batch: 566117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	TCLP	Solid	7470A	565632
240-181894-10	WC-S. TRK-WEST-09 (10-12)	TCLP	Solid	7470A	565632
240-181894-11	WC-S. TRK-WEST-10 (10-12)	TCLP	Solid	7470A	565632
240-181894-12	WC-S. TRK-WEST-11 (12-14)	TCLP	Solid	7470A	565632
240-181894-13	WC-S. TRK-WEST-12 (12-14)	TCLP	Solid	7470A	565632
240-181894-14	WC-S. TRK-WEST-13 (14-16)	TCLP	Solid	7470A	565632
240-181894-15	WC-S. TRK-WEST-14 (14-16)	TCLP	Solid	7470A	565632
LB 240-565526/1-C	Method Blank	TCLP	Solid	7470A	565632
MB 240-565632/2-A	Method Blank	Total/NA	Solid	7470A	565632
LCS 240-565632/3-A	Lab Control Sample	Total/NA	Solid	7470A	565632

General Chemistry

Composite Batch: 565477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	Composite	

Analysis Batch: 565507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-9	WC-S. TRK-WEST-08 (8-10)	Total/NA	Solid	Moisture	
240-181894-10	WC-S. TRK-WEST-09 (10-12)	Total/NA	Solid	Moisture	
240-181894-11	WC-S. TRK-WEST-10 (10-12)	Total/NA	Solid	Moisture	
240-181894-12	WC-S. TRK-WEST-11 (12-14)	Total/NA	Solid	Moisture	
240-181894-13	WC-S. TRK-WEST-12 (12-14)	Total/NA	Solid	Moisture	
240-181894-14	WC-S. TRK-WEST-13 (14-16)	Total/NA	Solid	Moisture	
240-181894-15	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	Moisture	
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	Total/NA	Solid	Moisture	565477

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

General Chemistry (Continued)

Analysis Batch: 565507 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181894-15 DU	WC-S. TRK-WEST-14 (14-16)	Total/NA	Solid	Moisture	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:08
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:54
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-08 (8-10)

Lab Sample ID: 240-181894-9

Date Collected: 03/14/23 14:15

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 08:55
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		5.26315 789	565878	CS	EET CAN	03/17/23 20:32
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		2.5	565783	JMG	EET CAN	03/17/23 18:24

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:12
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 14:56
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 07:44
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		5	565699	CS	EET CAN	03/16/23 23:47
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		10	565878	CS	EET CAN	03/17/23 20:57

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-09 (10-12)

Lab Sample ID: 240-181894-10

Date Collected: 03/14/23 14:35

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 81.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		2.5	565783	JMG	EET CAN	03/17/23 18:49

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:17
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:03
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-10 (10-12)

Lab Sample ID: 240-181894-11

Date Collected: 03/14/23 15:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565699	CS	EET CAN	03/17/23 00:12
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		100	565783	JMG	EET CAN	03/17/23 16:46

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:22
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:05
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 09:19

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-11 (12-14)

Lab Sample ID: 240-181894-12

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		8.3333	565878	CS	EET CAN	03/17/23 20:07
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		5	565783	JMG	EET CAN	03/17/23 15:33

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:35
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:07
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-12 (12-14)

Lab Sample ID: 240-181894-13

Date Collected: 03/14/23 15:51

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 11:43
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		16.6666	565878	CS	EET CAN	03/17/23 19:42
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		20	565783	JMG	EET CAN	03/17/23 18:00

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:39
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:09
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-13 (14-16)

Lab Sample ID: 240-181894-14

Date Collected: 03/14/23 16:10

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 80.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 12:31
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		16.6666	565878	CS	EET CAN	03/17/23 18:16
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		2.5	565783	JMG	EET CAN	03/17/23 19:13

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3010A			565630	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	6010D		1	565882	RKT	EET CAN	03/17/23 20:44
TCLP	Leach	1311			565526	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	7470A			565632	MRL	EET CAN	03/16/23 14:00
TCLP	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:11
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 13:31

Client Sample ID: WC-S. TRK-WEST-14 (14-16)

Lab Sample ID: 240-181894-15

Date Collected: 03/14/23 16:30

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 77.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		1	565727	TJL2	EET CAN	03/17/23 13:19
Total/NA	Prep	5035			565503	LAM	EET CAN	03/15/23 13:01
Total/NA	Analysis	8260D		100	565699	CS	EET CAN	03/17/23 01:53
Total/NA	Prep	3540C			565464	BMB	EET CAN	03/15/23 09:31
Total/NA	Analysis	8270E		100	565783	JMG	EET CAN	03/17/23 17:11

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565528	DRJ	EET CAN	03/15/23 15:00 - 03/16/23 08:20 ¹
TCLP	Analysis	8260D		1	565827	AJS	EET CAN	03/17/23 15:56
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565516	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3510C			565653	SDE	EET CAN	03/16/23 11:22
TCLP	Analysis	8270E		1	565910	MRU	EET CAN	03/18/23 16:01

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-181894-1

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			565478	DRJ	EET CAN	03/15/23 10:16
TCLP	Leach	1311			565516	DRJ	EET CAN	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	3510C			565654	SDE	EET CAN	03/16/23 11:26
TCLP	Analysis	8081B		1	565762	BPM	EET CAN	03/17/23 11:58
TCLP	Leach	1311			354756	N3PD	ELLE	03/15/23 16:20 - 03/16/23 08:25 ¹
TCLP	Prep	8151A			355463	K2IL	ELLE	03/20/23 19:00
TCLP	Analysis	8151A		1	355545	UAMZ	ELLE	03/21/23 06:50
Total/NA	Composite	Composite			565477	DRJ	EET CAN	03/15/23 10:16
Total/NA	Analysis	Moisture		1	565507	MED	EET CAN	03/15/23 14:34

Client Sample ID: WC-S. TRK-WEST-COMP (08-14)

Lab Sample ID: 240-181894-16

Date Collected: 03/14/23 00:00

Matrix: Solid

Date Received: 03/14/23 19:20

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			565477	DRJ	EET CAN	03/15/23 10:16
Total/NA	Prep	3546			565605	AJ	EET CAN	03/16/23 08:44
Total/NA	Analysis	8082A		1	565569	LSH	EET CAN	03/16/23 18:56
Total/NA	Prep	HRMS-Soxtherm			354736	UJSZ	ELLE	03/17/23 11:07
Total/NA	Analysis	8290A		1	355676	DZ6A	ELLE	03/22/23 09:08

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-27-23 *
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24



Address: ELYD KIN

Chain of Custody Record

645685



Environment Testing America

TAL-8210

Regulatory Program: DW NPDES RCRA Other: _____

Client Contact: **ASCADIS**
Company Name: **ASCADIS**
Address: **55 MIDWINTER (VTLR) ST. 2ND**
City/State/Zip: **INDIANAPOLIS, IN 46203**
Phone: _____
Fax: _____
Project Name: **NOYKOLK JONHORN**
Site: **E. PALETTINE OH**
P O #: _____

Project Manager: **Michelle Clayton**
Tel/E-mail: _____
Analysis Turnaround Time: **RUSH**
 CALENDAR DAYS WORKING DAYS
TAT if different from Below: _____
 2 weeks 1 week 2 days 1 day

Site Contact: **MIKE DEJIMMO**
Lab Contact: **MIKE DEJIMMO**
Date: **02/14/23**
Carrier: _____
COC No.: _____ of _____ COCs

Sampler: **DAVID LOEWEN**
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
3/14/23	1044	G	S	9	N	N	
3/14/23	1115	G	S	9	N	N	
3/14/23	1145	G	S	9	N	N	
3/14/23	1200	G	S	9	N	N	
3/14/23	1215	G	S	9	N	N	
3/14/23	1230	G	S	9	N	N	
3/14/23	1310	G	S	9	N	N	
3/14/23	---	LAB COMP	S	X	N	N	
3/14/23	1415	G	S	9	N	N	
3/14/23	1435	G	S	9	N	N	
3/14/23	1530	G	S	9	N	N	
3/14/23	1551	G	S	9	N	N	



240-181894 Chain of Custody

LAB TO GENERATE COMMAND FILE

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 7 GRAB SAMPLES

Relinquished by: **David Loewen**
Date/Time: **3/14/23 17:40**
Company: **ASCADIS**

Relinquished by: **Michelle Clayton**
Date/Time: **3-14-23**
Company: **EETNC**

Relinquished by: _____
Date/Time: _____
Company: _____

Relinquished by: _____
Date/Time: _____
Company: _____



3/20/2023

Address: EUROFINS

Chain of Custody Record

645684



Environment Testing America

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact Company Name: <u>ARCADIS</u> Address: <u>55 Monument Circle Ste 300B</u> City/State/Zip: <u>Indianapolis, IN 46203</u> Phone: _____ Fax: _____ Project Name: <u>NORTALK SOUTHERN</u> Site: <u>E RAESHINE OH</u> PO # _____		Project Manager: <u>MURRAY GANTON</u> Tel/Email: _____ Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Site Contact: _____ Lab Contact: <u>MURRAY GANTON</u> Date: <u>03/14/23</u> Carrier: _____ COC No.: _____ of _____ COCs Sampler: <u>DAVID LOEWEN</u> For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: _____					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Analysis	Notes
<u>WG-S-TRK-WEST-12(12-14)</u>	<u>3/14/23</u>	<u>1551</u>	<u>G</u>	<u>S</u>	<u>9</u>	<u>XX</u>	<u>XX</u>	<u>TOTAL SVOC</u> <u>TCP METALS</u> <u>TCP VOC</u> <u>TCP SVOC</u> <u>TCP PEST</u> <u>TCP HERE</u> <u>TOTAL PCBs</u>	<u>LAB TO GENERATE COMPOSITE</u>
<u>WG-S-TRK-WEST-13(14-16)</u>	<u>3/14/23</u>	<u>1610</u>	<u>G</u>	<u>S</u>	<u>9</u>	<u>XX</u>	<u>XX</u>		
<u>WG-S-TRK-WEST-14(14-16)</u>	<u>3/14/23</u>	<u>1630</u>	<u>G</u>	<u>S</u>	<u>9</u>	<u>XX</u>	<u>XX</u>		
<u>WG-S-TRK-WEST-COMP(08-14)</u>	<u>3/14/23</u>	<u>---</u>	<u>LAB COMP</u>	<u>S</u>	<u>X</u>	<u>XX</u>	<u>XX</u>		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. None, BMYL ACRYLATE

Special Instructions/QC Requirements & Comments: LAB TO GENERATE COMPOSITE SAMPLES EACH CONTAINING 7 GRAB SAMPLES

Relinquished by: <u>David Loewen</u> Date/Time: <u>3/14/23 17:40</u>	Relinquished by: <u>David Loewen</u> Date/Time: <u>3/14/23 17:40</u>	Relinquished by: <u>David Loewen</u> Date/Time: <u>3/14/23 17:40</u>	Relinquished by: <u>David Loewen</u> Date/Time: <u>3/14/23 17:40</u>
Company: <u>ARCADIS</u> Custody Seal No.: _____	Company: <u>EUROFINS</u> Custody Seal No.: _____	Company: <u>EUROFINS</u> Custody Seal No.: _____	Company: <u>EUROFINS</u> Custody Seal No.: _____



Eurofins - Canton Sample Receipt Form/Narrative Login #: 181894
Barberton Facility

Client Acadus Site Name NSRR-ER Cooler unpacked by: Jul
Cooler Received on 3-14-23 Opened on 3-14-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

Eurofins Cooler # EL Foam Box _____ Client Cooler _____ Box _____ Other _____
Packing material used: Bubble Wrap _____ Foam Plastic Bag None _____ Other _____
COOLANT: Wet Ice Blue Ice _____ Dry Ice _____ Water _____ None _____

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 ea Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: 181894

Eurofins - Canton Sample Receipt Multiple Cooler Form							
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
EC	Client	Box	Other	IR GUN #: <u>13</u>	<u>3.7</u>	<u>3.5</u>	Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: <u>13</u>	<u>4.0</u>	<u>3.8</u>	Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: <u>13</u>	<u>4.2</u>	<u>4.0</u>	Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
EC	Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None
<input type="checkbox"/> See Temperature Excursion Form							

Eurofins Canton

180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)				Sampler:	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-165035.1				
Client Contact: Shipping/Receiving				Phone:	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Ohio	Page: Page 1 of 1				
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):			Job #: 240-181894-1				
Address: 2425 New Holland Pike,		Due Date Requested: 3/19/2023		Analysis Requested				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)			
City: Lancaster		TAT Requested (days):									
State, Zip: PA, 17601		PO #:									
Phone: 717-656-2300(Tel)		WO #:									
Email:											
Project Name: NSEP - Privileged & Confidential				Project #: 24030745							
Site:				SSOW#:							
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8290A/HRMS_Soxtm_P 8290 17 + Totals	8151A/1311_T TCLP Analyte List	Total Number of Containers	Special Instructions/Note:
WC-S. TRK-WEST-COMP (01-07) (240-181894-8)		3/14/23	Eastern		Solid		X	X			1
WC-S. TRK-WEST-COMP (08-14) (240-181894-16)		3/14/23	Eastern		Solid		X	X			1
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:			
Relinquished by: <i>Rachelle H...</i>				Date/Time: 3/15/23 1515		Company: <i>ETNL</i>		Received by: <i>[Signature]</i>		Date/Time: _____ Company: _____	
Relinquished by: <i>[Signature]</i>				Date/Time: _____		Company: _____		Received by: <i>[Signature]</i>		Date/Time: _____ Company: _____	
Relinquished by: <i>[Signature]</i>				Date/Time: _____		Company: _____		Received by: <i>[Signature]</i>		Date/Time: 3/16/23 0958 Company: <i>EULE</i>	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <i>1.0</i>							



Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



eurofins | Environment Testing

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Client Information (Sub Contract Lab)				Sampler:		Lab PM:				Carrier Tracking No(s):				COC No:									
Client Contact: Shipping/Receiving				Phone:		E-Mail:				State of Origin:				Page:									
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):		Job #:				Page 1 of 1													
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:				Due Date Requested: 3/22/2023 TAT Requested (days):		Analysis Requested								Preservation Codes:									
Project Name: NS East Palestine Site:				PO #:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8290AHRMS_Soxhm_P 8290 17 + Totals 8151A/1311_T TCLP Analyte List 8151A/8151A_AP TCLP Analyte List Total Number of containers								A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Arnchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:									
Sample Identification - Client ID (Lab ID)				Sample Date										Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Special Instructions/Note:			
Preservation Code:				X										X		X		X		X			
WC-S. TRK-WEST-COMP (01-07) (240-181894-8)				3/14/23		Eastern		Solid						1									
WC-S. TRK-WEST-COMP (08-14) (240-181894-16)				3/14/23		Eastern		Solid						1									

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.

Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2				Special Instructions/QC Requirements:			

Empty Kit Relinquished by:				Date:				Time:				Method of Shipment:											
Relinquished by: <i>Rachelle W...</i>				Date/Time: 3/16/23 1500				Company: ESTINC				Received by: <i>Z</i>				Date/Time: <i>Z</i>				Company:			
Relinquished by: <i>Z</i>				Date/Time: <i>Z</i>				Company: <i>Z</i>				Received by: <i>AH</i>				Date/Time: 3-17-23 10:00 AM				Company: <i>U E</i>			

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.5													
--	--	-------------------	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-181894-1

Login Number: 181894

List Number: 2

Creator: McBeth, Jessica

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Creation: 03/16/23 09:53 AM

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-181894-1

Login Number: 181894

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 3

List Creation: 03/17/23 02:47 PM

Creator: Foreman, Leah M

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-181894-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	88	91	90	91	93	90	94	97
LCS 410-354736/2-A	Lab Control Sample	85	87	79	78	85	84	83	84
MB 410-354736/1-A	Method Blank	98	99	86	86	93	94	97	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	91	91	91	92	91	89	91	88
LCS 410-354736/2-A	Lab Control Sample	81	78	88	82	82	85	81	84
MB 410-354736/1-A	Method Blank	89	85	100	93	94	93	92	96

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HpCDD (40-135)							
240-181894-16	WC-S. TRK-WEST-COMP (08-14)	92							
LCS 410-354736/2-A	Lab Control Sample	85							
MB 410-354736/1-A	Method Blank	96							

Surrogate Legend

- OCDF = 13C-OCDF
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- TCDD = 13C-2,3,7,8-TCDD
- PeCF = 13C-2,3,4,7,8-PeCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD



ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/31/2023 7:22:04 AM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182146-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



Generated
3/31/2023 7:22:04 AM

Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)

Eurofins Canton

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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- 14
- 15
- 16

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Job ID: 240-182146-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182146-1

Comments

No additional comments.

Receipt

The samples were received on 3/17/2023 7:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.1° C.

All soil samples collected in TerraCore kits were frozen within 48hours of collection.

GC/MS VOA

Method 5035: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results: WC-VB1402-PLASTIC PELLETS (240-182146-1), WC-VB1344-PLASTIC PELLETS (240-182146-2), WC-VB1108-PLASTIC PELLETS (240-182146-3) and WC-SB1597-SOIL & DEBRIS (240-182146-6).

Method 8260D: The MS/MSD for preparation batch 240-566125 and analytical batch 240-566130 was prepped and analyzed but is not reported because the parent sample was reported in another batch.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566130 recovered above the upper control limit for 1,1,1-Trichloroethane, Bromomethane, Carbon tetrachloride and Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: Internal standard (ISTD) response for the following samples was outside control limits: WC-VB1344-PLASTIC PELLETS (240-182146-2) and WC-VB1108-PLASTIC PELLETS (240-182146-3). The samples were re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 8260D: Surrogate recovery for the following samples was outside control limits: WC-VB1344-PLASTIC PELLETS (240-182146-2) and WC-VB1108-PLASTIC PELLETS (240-182146-3). Re-extraction and/or re-analysis was performed and surrogate recovery was outside control limits.

Method 8260D: Surrogate recovery for the following sample was outside the upper control limit: WC-SB1597-SOIL & DEBRIS (240-182146-6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566249 recovered above the upper control limit for Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

Method 8260D: Internal standard (ISTD) response for the following samples was outside control limits: WC-VB1402-PLASTIC PELLETS (240-182146-1). The samples were re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 8260D: Surrogate recovery for the following samples was outside control limits: WC-VB1402-PLASTIC PELLETS (240-182146-1). Re-extraction and/or re-analysis was performed and surrogate recovery was outside control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-566308 recovered above the upper control limit for Di-n-octyl phthalate. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: WC-VB1402-PLASTIC PELLETS (240-182146-1), WC-VB1344-PLASTIC PELLETS (240-182146-2), WC-VB1108-PLASTIC PELLETS (240-182146-3) and WC-SB1597-SOIL & DEBRIS (240-182146-6).

Method 8270E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 240-566028 and analytical batch 240-566308 were outside control limits for one or more analytes. Sample matrix interference and/or non-homogeneity are suspected

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Job ID: 240-182146-1 (Continued)

Laboratory: Eurofins Canton (Continued)

because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
Moisture	Percent Moisture	EPA	ELLE
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182146-1	WC-VB1402-PLASTIC PELLETS	Solid	03/17/23 14:45	03/17/23 19:00
240-182146-2	WC-VB1344-PLASTIC PELLETS	Solid	03/17/23 14:30	03/17/23 19:00
240-182146-3	WC-VB1108-PLASTIC PELLETS	Solid	03/17/23 15:30	03/17/23 19:00
240-182146-4	WC-COMP-PLASTIC PELLETS	Solid	03/17/23 00:00	03/17/23 19:00
240-182146-5	WC-COMP1-N. DITCH	Solid	03/17/23 14:00	03/17/23 19:00
240-182146-6	WC-SB1597-SOIL & DEBRIS	Solid	03/17/23 15:00	03/17/23 19:00

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Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.17		0.065	0.055	mg/Kg	1	☼	8260D	Total/NA
Toluene	0.0033	J *3	0.013	0.0020	mg/Kg	1	☼	8260D	Total/NA
Dimethyl phthalate	0.13	J	0.42	0.083	mg/Kg	1	☼	8270E	Total/NA
Di-n-butyl phthalate	0.44		0.42	0.30	mg/Kg	1	☼	8270E	Total/NA
Phenol	0.76		0.30	0.047	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.0059	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.11	J	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.0070	J	0.015	0.0023	mg/Kg	1	☼	8260D	Total/NA
Arsenic	0.0059	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.0027	J	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.12		0.070	0.059	mg/Kg	1	☼	8260D	Total/NA
Benzene	0.0061	J	0.014	0.0020	mg/Kg	1	☼	8260D	Total/NA
Toluene	0.0062	J	0.014	0.0022	mg/Kg	1	☼	8260D	Total/NA
Xylenes, Total	0.0077	J	0.028	0.0044	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.022	J	0.090	0.012	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.048	J	0.090	0.014	mg/Kg	1	☼	8270E	Total/NA
Barium	0.0031	J	0.50	0.0013	mg/L	1		6010D	TCLP

Client Sample ID: WC-COMP-PLASTIC PELLETS

Lab Sample ID: 240-182146-4

No Detections.

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-182146-5

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	330	B	4.9	0.13	ng/Kg	1		8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	26	B	4.9	0.089	ng/Kg	1		8290A	Total/NA
1,2,3,4,7,8-HxCDD	12		4.9	0.045	ng/Kg	1		8290A	Total/NA
1,2,3,4,7,8-HxCDF	2.5	J B	4.9	0.064	ng/Kg	1		8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	1.6	J B	4.9	0.11	ng/Kg	1		8290A	Total/NA
1,2,3,6,7,8-HxCDD	18	B	4.9	0.044	ng/Kg	1		8290A	Total/NA
1,2,3,6,7,8-HxCDF	2.3	J	4.9	0.063	ng/Kg	1		8290A	Total/NA
1,2,3,7,8-PeCDD	14	B	4.9	0.083	ng/Kg	1		8290A	Total/NA
1,2,3,7,8-PeCDF	1.2	J	4.9	0.074	ng/Kg	1		8290A	Total/NA
1,2,3,7,8,9-HxCDD	64	B	4.9	0.043	ng/Kg	1		8290A	Total/NA
1,2,3,7,8,9-HxCDF	0.81	J B	4.9	0.078	ng/Kg	1		8290A	Total/NA
2,3,4,6,7,8-HxCDF	3.9	J	4.9	0.061	ng/Kg	1		8290A	Total/NA
2,3,4,7,8-PeCDF	6.5		4.9	0.055	ng/Kg	1		8290A	Total/NA
2,3,7,8-TCDD	2.8		0.97	0.012	ng/Kg	1		8290A	Total/NA
2,3,7,8-TCDF	1.1		0.97	0.043	ng/Kg	1		8290A	Total/NA
OCDD	2400	B	9.7	0.13	ng/Kg	1		8290A	Total/NA
OCDF	44		9.7	0.023	ng/Kg	1		8290A	Total/NA
Total HxCDD	370	B	4.9	0.044	ng/Kg	1		8290A	Total/NA
Total HxCDF	49	B	4.9	0.066	ng/Kg	1		8290A	Total/NA
Total HpCDD	720	B	4.9	0.13	ng/Kg	1		8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-COMP1-N. DITCH (Continued)

Lab Sample ID: 240-182146-5

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
Total HpCDF	57	B	4.9	0.099	ng/Kg	1		8290A	Total/NA
Total PeCDD	130	B	4.9	0.083	ng/Kg	1		8290A	Total/NA
Total PeCDF	71	B	4.9	0.065	ng/Kg	1		8290A	Total/NA
Total TCDD	32	I B	0.97	0.012	ng/Kg	1		8290A	Total/NA
Total TCDF	33	I	0.97	0.043	ng/Kg	1		8290A	Total/NA

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1'-Biphenyl	0.031	J	0.066	0.022	mg/Kg	1	✳	8270E	Total/NA
2-Methylnaphthalene	0.30		0.020	0.0026	mg/Kg	1	✳	8270E	Total/NA
Acenaphthene	0.023		0.020	0.0038	mg/Kg	1	✳	8270E	Total/NA
Acenaphthylene	0.027		0.020	0.0053	mg/Kg	1	✳	8270E	Total/NA
Anthracene	0.047		0.020	0.0032	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]anthracene	0.16		0.020	0.0045	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]pyrene	0.16		0.020	0.012	mg/Kg	1	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.29		0.020	0.0086	mg/Kg	1	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.093		0.020	0.0094	mg/Kg	1	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.058		0.020	0.0091	mg/Kg	1	✳	8270E	Total/NA
Carbazole	0.029	J	0.066	0.025	mg/Kg	1	✳	8270E	Total/NA
Chrysene	0.22	F1	0.020	0.0020	mg/Kg	1	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.031		0.020	0.0091	mg/Kg	1	✳	8270E	Total/NA
Dibenzofuran	0.11		0.066	0.017	mg/Kg	1	✳	8270E	Total/NA
Fluoranthene	0.32	F2 F1	0.020	0.0059	mg/Kg	1	✳	8270E	Total/NA
Fluorene	0.022		0.020	0.0036	mg/Kg	1	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.091		0.020	0.0097	mg/Kg	1	✳	8270E	Total/NA
Naphthalene	0.21		0.020	0.0032	mg/Kg	1	✳	8270E	Total/NA
Phenanthrene	0.30	F2 F1	0.020	0.0029	mg/Kg	1	✳	8270E	Total/NA
Pyrene	0.29	F2 F1	0.020	0.0028	mg/Kg	1	✳	8270E	Total/NA
Arsenic	0.0081	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.68		0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.010	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0042	J	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0070	J	0.050	0.0028	mg/L	1		6010D	TCLP
Mercury	0.00016	J	0.0020	0.00013	mg/L	1		7470A	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Date Collected: 03/17/23 14:45

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.013	0.0046	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,1,1,2-Tetrachloroethane	ND	*3	0.013	0.0037	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.013	0.0034	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,1,2-Trichloroethane	ND	*3	0.013	0.0030	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,1-Dichloroethane	ND		0.013	0.0018	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,1-Dichloroethene	ND		0.013	0.0048	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,2,4-Trichlorobenzene	ND	*3	0.013	0.0065	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.026	0.0094	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Ethylene Dibromide	ND	*3	0.013	0.0020	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,2-Dichlorobenzene	ND	*3	0.013	0.0029	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,2-Dichloroethane	ND		0.013	0.0020	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,2-Dichloropropane	ND		0.013	0.0022	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,3-Dichlorobenzene	ND	*3	0.013	0.0021	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
1,4-Dichlorobenzene	ND	*3	0.013	0.0023	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
2-Butanone (MEK)	ND		0.052	0.0093	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
2-Hexanone	ND	*3	0.052	0.011	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
4-Methyl-2-pentanone (MIBK)	ND	*3	0.052	0.0097	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Acetone	0.17		0.065	0.055	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Benzene	ND		0.013	0.0018	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Dichlorobromomethane	ND		0.013	0.0039	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Bromoform	ND	*3	0.013	0.0063	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Bromomethane	ND		0.013	0.011	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Carbon disulfide	ND		0.013	0.0030	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Carbon tetrachloride	ND		0.013	0.0085	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Chlorobenzene	ND	*3	0.013	0.0024	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Chloroethane	ND		0.013	0.0072	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Chloroform	ND		0.013	0.0021	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Chloromethane	ND		0.013	0.0060	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
cis-1,2-Dichloroethene	ND		0.013	0.0039	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
cis-1,3-Dichloropropene	ND		0.013	0.0075	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Cyclohexane	ND		0.026	0.0036	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Chlorodibromomethane	ND	*3	0.013	0.0073	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Dichlorodifluoromethane	ND		0.013	0.0025	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Ethylbenzene	ND	*3	0.013	0.0027	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Isopropylbenzene	ND	*3	0.013	0.0050	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Methyl acetate	ND		0.065	0.0089	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Methyl tert-butyl ether	ND		0.013	0.0052	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Methylcyclohexane	ND		0.026	0.0032	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Methylene Chloride	ND		0.065	0.031	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Styrene	ND	*3	0.013	0.0030	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Tetrachloroethene	ND	*3	0.013	0.0019	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Toluene	0.0033	J *3	0.013	0.0020	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
trans-1,2-Dichloroethene	ND		0.013	0.0037	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
trans-1,3-Dichloropropene	ND	*3	0.013	0.0097	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Trichloroethene	ND		0.013	0.0017	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Trichlorofluoromethane	ND		0.013	0.0070	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Vinyl chloride	ND		0.013	0.0046	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Xylenes, Total	ND	*3	0.026	0.0042	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1
Butyl acrylate	ND	*3	0.13	0.051	mg/Kg	✱	03/17/23 20:00	03/21/23 19:51	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Date Collected: 03/17/23 14:45

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.026	0.0081	mg/Kg	☼	03/17/23 20:00	03/21/23 19:51	1
2-Ethylhexyl acrylate	ND	*3	0.13	0.062	mg/Kg	☼	03/17/23 20:00	03/21/23 19:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	128	*3 S1+	56 - 125				03/17/23 20:00	03/21/23 19:51	1
<i>Dibromofluoromethane (Surr)</i>	98		41 - 138				03/17/23 20:00	03/21/23 19:51	1
<i>4-Bromofluorobenzene (Surr)</i>	157	*3 S1+	41 - 143				03/17/23 20:00	03/21/23 19:51	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	107		58 - 125				03/17/23 20:00	03/21/23 19:51	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.30	0.10	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
bis (2-chloroisopropyl) ether	ND		0.59	0.059	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,4,5-Trichlorophenol	ND		0.89	0.41	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,4,6-Trichlorophenol	ND		0.89	0.38	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,4-Dichlorophenol	ND		0.89	0.26	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,4-Dimethylphenol	ND		0.89	0.24	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,4-Dinitrophenol	ND		2.0	0.84	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,4-Dinitrotoluene	ND		1.2	0.37	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2,6-Dinitrotoluene	ND		1.2	0.33	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2-Chloronaphthalene	ND		0.30	0.083	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2-Chlorophenol	ND		0.30	0.059	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2-Methylnaphthalene	ND		0.089	0.012	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2-Methylphenol	ND		1.2	0.18	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2-Nitroaniline	ND		1.2	0.24	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
2-Nitrophenol	ND		0.30	0.077	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
3,3'-Dichlorobenzidine	ND		0.59	0.26	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
3-Nitroaniline	ND		1.2	0.29	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4,6-Dinitro-2-methylphenol	ND		2.0	0.47	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4-Bromophenyl phenyl ether	ND		0.30	0.083	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4-Chloro-3-methylphenol	ND		0.89	0.27	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4-Chloroaniline	ND		0.89	0.18	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4-Chlorophenyl phenyl ether	ND		0.30	0.083	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4-Nitroaniline	ND		1.2	0.36	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
4-Nitrophenol	ND		2.0	0.56	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Acenaphthene	ND		0.089	0.017	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Acenaphthylene	ND		0.089	0.024	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Acetophenone	ND		0.59	0.065	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Anthracene	ND		0.089	0.014	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Atrazine	ND		1.2	0.21	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Benzaldehyde	ND		0.59	0.14	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Benzo[a]anthracene	ND		0.089	0.020	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Benzo[a]pyrene	ND		0.089	0.055	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Benzo[b]fluoranthene	ND		0.089	0.039	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Benzo[g,h,i]perylene	ND		0.089	0.042	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Benzo[k]fluoranthene	ND		0.089	0.041	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Bis(2-chloroethoxy)methane	ND		0.59	0.071	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Bis(2-chloroethyl)ether	ND		0.59	0.071	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Bis(2-ethylhexyl) phthalate	ND		0.42	0.30	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1
Butyl benzyl phthalate	ND		0.42	0.13	mg/Kg	☼	03/20/23 09:24	03/22/23 12:56	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Date Collected: 03/17/23 14:45

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.0	0.45	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Carbazole	ND		0.30	0.11	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Chrysene	ND		0.089	0.0088	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Dibenz(a,h)anthracene	ND		0.089	0.041	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Dibenzofuran	ND		0.30	0.077	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Diethyl phthalate	ND		0.42	0.18	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Dimethyl phthalate	0.13	J	0.42	0.083	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Di-n-butyl phthalate	0.44		0.42	0.30	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Di-n-octyl phthalate	ND		0.42	0.17	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Fluoranthene	ND		0.089	0.026	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Fluorene	ND		0.089	0.016	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Hexachlorobenzene	ND		0.089	0.017	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Hexachlorobutadiene	ND		0.30	0.071	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Hexachlorocyclopentadiene	ND		2.0	0.37	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Hexachloroethane	ND		0.30	0.053	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Indeno[1,2,3-cd]pyrene	ND		0.089	0.044	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Isophorone	ND		0.30	0.071	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
N-Nitrosodi-n-propylamine	ND		0.30	0.065	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
N-Nitrosodiphenylamine	ND		0.30	0.071	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Naphthalene	ND		0.089	0.014	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Nitrobenzene	ND		0.59	0.077	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Pentachlorophenol	ND		0.89	0.34	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Phenanthrene	ND		0.089	0.013	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Phenol	0.76		0.30	0.047	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
Pyrene	ND		0.089	0.013	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
3 & 4 Methylphenol	ND		2.4	0.17	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1
2-Butoxyethanol	ND		0.42	0.39	mg/Kg	✳	03/20/23 09:24	03/22/23 12:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	97		46 - 137	03/20/23 09:24	03/22/23 12:56	1
Phenol-d5 (Surr)	78		26 - 120	03/20/23 09:24	03/22/23 12:56	1
Nitrobenzene-d5 (Surr)	58		25 - 120	03/20/23 09:24	03/22/23 12:56	1
2-Fluorophenol (Surr)	69		20 - 120	03/20/23 09:24	03/22/23 12:56	1
2-Fluorobiphenyl (Surr)	73		34 - 120	03/20/23 09:24	03/22/23 12:56	1
2,4,6-Tribromophenol (Surr)	72		10 - 120	03/20/23 09:24	03/22/23 12:56	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0059	J B	0.050	0.0041	mg/L		03/20/23 14:00	03/21/23 17:56	1
Barium	0.11	J	0.50	0.0013	mg/L		03/20/23 14:00	03/21/23 17:56	1
Cadmium	ND		0.050	0.00020	mg/L		03/20/23 14:00	03/21/23 17:56	1
Chromium	ND		0.050	0.0040	mg/L		03/20/23 14:00	03/21/23 17:56	1
Lead	ND		0.050	0.0028	mg/L		03/20/23 14:00	03/21/23 17:56	1
Selenium	ND		0.050	0.0060	mg/L		03/20/23 14:00	03/21/23 17:56	1
Silver	ND		0.050	0.00062	mg/L		03/20/23 14:00	03/21/23 17:56	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/20/23 14:00	03/21/23 14:00	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Date Collected: 03/17/23 14:45

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.9		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	0.1		0.1	0.1	%			03/20/23 11:50	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Date Collected: 03/17/23 14:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 100.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.015	0.0053	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,1,2,2-Tetrachloroethane	ND	*3	0.015	0.0043	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.015	0.0039	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,1,2-Trichloroethane	ND		0.015	0.0034	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,1-Dichloroethane	ND		0.015	0.0021	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,1-Dichloroethene	ND		0.015	0.0055	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,2,4-Trichlorobenzene	ND	*3	0.015	0.0075	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.030	0.011	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Ethylene Dibromide	ND		0.015	0.0023	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,2-Dichlorobenzene	ND	*3	0.015	0.0034	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,2-Dichloroethane	ND		0.015	0.0023	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,2-Dichloropropane	ND		0.015	0.0026	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,3-Dichlorobenzene	ND	*3	0.015	0.0025	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
1,4-Dichlorobenzene	ND	*3	0.015	0.0027	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
2-Butanone (MEK)	ND		0.060	0.011	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
2-Hexanone	ND		0.060	0.012	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
4-Methyl-2-pentanone (MIBK)	ND		0.060	0.011	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Acetone	ND		0.075	0.063	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Benzene	ND		0.015	0.0021	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Dichlorobromomethane	ND		0.015	0.0045	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Bromoform	ND		0.015	0.0072	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Bromomethane	ND		0.015	0.013	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Carbon disulfide	ND		0.015	0.0035	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Carbon tetrachloride	ND		0.015	0.0098	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Chlorobenzene	ND		0.015	0.0028	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Chloroethane	ND		0.015	0.0083	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Chloroform	ND		0.015	0.0024	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Chloromethane	ND		0.015	0.0069	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
cis-1,2-Dichloroethene	ND		0.015	0.0045	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
cis-1,3-Dichloropropene	ND		0.015	0.0087	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Cyclohexane	ND		0.030	0.0041	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Chlorodibromomethane	ND		0.015	0.0084	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Dichlorodifluoromethane	ND		0.015	0.0028	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Ethylbenzene	ND		0.015	0.0032	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Isopropylbenzene	ND		0.015	0.0058	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Methyl acetate	ND		0.075	0.010	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Methyl tert-butyl ether	ND		0.015	0.0060	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Methylcyclohexane	ND		0.030	0.0037	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Methylene Chloride	ND		0.075	0.036	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Styrene	ND		0.015	0.0035	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Tetrachloroethene	ND		0.015	0.0022	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Toluene	0.0070	J	0.015	0.0023	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
trans-1,2-Dichloroethene	ND		0.015	0.0043	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
trans-1,3-Dichloropropene	ND		0.015	0.011	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Trichloroethene	ND		0.015	0.0019	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Trichlorofluoromethane	ND		0.015	0.0081	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Vinyl chloride	ND		0.015	0.0053	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Xylenes, Total	ND		0.030	0.0048	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1
Butyl acrylate	ND		0.15	0.058	mg/Kg	✳	03/17/23 20:00	03/20/23 23:34	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Date Collected: 03/17/23 14:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 100.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.030	0.0093	mg/Kg	☼	03/17/23 20:00	03/20/23 23:34	1
2-Ethylhexyl acrylate	ND	*3	0.15	0.071	mg/Kg	☼	03/17/23 20:00	03/20/23 23:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	129	S1+	56 - 125				03/17/23 20:00	03/20/23 23:34	1
Dibromofluoromethane (Surr)	112		41 - 138				03/17/23 20:00	03/20/23 23:34	1
4-Bromofluorobenzene (Surr)	162	S1+ *3	41 - 143				03/17/23 20:00	03/20/23 23:34	1
1,2-Dichloroethane-d4 (Surr)	121		58 - 125				03/17/23 20:00	03/20/23 23:34	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.30	0.10	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
bis (2-chloroisopropyl) ether	ND		0.59	0.059	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,4,5-Trichlorophenol	ND		0.89	0.41	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,4,6-Trichlorophenol	ND		0.89	0.38	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,4-Dichlorophenol	ND		0.89	0.26	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,4-Dimethylphenol	ND		0.89	0.24	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,4-Dinitrophenol	ND		1.9	0.84	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,4-Dinitrotoluene	ND		1.2	0.37	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2,6-Dinitrotoluene	ND		1.2	0.33	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2-Chloronaphthalene	ND		0.30	0.083	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2-Chlorophenol	ND		0.30	0.059	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2-Methylnaphthalene	ND		0.089	0.012	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2-Methylphenol	ND		1.2	0.18	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2-Nitroaniline	ND		1.2	0.24	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
2-Nitrophenol	ND		0.30	0.077	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
3,3'-Dichlorobenzidine	ND		0.59	0.25	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
3-Nitroaniline	ND		1.2	0.29	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4,6-Dinitro-2-methylphenol	ND		1.9	0.47	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4-Bromophenyl phenyl ether	ND		0.30	0.083	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4-Chloro-3-methylphenol	ND		0.89	0.27	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4-Chloroaniline	ND		0.89	0.18	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4-Chlorophenyl phenyl ether	ND		0.30	0.083	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4-Nitroaniline	ND		1.2	0.35	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
4-Nitrophenol	ND		1.9	0.56	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Acenaphthene	ND		0.089	0.017	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Acenaphthylene	ND		0.089	0.024	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Acetophenone	ND		0.59	0.065	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Anthracene	ND		0.089	0.014	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Atrazine	ND		1.2	0.21	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Benzaldehyde	ND		0.59	0.14	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Benzo[a]anthracene	ND		0.089	0.020	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Benzo[a]pyrene	ND		0.089	0.055	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Benzo[b]fluoranthene	ND		0.089	0.038	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Benzo[g,h,i]perylene	ND		0.089	0.042	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Benzo[k]fluoranthene	ND		0.089	0.041	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Bis(2-chloroethoxy)methane	ND		0.59	0.071	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Bis(2-chloroethyl)ether	ND		0.59	0.071	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Bis(2-ethylhexyl) phthalate	ND		0.41	0.30	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1
Butyl benzyl phthalate	ND		0.41	0.13	mg/Kg	☼	03/20/23 09:24	03/22/23 13:20	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Date Collected: 03/17/23 14:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 100.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		1.9	0.44	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Carbazole	ND		0.30	0.11	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Chrysene	ND		0.089	0.0088	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Dibenz(a,h)anthracene	ND		0.089	0.041	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Dibenzofuran	ND		0.30	0.077	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Diethyl phthalate	ND		0.41	0.18	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Dimethyl phthalate	ND		0.41	0.083	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Di-n-butyl phthalate	ND		0.41	0.30	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Di-n-octyl phthalate	ND		0.41	0.17	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Fluoranthene	ND		0.089	0.026	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Fluorene	ND		0.089	0.016	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Hexachlorobenzene	ND		0.089	0.017	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Hexachlorobutadiene	ND		0.30	0.071	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Hexachlorocyclopentadiene	ND		1.9	0.37	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Hexachloroethane	ND		0.30	0.053	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Indeno[1,2,3-cd]pyrene	ND		0.089	0.043	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Isophorone	ND		0.30	0.071	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
N-Nitrosodi-n-propylamine	ND		0.30	0.065	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
N-Nitrosodiphenylamine	ND		0.30	0.071	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Naphthalene	ND		0.089	0.014	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Nitrobenzene	ND		0.59	0.077	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Pentachlorophenol	ND		0.89	0.34	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Phenanthrene	ND		0.089	0.013	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Phenol	ND		0.30	0.047	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
Pyrene	ND		0.089	0.013	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
3 & 4 Methylphenol	ND		2.4	0.17	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1
2-Butoxyethanol	ND		0.41	0.39	mg/Kg	✳	03/20/23 09:24	03/22/23 13:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	82		46 - 137	03/20/23 09:24	03/22/23 13:20	1
Phenol-d5 (Surr)	79		26 - 120	03/20/23 09:24	03/22/23 13:20	1
Nitrobenzene-d5 (Surr)	55		25 - 120	03/20/23 09:24	03/22/23 13:20	1
2-Fluorophenol (Surr)	66		20 - 120	03/20/23 09:24	03/22/23 13:20	1
2-Fluorobiphenyl (Surr)	70		34 - 120	03/20/23 09:24	03/22/23 13:20	1
2,4,6-Tribromophenol (Surr)	71		10 - 120	03/20/23 09:24	03/22/23 13:20	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0059	J B	0.050	0.0041	mg/L		03/20/23 14:00	03/21/23 18:18	1
Barium	0.0027	J	0.50	0.0013	mg/L		03/20/23 14:00	03/21/23 18:18	1
Cadmium	ND		0.050	0.00020	mg/L		03/20/23 14:00	03/21/23 18:18	1
Chromium	ND		0.050	0.0040	mg/L		03/20/23 14:00	03/21/23 18:18	1
Lead	ND		0.050	0.0028	mg/L		03/20/23 14:00	03/21/23 18:18	1
Selenium	ND		0.050	0.0060	mg/L		03/20/23 14:00	03/21/23 18:18	1
Silver	ND		0.050	0.00062	mg/L		03/20/23 14:00	03/21/23 18:18	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/20/23 14:00	03/21/23 14:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Date Collected: 03/17/23 14:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 100.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	100		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	0.03		0.1	0.1	%			03/20/23 11:50	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Date Collected: 03/17/23 15:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.014	0.0050	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,1,2,2-Tetrachloroethane	ND	*3	0.014	0.0040	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.014	0.0036	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,1,2-Trichloroethane	ND		0.014	0.0032	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,1-Dichloroethane	ND		0.014	0.0019	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,1-Dichloroethene	ND		0.014	0.0051	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,2,4-Trichlorobenzene	ND	*3	0.014	0.0070	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.028	0.010	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Ethylene Dibromide	ND		0.014	0.0022	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,2-Dichlorobenzene	ND	*3	0.014	0.0031	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,2-Dichloroethane	ND		0.014	0.0022	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,2-Dichloropropane	ND		0.014	0.0024	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,3-Dichlorobenzene	ND	*3	0.014	0.0023	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
1,4-Dichlorobenzene	ND	*3	0.014	0.0025	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
2-Butanone (MEK)	ND		0.056	0.010	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
2-Hexanone	ND		0.056	0.011	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
4-Methyl-2-pentanone (MIBK)	ND		0.056	0.010	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Acetone	0.12		0.070	0.059	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Benzene	0.0061	J	0.014	0.0020	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Dichlorobromomethane	ND		0.014	0.0042	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Bromoform	ND		0.014	0.0067	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Bromomethane	ND		0.014	0.012	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Carbon disulfide	ND		0.014	0.0033	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Carbon tetrachloride	ND		0.014	0.0091	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Chlorobenzene	ND		0.014	0.0026	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Chloroethane	ND		0.014	0.0077	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Chloroform	ND		0.014	0.0022	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Chloromethane	ND		0.014	0.0064	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
cis-1,2-Dichloroethene	ND		0.014	0.0041	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
cis-1,3-Dichloropropene	ND		0.014	0.0081	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Cyclohexane	ND		0.028	0.0039	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Chlorodibromomethane	ND		0.014	0.0078	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Dichlorodifluoromethane	ND		0.014	0.0026	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Ethylbenzene	ND		0.014	0.0029	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Isopropylbenzene	ND		0.014	0.0054	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Methyl acetate	ND		0.070	0.0095	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Methyl tert-butyl ether	ND		0.014	0.0055	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Methylcyclohexane	ND		0.028	0.0034	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Methylene Chloride	ND		0.070	0.034	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Styrene	ND		0.014	0.0032	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Tetrachloroethene	ND		0.014	0.0020	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Toluene	0.0062	J	0.014	0.0022	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
trans-1,2-Dichloroethene	ND		0.014	0.0040	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
trans-1,3-Dichloropropene	ND		0.014	0.010	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Trichloroethene	ND		0.014	0.0018	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Trichlorofluoromethane	ND		0.014	0.0075	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Vinyl chloride	ND		0.014	0.0050	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Xylenes, Total	0.0077	J	0.028	0.0044	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1
Butyl acrylate	ND		0.14	0.054	mg/Kg	✳	03/17/23 20:00	03/20/23 23:59	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Date Collected: 03/17/23 15:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.028	0.0086	mg/Kg	☼	03/17/23 20:00	03/20/23 23:59	1
2-Ethylhexyl acrylate	ND	*3	0.14	0.066	mg/Kg	☼	03/17/23 20:00	03/20/23 23:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	131	S1+	56 - 125				03/17/23 20:00	03/20/23 23:59	1
Dibromofluoromethane (Surr)	113		41 - 138				03/17/23 20:00	03/20/23 23:59	1
4-Bromofluorobenzene (Surr)	170	S1+ *3	41 - 143				03/17/23 20:00	03/20/23 23:59	1
1,2-Dichloroethane-d4 (Surr)	124		58 - 125				03/17/23 20:00	03/20/23 23:59	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.30	0.10	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
bis (2-chloroisopropyl) ether	ND		0.60	0.060	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,4,5-Trichlorophenol	ND		0.90	0.41	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,4,6-Trichlorophenol	ND		0.90	0.38	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,4-Dichlorophenol	ND		0.90	0.26	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,4-Dimethylphenol	ND		0.90	0.24	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,4-Dinitrophenol	ND		2.0	0.85	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,4-Dinitrotoluene	ND		1.2	0.37	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2,6-Dinitrotoluene	ND		1.2	0.34	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2-Chloronaphthalene	ND		0.30	0.084	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2-Chlorophenol	ND		0.30	0.060	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2-Methylnaphthalene	0.022	J	0.090	0.012	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2-Methylphenol	ND		1.2	0.19	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2-Nitroaniline	ND		1.2	0.24	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
2-Nitrophenol	ND		0.30	0.078	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
3,3'-Dichlorobenzidine	ND		0.60	0.26	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
3-Nitroaniline	ND		1.2	0.29	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4,6-Dinitro-2-methylphenol	ND		2.0	0.48	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4-Bromophenyl phenyl ether	ND		0.30	0.084	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4-Chloro-3-methylphenol	ND		0.90	0.27	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4-Chloroaniline	ND		0.90	0.18	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4-Chlorophenyl phenyl ether	ND		0.30	0.084	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4-Nitroaniline	ND		1.2	0.36	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
4-Nitrophenol	ND		2.0	0.56	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Acenaphthene	ND		0.090	0.017	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Acenaphthylene	ND		0.090	0.024	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Acetophenone	ND		0.60	0.066	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Anthracene	ND		0.090	0.014	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Atrazine	ND		1.2	0.22	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Benzaldehyde	ND		0.60	0.14	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Benzo[a]anthracene	ND		0.090	0.020	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Benzo[a]pyrene	ND		0.090	0.056	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Benzo[b]fluoranthene	ND		0.090	0.039	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Benzo[g,h,i]perylene	ND		0.090	0.043	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Benzo[k]fluoranthene	ND		0.090	0.042	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Bis(2-chloroethoxy)methane	ND		0.60	0.072	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Bis(2-chloroethyl)ether	ND		0.60	0.072	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Bis(2-ethylhexyl) phthalate	ND		0.42	0.31	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1
Butyl benzyl phthalate	ND		0.42	0.13	mg/Kg	☼	03/20/23 09:24	03/22/23 13:45	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Date Collected: 03/17/23 15:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		2.0	0.45	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Carbazole	ND		0.30	0.11	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Chrysene	ND		0.090	0.0089	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Dibenz(a,h)anthracene	ND		0.090	0.041	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Dibenzofuran	ND		0.30	0.078	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Diethyl phthalate	ND		0.42	0.19	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Dimethyl phthalate	ND		0.42	0.084	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Di-n-butyl phthalate	ND		0.42	0.30	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Di-n-octyl phthalate	ND		0.42	0.17	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Fluoranthene	ND		0.090	0.027	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Fluorene	ND		0.090	0.016	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Hexachlorobenzene	ND		0.090	0.017	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Hexachlorobutadiene	ND		0.30	0.072	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Hexachlorocyclopentadiene	ND		2.0	0.37	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Hexachloroethane	ND		0.30	0.054	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Indeno[1,2,3-cd]pyrene	ND		0.090	0.044	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Isophorone	ND		0.30	0.072	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
N-Nitrosodi-n-propylamine	ND		0.30	0.066	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
N-Nitrosodiphenylamine	ND		0.30	0.072	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Naphthalene	0.048	J	0.090	0.014	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Nitrobenzene	ND		0.60	0.078	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Pentachlorophenol	ND		0.90	0.35	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Phenanthrene	ND		0.090	0.013	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Phenol	ND		0.30	0.048	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
Pyrene	ND		0.090	0.013	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
3 & 4 Methylphenol	ND		2.4	0.17	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1
2-Butoxyethanol	ND		0.42	0.39	mg/Kg	✳	03/20/23 09:24	03/22/23 13:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137	03/20/23 09:24	03/22/23 13:45	1
Phenol-d5 (Surr)	96		26 - 120	03/20/23 09:24	03/22/23 13:45	1
Nitrobenzene-d5 (Surr)	68		25 - 120	03/20/23 09:24	03/22/23 13:45	1
2-Fluorophenol (Surr)	81		20 - 120	03/20/23 09:24	03/22/23 13:45	1
2-Fluorobiphenyl (Surr)	77		34 - 120	03/20/23 09:24	03/22/23 13:45	1
2,4,6-Tribromophenol (Surr)	70		10 - 120	03/20/23 09:24	03/22/23 13:45	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/20/23 14:00	03/21/23 18:22	1
Barium	0.0031	J	0.50	0.0013	mg/L		03/20/23 14:00	03/21/23 18:22	1
Cadmium	ND		0.050	0.00020	mg/L		03/20/23 14:00	03/21/23 18:22	1
Chromium	ND		0.050	0.0040	mg/L		03/20/23 14:00	03/21/23 18:22	1
Lead	ND		0.050	0.0028	mg/L		03/20/23 14:00	03/21/23 18:22	1
Selenium	ND		0.050	0.0060	mg/L		03/20/23 14:00	03/21/23 18:22	1
Silver	ND		0.050	0.00062	mg/L		03/20/23 14:00	03/21/23 18:22	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/20/23 14:00	03/21/23 14:15	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Date Collected: 03/17/23 15:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.7		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	0.3		0.1	0.1	%			03/20/23 11:50	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-COMP-PLASTIC PELLETS

Lab Sample ID: 240-182146-4

Date Collected: 03/17/23 00:00

Matrix: Solid

Date Received: 03/17/23 19:00

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/20/23 14:32	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/20/23 14:32	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/20/23 14:32	1
Benzene	ND		0.025	0.00042	mg/L			03/20/23 14:32	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/20/23 14:32	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/20/23 14:32	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/20/23 14:32	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/20/23 14:32	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/20/23 14:32	1
Chloroform	ND		0.025	0.00047	mg/L			03/20/23 14:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		80 - 120					03/20/23 14:32	1
Dibromofluoromethane (Surr)	93		71 - 121					03/20/23 14:32	1
4-Bromofluorobenzene (Surr)	109		80 - 120					03/20/23 14:32	1
1,2-Dichloroethane-d4 (Surr)	98		76 - 120					03/20/23 14:32	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/20/23 12:32	03/23/23 20:57	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/20/23 12:32	03/23/23 20:57	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/20/23 12:32	03/23/23 20:57	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/20/23 12:32	03/23/23 20:57	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/20/23 12:32	03/23/23 20:57	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/20/23 12:32	03/23/23 20:57	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/20/23 12:32	03/23/23 20:57	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/20/23 12:32	03/23/23 20:57	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/20/23 12:32	03/23/23 20:57	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/20/23 12:32	03/23/23 20:57	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/20/23 12:32	03/23/23 20:57	1
Pyridine	ND		0.0040	0.00036	mg/L		03/20/23 12:32	03/23/23 20:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	119		46 - 137				03/20/23 12:32	03/23/23 20:57	1
Phenol-d5 (Surr)	73		26 - 120				03/20/23 12:32	03/23/23 20:57	1
Nitrobenzene-d5 (Surr)	98		24 - 120				03/20/23 12:32	03/23/23 20:57	1
2-Fluorophenol (Surr)	80		19 - 120				03/20/23 12:32	03/23/23 20:57	1
2-Fluorobiphenyl (Surr)	106		33 - 120				03/20/23 12:32	03/23/23 20:57	1
2,4,6-Tribromophenol (Surr)	90		10 - 120				03/20/23 12:32	03/23/23 20:57	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/20/23 12:38	03/23/23 12:56	1
Endrin	ND		0.00050	0.0000065	mg/L		03/20/23 12:38	03/23/23 12:56	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/20/23 12:38	03/23/23 12:56	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/20/23 12:38	03/23/23 12:56	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/20/23 12:38	03/23/23 12:56	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/20/23 12:38	03/23/23 12:56	1
Toxaphene	ND		0.020	0.000058	mg/L		03/20/23 12:38	03/23/23 12:56	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-COMP-PLASTIC PELLETS

Lab Sample ID: 240-182146-4

Date Collected: 03/17/23 00:00

Matrix: Solid

Date Received: 03/17/23 19:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	73		10 - 145	03/20/23 12:38	03/23/23 12:56	1
DCB Decachlorobiphenyl	72		10 - 145	03/20/23 12:38	03/23/23 12:56	1
Tetrachloro-m-xylene	62		10 - 123	03/20/23 12:38	03/23/23 12:56	1
Tetrachloro-m-xylene	65		10 - 123	03/20/23 12:38	03/23/23 12:56	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/22/23 21:04	03/23/23 11:26	1
2,4-D	ND		0.050	0.016	mg/L		03/22/23 21:04	03/23/23 11:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	60		26 - 136	03/22/23 21:04	03/23/23 11:26	1
2,4-Dichlorophenylacetic acid (Surr)	66		26 - 136	03/22/23 21:04	03/23/23 11:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	99.9		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	0.08		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-COMP-PLASTIC PELLETS

Lab Sample ID: 240-182146-4

Date Collected: 03/17/23 00:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		500	250	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1221	ND		500	300	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1232	ND		500	210	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1242	ND		500	190	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1248	ND		500	170	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1254	ND		500	210	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1260	ND		500	210	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1262	ND		500	220	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1
Aroclor-1268	ND		500	160	ug/Kg	☼	03/20/23 08:55	03/20/23 17:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	101		10 - 149	03/20/23 08:55	03/20/23 17:57	1
DCB Decachlorobiphenyl	99		10 - 174	03/20/23 08:55	03/20/23 17:57	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-182146-5

Date Collected: 03/17/23 14:00

Matrix: Solid

Date Received: 03/17/23 19:00

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	330	B	4.9	0.13	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,4,6,7,8-HpCDF	26	B	4.9	0.089	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,4,7,8-HxCDD	12		4.9	0.045	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,4,7,8-HxCDF	2.5	J B	4.9	0.064	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,4,7,8,9-HpCDF	1.6	J B	4.9	0.11	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,6,7,8-HxCDD	18	B	4.9	0.044	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,6,7,8-HxCDF	2.3	J	4.9	0.063	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,7,8-PeCDD	14	B	4.9	0.083	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,7,8-PeCDF	1.2	J	4.9	0.074	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,7,8,9-HxCDD	64	B	4.9	0.043	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
1,2,3,7,8,9-HxCDF	0.81	J B	4.9	0.078	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
2,3,4,6,7,8-HxCDF	3.9	J	4.9	0.061	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
2,3,4,7,8-PeCDF	6.5		4.9	0.055	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
2,3,7,8-TCDD	2.8		0.97	0.012	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
2,3,7,8-TCDF	1.1		0.97	0.043	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
OCDD	2400	B	9.7	0.13	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
OCDF	44		9.7	0.023	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total HxCDD	370	B	4.9	0.044	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total HxCDF	49	B	4.9	0.066	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total HpCDD	720	B	4.9	0.13	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total HpCDF	57	B	4.9	0.099	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total PeCDD	130	B	4.9	0.083	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total PeCDF	71	B	4.9	0.065	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total TCDD	32	I B	0.97	0.012	ng/Kg		03/27/23 09:45	03/29/23 12:16	1
Total TCDF	33	I	0.97	0.043	ng/Kg		03/27/23 09:45	03/29/23 12:16	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	73		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-OCDD	80		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-2,3,7,8-TCDF	69		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-2,3,7,8-TCDD	70		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-2,3,4,7,8-PeCDF	74		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-2,3,4,6,7,8-HxCDF	72		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,7,8,9-HxCDF	70		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,7,8,9-HxCDD	76		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,7,8-PeCDF	69		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,7,8-PeCDD	70		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,6,7,8-HxCDF	74		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,6,7,8-HxCDD	75		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,4,7,8,9-HpCDF	72		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,4,7,8-HxCDF	71		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,4,7,8-HxCDD	72		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,4,6,7,8-HpCDF	73		40 - 135	03/27/23 09:45	03/29/23 12:16	1
13C-1,2,3,4,6,7,8-HpCDD	73		40 - 135	03/27/23 09:45	03/29/23 12:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA Moisture)	31.3		1.0	1.0	%			03/22/23 09:53	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Date Collected: 03/17/23 15:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 76.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0042	0.0015	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,1,2,2-Tetrachloroethane	ND		0.0042	0.0012	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0042	0.0011	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,1,2-Trichloroethane	ND		0.0042	0.00095	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,1-Dichloroethane	ND		0.0042	0.00058	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,1-Dichloroethene	ND		0.0042	0.0015	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,2,4-Trichlorobenzene	ND		0.0042	0.0021	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,2-Dibromo-3-Chloropropane	ND		0.0084	0.0030	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Ethylene Dibromide	ND		0.0042	0.00065	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,2-Dichlorobenzene	ND		0.0042	0.00094	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,2-Dichloroethane	ND		0.0042	0.00065	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,2-Dichloropropane	ND		0.0042	0.00072	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,3-Dichlorobenzene	ND		0.0042	0.00069	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
1,4-Dichlorobenzene	ND		0.0042	0.00074	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
2-Butanone (MEK)	ND		0.017	0.0030	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
2-Hexanone	ND		0.017	0.0034	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
4-Methyl-2-pentanone (MIBK)	ND		0.017	0.0031	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Acetone	ND		0.021	0.018	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Benzene	ND		0.0042	0.00059	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Dichlorobromomethane	ND		0.0042	0.0013	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Bromoform	ND		0.0042	0.0020	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Bromomethane	ND		0.0042	0.0035	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Carbon disulfide	ND		0.0042	0.00098	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Carbon tetrachloride	ND		0.0042	0.0027	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Chlorobenzene	ND		0.0042	0.00077	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Chloroethane	ND		0.0042	0.0023	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Chloroform	ND		0.0042	0.00066	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Chloromethane	ND		0.0042	0.0019	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
cis-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
cis-1,3-Dichloropropene	ND		0.0042	0.0024	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Cyclohexane	ND		0.0084	0.0012	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Chlorodibromomethane	ND		0.0042	0.0023	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Dichlorodifluoromethane	ND		0.0042	0.00079	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Ethylbenzene	ND		0.0042	0.00088	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Isopropylbenzene	ND		0.0042	0.0016	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Methyl acetate	ND		0.021	0.0029	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Methyl tert-butyl ether	ND		0.0042	0.0017	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Methylcyclohexane	ND		0.0084	0.0010	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Methylene Chloride	ND		0.021	0.010	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Styrene	ND		0.0042	0.00097	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Tetrachloroethene	ND		0.0042	0.00061	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Toluene	ND		0.0042	0.00065	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
trans-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
trans-1,3-Dichloropropene	ND		0.0042	0.0031	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Trichloroethene	ND		0.0042	0.00053	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Trichlorofluoromethane	ND		0.0042	0.0023	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Vinyl chloride	ND		0.0042	0.0015	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Xylenes, Total	ND		0.0084	0.0013	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1
Butyl acrylate	ND		0.042	0.016	mg/Kg	✳	03/17/23 20:00	03/21/23 00:24	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Date Collected: 03/17/23 15:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 76.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0084	0.0026	mg/Kg	☼	03/17/23 20:00	03/21/23 00:24	1
2-Ethylhexyl acrylate	ND		0.042	0.020	mg/Kg	☼	03/17/23 20:00	03/21/23 00:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	128	S1+	56 - 125				03/17/23 20:00	03/21/23 00:24	1
Dibromofluoromethane (Surr)	109		41 - 138				03/17/23 20:00	03/21/23 00:24	1
4-Bromofluorobenzene (Surr)	135		41 - 143				03/17/23 20:00	03/21/23 00:24	1
1,2-Dichloroethane-d4 (Surr)	123		58 - 125				03/17/23 20:00	03/21/23 00:24	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.031	J	0.066	0.022	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,4,5-Trichlorophenol	ND		0.20	0.091	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,4,6-Trichlorophenol	ND		0.20	0.084	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,4-Dichlorophenol	ND		0.20	0.058	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,4-Dimethylphenol	ND		0.20	0.053	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,4-Dinitrophenol	ND	F1	0.43	0.19	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,4-Dinitrotoluene	ND		0.26	0.082	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2,6-Dinitrotoluene	ND		0.26	0.074	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2-Chloronaphthalene	ND		0.066	0.018	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2-Chlorophenol	ND		0.066	0.013	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2-Methylnaphthalene	0.30		0.020	0.0026	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2-Methylphenol	ND		0.26	0.041	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2-Nitroaniline	ND		0.26	0.053	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
2-Nitrophenol	ND		0.066	0.017	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
3,3'-Dichlorobenzidine	ND	F1	0.13	0.057	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
3-Nitroaniline	ND		0.26	0.065	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4,6-Dinitro-2-methylphenol	ND	F1	0.43	0.11	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4-Bromophenyl phenyl ether	ND		0.066	0.018	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4-Chloro-3-methylphenol	ND		0.20	0.059	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4-Chloroaniline	ND		0.20	0.040	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4-Chlorophenyl phenyl ether	ND		0.066	0.018	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4-Nitroaniline	ND		0.26	0.079	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
4-Nitrophenol	ND		0.43	0.12	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Acenaphthene	0.023		0.020	0.0038	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Acenaphthylene	0.027		0.020	0.0053	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Acetophenone	ND		0.13	0.014	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Anthracene	0.047		0.020	0.0032	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Atrazine	ND		0.26	0.047	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Benzaldehyde	ND		0.13	0.030	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Benzo[a]anthracene	0.16		0.020	0.0045	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Benzo[a]pyrene	0.16		0.020	0.012	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Benzo[b]fluoranthene	0.29		0.020	0.0086	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Benzo[g,h,i]perylene	0.093		0.020	0.0094	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Benzo[k]fluoranthene	0.058		0.020	0.0091	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Bis(2-chloroethoxy)methane	ND		0.13	0.016	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Bis(2-chloroethyl)ether	ND		0.13	0.016	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Bis(2-ethylhexyl) phthalate	ND		0.092	0.067	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1
Butyl benzyl phthalate	ND		0.092	0.029	mg/Kg	☼	03/20/23 09:24	03/22/23 19:02	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Date Collected: 03/17/23 15:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 76.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		0.43	0.099	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Carbazole	0.029	J	0.066	0.025	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Chrysene	0.22	F1	0.020	0.0020	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Dibenz(a,h)anthracene	0.031		0.020	0.0091	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Dibenzofuran	0.11		0.066	0.017	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Diethyl phthalate	ND		0.092	0.041	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Dimethyl phthalate	ND		0.092	0.018	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Di-n-butyl phthalate	ND		0.092	0.067	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Di-n-octyl phthalate	ND		0.092	0.037	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Fluoranthene	0.32	F2 F1	0.020	0.0059	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Fluorene	0.022		0.020	0.0036	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Hexachlorobenzene	ND		0.020	0.0038	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Hexachlorobutadiene	ND		0.066	0.016	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Hexachlorocyclopentadiene	ND	F1	0.43	0.082	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Hexachloroethane	ND		0.066	0.012	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Indeno[1,2,3-cd]pyrene	0.091		0.020	0.0097	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Isophorone	ND		0.066	0.016	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
N-Nitrosodi-n-propylamine	ND		0.066	0.014	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
N-Nitrosodiphenylamine	ND		0.066	0.016	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Naphthalene	0.21		0.020	0.0032	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Nitrobenzene	ND		0.13	0.017	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Pentachlorophenol	ND		0.20	0.076	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Phenanthrene	0.30	F2 F1	0.020	0.0029	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Phenol	ND		0.066	0.011	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
Pyrene	0.29	F2 F1	0.020	0.0028	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
3 & 4 Methylphenol	ND		0.53	0.038	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1
2-Butoxyethanol	ND	F2	0.092	0.086	mg/Kg	✳	03/20/23 09:24	03/22/23 19:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	81		46 - 137	03/20/23 09:24	03/22/23 19:02	1
Phenol-d5 (Surr)	76		26 - 120	03/20/23 09:24	03/22/23 19:02	1
Nitrobenzene-d5 (Surr)	54		25 - 120	03/20/23 09:24	03/22/23 19:02	1
2-Fluorophenol (Surr)	73		20 - 120	03/20/23 09:24	03/22/23 19:02	1
2-Fluorobiphenyl (Surr)	71		34 - 120	03/20/23 09:24	03/22/23 19:02	1
2,4,6-Tribromophenol (Surr)	71		10 - 120	03/20/23 09:24	03/22/23 19:02	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0081	J B	0.050	0.0041	mg/L		03/20/23 14:00	03/21/23 18:27	1
Barium	0.68		0.50	0.0013	mg/L		03/20/23 14:00	03/21/23 18:27	1
Cadmium	0.010	J	0.050	0.00020	mg/L		03/20/23 14:00	03/21/23 18:27	1
Chromium	0.0042	J	0.050	0.0040	mg/L		03/20/23 14:00	03/21/23 18:27	1
Lead	0.0070	J	0.050	0.0028	mg/L		03/20/23 14:00	03/21/23 18:27	1
Selenium	ND		0.050	0.0060	mg/L		03/20/23 14:00	03/21/23 18:27	1
Silver	ND		0.050	0.00062	mg/L		03/20/23 14:00	03/21/23 18:27	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00016	J	0.0020	0.00013	mg/L		03/20/23 14:00	03/21/23 14:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Date Collected: 03/17/23 15:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 76.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	76.0		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	24.0		0.1	0.1	%			03/20/23 11:50	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-182146-1	WC-VB1402-PLASTIC PELLETS	128 *3 S1+	98	157 *3 S1+	107
240-182146-2	WC-VB1344-PLASTIC PELLETS	129 S1+	112	162 S1+ *3	121
240-182146-3	WC-VB1108-PLASTIC PELLETS	131 S1+	113	170 S1+ *3	124
240-182146-6	WC-SB1597-SOIL & DEBRIS	128 S1+	109	135	123
LCS 240-566130/5	Lab Control Sample	116	107	118	111
LCS 240-566249/3	Lab Control Sample	113	105	113	110
MB 240-566125/1-A	Method Blank	114	104	116	113
MB 240-566125/3-A	Method Blank	114	105	116	116

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-566055/11	Lab Control Sample	103	99	112	100

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-182146-4	WC-COMP-PLASTIC PELLETS	99	93	109	98
240-182146-4 MS	WC-COMP-PLASTIC PELLETS	100	95	111	97
240-182146-4 MSD	WC-COMP-PLASTIC PELLETS	102	97	113	97
LB 240-565958/1-A MB	Method Blank	99	92	107	99

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-182146-1	WC-VB1402-PLASTIC PELLETS	97	78	58	69	73	72
240-182146-2	WC-VB1344-PLASTIC PELLETS	82	79	55	66	70	71
240-182146-3	WC-VB1108-PLASTIC PELLETS	89	96	68	81	77	70
240-182146-6	WC-SB1597-SOIL & DEBRIS	81	76	54	73	71	71
240-182146-6 MS	WC-SB1597-SOIL & DEBRIS	90	71	51	54	73	71
240-182146-6 MSD	WC-SB1597-SOIL & DEBRIS	83	85	61	76	84	70
LCS 240-566028/2-A	Lab Control Sample	103	80	72	79	85	87
MB 240-566028/1-A	Method Blank	100	75	71	62	82	36

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-566085/13-A	Lab Control Sample	111	70	90	73	97	90
MB 240-566085/12-A	Method Blank	104	61	87	69	97	82

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-182146-4	WC-COMP-PLASTIC PELLETS	119	73	98	80	106	90

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-566087/11-A	Lab Control Sample	75	78	63	67
MB 240-566087/10-A	Method Blank	74	78	65	69

Surrogate Legend
 DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-182146-4	WC-COMP-PLASTIC PELLETS	73	72	62	65

Surrogate Legend
 DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (10-149)	DCBP1 (10-174)
240-182146-4	WC-COMP-PLASTIC PELLETS	101	99
LCS 240-565996/2-A	Lab Control Sample	119	132
MB 240-565996/1-A	Method Blank	85	122

Surrogate Legend
 TCX = Tetrachloro-m-xylene
 DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
LCS 410-356471/2-A	Lab Control Sample	66	73
LCSD 410-356471/3-A	Lab Control Sample Dup	70	73
MB 410-356471/1-A	Method Blank	51	57

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
240-182146-4	WC-COMP-PLASTIC PELLETS	60	66

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: LCS 240-566055/11
Matrix: Solid
Analysis Batch: 566055

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	1.06		mg/L		106	74 - 127
1,2-Dichloroethane	1.00	0.962		mg/L		96	72 - 120
2-Butanone (MEK)	2.00	1.95		mg/L		98	68 - 130
Benzene	1.00	1.06		mg/L		106	80 - 121
Carbon tetrachloride	1.00	0.885		mg/L		89	69 - 120
Chlorobenzene	1.00	1.03		mg/L		103	80 - 120
Chloroform	1.00	1.04		mg/L		104	75 - 120
Tetrachloroethene	1.00	0.958		mg/L		96	74 - 120
Trichloroethene	1.00	0.906		mg/L		91	75 - 120
Vinyl chloride	1.00	1.06		mg/L		106	53 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	99		71 - 121
4-Bromofluorobenzene (Surr)	112		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		76 - 120

Lab Sample ID: MB 240-566125/1-A
Matrix: Solid
Analysis Batch: 566130

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Acetone	ND		0.025	0.021	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/20/23 22:43	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566125/1-A
Matrix: Solid
Analysis Batch: 566130

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloroform	ND		0.0050	0.00079	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Butyl acrylate	ND		0.050	0.019	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
Methyl acrylate	ND		0.010	0.0031	mg/Kg		03/20/23 17:03	03/20/23 22:43	1
2-Ethylhexyl acrylate	ND		0.050	0.024	mg/Kg		03/20/23 17:03	03/20/23 22:43	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
<i>Toluene-d8 (Surr)</i>	114		56 - 125	03/20/23 17:03	03/20/23 22:43	1
<i>Dibromofluoromethane (Surr)</i>	104		41 - 138	03/20/23 17:03	03/20/23 22:43	1
<i>4-Bromofluorobenzene (Surr)</i>	116		41 - 143	03/20/23 17:03	03/20/23 22:43	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	113		58 - 125	03/20/23 17:03	03/20/23 22:43	1

Lab Sample ID: MB 240-566125/3-A
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 19:25	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566125/3-A
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Acetone	ND		0.025	0.021	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Butyl acrylate	ND		0.050	0.019	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl acrylate	ND		0.010	0.0031	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Ethylhexyl acrylate	ND		0.050	0.024	mg/Kg		03/20/23 17:03	03/21/23 19:25	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	114		56 - 125	03/20/23 17:03	03/21/23 19:25	1
Dibromofluoromethane (Surr)	105		41 - 138	03/20/23 17:03	03/21/23 19:25	1
4-Bromofluorobenzene (Surr)	116		41 - 143	03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/20/23 17:03	03/21/23 19:25	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566130/5

Matrix: Solid

Analysis Batch: 566130

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0250	0.0309		mg/Kg		123	74 - 136
1,1,2,2-Tetrachloroethane	0.0250	0.0292		mg/Kg		117	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0269		mg/Kg		108	64 - 148
1,1,2-Trichloroethane	0.0250	0.0284		mg/Kg		113	79 - 120
1,1-Dichloroethane	0.0250	0.0269		mg/Kg		108	74 - 121
1,1-Dichloroethene	0.0250	0.0278		mg/Kg		111	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0253		mg/Kg		101	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0257		mg/Kg		103	52 - 133
Ethylene Dibromide	0.0250	0.0272		mg/Kg		109	80 - 121
1,2-Dichlorobenzene	0.0250	0.0271		mg/Kg		108	73 - 120
1,2-Dichloroethane	0.0250	0.0281		mg/Kg		112	71 - 123
1,2-Dichloropropane	0.0250	0.0259		mg/Kg		103	76 - 126
1,3-Dichlorobenzene	0.0250	0.0270		mg/Kg		108	73 - 120
1,4-Dichlorobenzene	0.0250	0.0269		mg/Kg		108	74 - 120
2-Butanone (MEK)	0.0500	0.0558		mg/Kg		112	63 - 142
2-Hexanone	0.0500	0.0605		mg/Kg		121	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0564		mg/Kg		113	62 - 142
Acetone	0.0500	0.0745		mg/Kg		149	58 - 160
Benzene	0.0250	0.0284		mg/Kg		113	76 - 121
Dichlorobromomethane	0.0250	0.0282		mg/Kg		113	71 - 138
Bromoform	0.0250	0.0245		mg/Kg		98	57 - 140
Bromomethane	0.0250	0.0293		mg/Kg		117	10 - 171
Carbon disulfide	0.0250	0.0261		mg/Kg		104	43 - 152
Carbon tetrachloride	0.0250	0.0291		mg/Kg		116	64 - 144
Chlorobenzene	0.0250	0.0276		mg/Kg		110	80 - 120
Chloroethane	0.0250	0.0238		mg/Kg		95	11 - 164
Chloroform	0.0250	0.0287		mg/Kg		115	78 - 120
Chloromethane	0.0250	0.0227		mg/Kg		91	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0279		mg/Kg		112	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0261		mg/Kg		104	70 - 133
Cyclohexane	0.0250	0.0268		mg/Kg		107	65 - 137
Chlorodibromomethane	0.0250	0.0259		mg/Kg		103	68 - 131
Dichlorodifluoromethane	0.0250	0.0309		mg/Kg		124	21 - 150
Ethylbenzene	0.0250	0.0283		mg/Kg		113	80 - 120
Isopropylbenzene	0.0250	0.0290		mg/Kg		116	80 - 130
Methyl acetate	0.0500	0.0471		mg/Kg		94	60 - 133
Methyl tert-butyl ether	0.0250	0.0266		mg/Kg		106	70 - 130
Methylcyclohexane	0.0250	0.0278		mg/Kg		111	70 - 138
Methylene Chloride	0.0250	0.0285		mg/Kg		114	71 - 124
Styrene	0.0250	0.0288		mg/Kg		115	75 - 140
Tetrachloroethene	0.0250	0.0286		mg/Kg		114	76 - 127
Toluene	0.0250	0.0293		mg/Kg		117	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0272		mg/Kg		109	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0284		mg/Kg		114	61 - 121
Trichloroethene	0.0250	0.0271		mg/Kg		108	74 - 130
Trichlorofluoromethane	0.0250	0.0291		mg/Kg		117	50 - 154
Vinyl chloride	0.0250	0.0250		mg/Kg		100	49 - 146
Xylenes, Total	0.0500	0.0561		mg/Kg		112	80 - 122

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566130/5
Matrix: Solid
Analysis Batch: 566130

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
m-Xylene & p-Xylene	0.0250	0.0283		mg/Kg		113	80 - 122
o-Xylene	0.0250	0.0278		mg/Kg		111	80 - 124
Butyl acrylate	0.100	0.107		mg/Kg		107	10 - 120
Methyl acrylate	0.100	0.117		mg/Kg		117	10 - 120
2-Ethylhexyl acrylate	0.100	0.0857		mg/Kg		86	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	116		56 - 125
Dibromofluoromethane (Surr)	107		41 - 138
4-Bromofluorobenzene (Surr)	118		41 - 143
1,2-Dichloroethane-d4 (Surr)	111		58 - 125

Lab Sample ID: LCS 240-566249/3
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0250	0.0278		mg/Kg		111	74 - 136
1,1,1,2-Tetrachloroethane	0.0250	0.0277		mg/Kg		111	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0241		mg/Kg		96	64 - 148
1,1,2-Trichloroethane	0.0250	0.0271		mg/Kg		109	79 - 120
1,1-Dichloroethane	0.0250	0.0243		mg/Kg		97	74 - 121
1,1-Dichloroethene	0.0250	0.0263		mg/Kg		105	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0251		mg/Kg		101	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0246		mg/Kg		98	52 - 133
Ethylene Dibromide	0.0250	0.0261		mg/Kg		105	80 - 121
1,2-Dichlorobenzene	0.0250	0.0261		mg/Kg		104	73 - 120
1,2-Dichloroethane	0.0250	0.0259		mg/Kg		104	71 - 123
1,2-Dichloropropane	0.0250	0.0243		mg/Kg		97	76 - 126
1,3-Dichlorobenzene	0.0250	0.0262		mg/Kg		105	73 - 120
1,4-Dichlorobenzene	0.0250	0.0264		mg/Kg		106	74 - 120
2-Butanone (MEK)	0.0500	0.0524		mg/Kg		105	63 - 142
2-Hexanone	0.0500	0.0552		mg/Kg		110	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0537		mg/Kg		107	62 - 142
Acetone	0.0500	0.0703		mg/Kg		141	58 - 160
Benzene	0.0250	0.0256		mg/Kg		102	76 - 121
Dichlorobromomethane	0.0250	0.0252		mg/Kg		101	71 - 138
Bromoform	0.0250	0.0232		mg/Kg		93	57 - 140
Bromomethane	0.0250	0.0252		mg/Kg		101	10 - 171
Carbon disulfide	0.0250	0.0248		mg/Kg		99	43 - 152
Carbon tetrachloride	0.0250	0.0278		mg/Kg		111	64 - 144
Chlorobenzene	0.0250	0.0258		mg/Kg		103	80 - 120
Chloroethane	0.0250	0.0223		mg/Kg		89	11 - 164
Chloroform	0.0250	0.0268		mg/Kg		107	78 - 120
Chloromethane	0.0250	0.0216		mg/Kg		86	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0258		mg/Kg		103	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0246		mg/Kg		99	70 - 133
Cyclohexane	0.0250	0.0243		mg/Kg		97	65 - 137

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566249/3
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorodibromomethane	0.0250	0.0252		mg/Kg		101	68 - 131
Dichlorodifluoromethane	0.0250	0.0278		mg/Kg		111	21 - 150
Ethylbenzene	0.0250	0.0264		mg/Kg		105	80 - 120
Isopropylbenzene	0.0250	0.0271		mg/Kg		108	80 - 130
Methyl acetate	0.0500	0.0451		mg/Kg		90	60 - 133
Methyl tert-butyl ether	0.0250	0.0249		mg/Kg		99	70 - 130
Methylcyclohexane	0.0250	0.0248		mg/Kg		99	70 - 138
Methylene Chloride	0.0250	0.0262		mg/Kg		105	71 - 124
Styrene	0.0250	0.0267		mg/Kg		107	75 - 140
Tetrachloroethene	0.0250	0.0267		mg/Kg		107	76 - 127
Toluene	0.0250	0.0269		mg/Kg		108	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0248		mg/Kg		99	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0269		mg/Kg		108	61 - 121
Trichloroethene	0.0250	0.0247		mg/Kg		99	74 - 130
Trichlorofluoromethane	0.0250	0.0263		mg/Kg		105	50 - 154
Vinyl chloride	0.0250	0.0230		mg/Kg		92	49 - 146
Xylenes, Total	0.0500	0.0522		mg/Kg		104	80 - 122
m-Xylene & p-Xylene	0.0250	0.0262		mg/Kg		105	80 - 122
o-Xylene	0.0250	0.0260		mg/Kg		104	80 - 124
Butyl acrylate	0.100	0.106		mg/Kg		106	10 - 120
Methyl acrylate	0.100	0.106		mg/Kg		106	10 - 120
2-Ethylhexyl acrylate	0.100	0.0853		mg/Kg		85	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	113		56 - 125
Dibromofluoromethane (Surr)	105		41 - 138
4-Bromofluorobenzene (Surr)	113		41 - 143
1,2-Dichloroethane-d4 (Surr)	110		58 - 125

Lab Sample ID: LB 240-565958/1-A MB
Matrix: Solid
Analysis Batch: 566055

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/20/23 13:45	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/20/23 13:45	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/20/23 13:45	1
Benzene	ND		0.025	0.00042	mg/L			03/20/23 13:45	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/20/23 13:45	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/20/23 13:45	1
Chloroform	ND		0.025	0.00047	mg/L			03/20/23 13:45	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/20/23 13:45	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/20/23 13:45	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/20/23 13:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		80 - 120		03/20/23 13:45	1
Dibromofluoromethane (Surr)	92		71 - 121		03/20/23 13:45	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LB 240-565958/1-A MB
Matrix: Solid
Analysis Batch: 566055

Client Sample ID: Method Blank
Prep Type: TCLP

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	107		80 - 120		03/20/23 13:45	1
1,2-Dichloroethane-d4 (Surr)	99		76 - 120		03/20/23 13:45	1

Lab Sample ID: 240-182146-4 MS
Matrix: Solid
Analysis Batch: 566055

Client Sample ID: WC-COMP-PLASTIC PELLETS
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
1,1-Dichloroethene	ND		1.00	1.01		mg/L		101	72 - 127
1,2-Dichloroethane	ND		1.00	0.944		mg/L		94	70 - 120
2-Butanone (MEK)	ND		2.00	1.95		mg/L		98	76 - 127
Benzene	ND		1.00	1.04		mg/L		104	80 - 124
Carbon tetrachloride	ND		1.00	0.872		mg/L		87	63 - 120
Chlorobenzene	ND		1.00	0.995		mg/L		100	80 - 120
Chloroform	ND		1.00	1.01		mg/L		101	75 - 121
Tetrachloroethene	ND		1.00	0.917		mg/L		92	68 - 120
Trichloroethene	ND		1.00	0.882		mg/L		88	70 - 120
Vinyl chloride	ND		1.00	1.04		mg/L		104	55 - 144

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	95		71 - 121
4-Bromofluorobenzene (Surr)	111		80 - 120
1,2-Dichloroethane-d4 (Surr)	97		76 - 120

Lab Sample ID: 240-182146-4 MSD
Matrix: Solid
Analysis Batch: 566055

Client Sample ID: WC-COMP-PLASTIC PELLETS
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
				Result	Qualifier						
1,1-Dichloroethene	ND		1.00	1.02		mg/L		102	72 - 127	0	11
1,2-Dichloroethane	ND		1.00	0.936		mg/L		94	70 - 120	1	10
2-Butanone (MEK)	ND		2.00	1.97		mg/L		99	76 - 127	1	17
Benzene	ND		1.00	1.04		mg/L		104	80 - 124	1	10
Carbon tetrachloride	ND		1.00	0.882		mg/L		88	63 - 120	1	11
Chlorobenzene	ND		1.00	0.996		mg/L		100	80 - 120	0	10
Chloroform	ND		1.00	0.997		mg/L		100	75 - 121	2	10
Tetrachloroethene	ND		1.00	0.928		mg/L		93	68 - 120	1	10
Trichloroethene	ND		1.00	0.893		mg/L		89	70 - 120	1	10
Vinyl chloride	ND		1.00	1.04		mg/L		104	55 - 144	0	11

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	97		71 - 121
4-Bromofluorobenzene (Surr)	113		80 - 120
1,2-Dichloroethane-d4 (Surr)	97		76 - 120

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-566028/1-A
Matrix: Solid
Analysis Batch: 566308

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566028

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Atrazine	ND		0.20	0.036	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Carbazole	ND		0.050	0.019	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/20/23 09:24	03/22/23 10:29	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566028/1-A
Matrix: Solid
Analysis Batch: 566308

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566028

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Isophorone	ND		0.050	0.012	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Phenol	ND		0.050	0.0080	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/20/23 09:24	03/22/23 10:29	1
2-Butoxyethanol	ND		0.070	0.066	mg/Kg		03/20/23 09:24	03/22/23 10:29	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	100		46 - 137	03/20/23 09:24	03/22/23 10:29	1
Phenol-d5 (Surr)	75		26 - 120	03/20/23 09:24	03/22/23 10:29	1
Nitrobenzene-d5 (Surr)	71		25 - 120	03/20/23 09:24	03/22/23 10:29	1
2-Fluorophenol (Surr)	62		20 - 120	03/20/23 09:24	03/22/23 10:29	1
2-Fluorobiphenyl (Surr)	82		34 - 120	03/20/23 09:24	03/22/23 10:29	1
2,4,6-Tribromophenol (Surr)	36		10 - 120	03/20/23 09:24	03/22/23 10:29	1

Lab Sample ID: LCS 240-566028/2-A
Matrix: Solid
Analysis Batch: 566308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566028

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
bis (2-chloroisopropyl) ether	0.667	0.468		mg/Kg		70	38 - 120
2,4,5-Trichlorophenol	0.667	0.552		mg/Kg		83	50 - 120
2,4,6-Trichlorophenol	0.667	0.498		mg/Kg		75	50 - 120
2,4-Dichlorophenol	0.667	0.499		mg/Kg		75	50 - 120
2,4-Dimethylphenol	0.667	0.359		mg/Kg		54	24 - 120
2,4-Dinitrophenol	1.33	1.16		mg/Kg		87	19 - 132
2,4-Dinitrotoluene	0.667	0.675		mg/Kg		101	64 - 120
2,6-Dinitrotoluene	0.667	0.673		mg/Kg		101	62 - 120
2-Chloronaphthalene	0.667	0.561		mg/Kg		84	51 - 120
2-Chlorophenol	0.667	0.482		mg/Kg		72	47 - 120
2-Methylnaphthalene	0.667	0.499		mg/Kg		75	38 - 120
2-Methylphenol	0.667	0.480		mg/Kg		72	45 - 120
2-Nitroaniline	0.667	0.682		mg/Kg		102	57 - 120
2-Nitrophenol	0.667	0.481		mg/Kg		72	51 - 120
3,3'-Dichlorobenzidine	1.33	1.12		mg/Kg		84	27 - 199

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-566028/2-A
Matrix: Solid
Analysis Batch: 566308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566028

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Nitroaniline	0.667	0.616		mg/Kg		92	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.31		mg/Kg		98	46 - 126
4-Bromophenyl phenyl ether	0.667	0.548		mg/Kg		82	65 - 120
4-Chloro-3-methylphenol	0.667	0.507		mg/Kg		76	51 - 120
4-Chloroaniline	0.667	0.437		mg/Kg		66	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.589		mg/Kg		88	59 - 120
4-Nitroaniline	0.667	0.643		mg/Kg		96	48 - 128
4-Nitrophenol	1.33	1.42		mg/Kg		106	43 - 120
Acenaphthene	0.667	0.549		mg/Kg		82	52 - 120
Acenaphthylene	0.667	0.498		mg/Kg		75	52 - 120
Acetophenone	0.667	0.501		mg/Kg		75	47 - 120
Anthracene	0.667	0.582		mg/Kg		87	64 - 120
Atrazine	1.33	1.28		mg/Kg		96	71 - 125
Benzaldehyde	1.33	0.989		mg/Kg		74	42 - 120
Benzo[a]anthracene	0.667	0.656		mg/Kg		98	70 - 120
Benzo[a]pyrene	0.667	0.580		mg/Kg		87	63 - 125
Benzo[b]fluoranthene	0.667	0.573		mg/Kg		86	64 - 121
Benzo[g,h,i]perylene	0.667	0.607		mg/Kg		91	62 - 120
Benzo[k]fluoranthene	0.667	0.596		mg/Kg		89	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.509		mg/Kg		76	50 - 120
Bis(2-chloroethyl)ether	0.667	0.505		mg/Kg		76	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.758		mg/Kg		114	63 - 133
Butyl benzyl phthalate	0.667	0.752		mg/Kg		113	66 - 127
Caprolactam	1.33	1.31		mg/Kg		98	67 - 120
Carbazole	0.667	0.614		mg/Kg		92	61 - 129
Chrysene	0.667	0.656		mg/Kg		98	67 - 120
Dibenz(a,h)anthracene	0.667	0.604		mg/Kg		91	62 - 120
Dibenzofuran	0.667	0.599		mg/Kg		90	55 - 120
Diethyl phthalate	0.667	0.646		mg/Kg		97	61 - 120
Dimethyl phthalate	0.667	0.656		mg/Kg		98	64 - 120
Di-n-butyl phthalate	0.667	0.659		mg/Kg		99	70 - 129
Di-n-octyl phthalate	0.667	0.668		mg/Kg		100	64 - 129
Fluoranthene	0.667	0.631		mg/Kg		95	71 - 124
Fluorene	0.667	0.610		mg/Kg		92	58 - 120
Hexachlorobenzene	0.667	0.542		mg/Kg		81	59 - 120
Hexachlorobutadiene	0.667	0.408		mg/Kg		61	45 - 120
Hexachlorocyclopentadiene	0.667	0.374		mg/Kg		56	10 - 120
Hexachloroethane	0.667	0.438		mg/Kg		66	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.642		mg/Kg		96	65 - 122
Isophorone	0.667	0.513		mg/Kg		77	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.500		mg/Kg		75	48 - 120
N-Nitrosodiphenylamine	0.667	0.568		mg/Kg		85	64 - 120
Naphthalene	0.667	0.476		mg/Kg		71	34 - 120
Nitrobenzene	0.667	0.502		mg/Kg		75	48 - 120
Pentachlorophenol	1.33	0.712		mg/Kg		53	10 - 120
Phenanthrene	0.667	0.574		mg/Kg		86	60 - 120
Phenol	0.667	0.524		mg/Kg		79	48 - 120
Pyrene	0.667	0.659		mg/Kg		99	67 - 120
3 & 4 Methylphenol	0.667	0.510		mg/Kg		77	49 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-566028/2-A
Matrix: Solid
Analysis Batch: 566308

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566028

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butoxyethanol	0.667	0.500		mg/Kg		75	10 - 120
Surrogate							
	LCS %Recovery	LCS Qualifier	Limits				
Terphenyl-d14 (Surr)	103		46 - 137				
Phenol-d5 (Surr)	80		26 - 120				
Nitrobenzene-d5 (Surr)	72		25 - 120				
2-Fluorophenol (Surr)	79		20 - 120				
2-Fluorobiphenyl (Surr)	85		34 - 120				
2,4,6-Tribromophenol (Surr)	87		10 - 120				

Lab Sample ID: 240-182146-6 MS
Matrix: Solid
Analysis Batch: 566308

Client Sample ID: WC-SB1597-SOIL & DEBRIS
Prep Type: Total/NA
Prep Batch: 566028

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.031	J	0.879	0.707		mg/Kg	✱	77	29 - 120
bis (2-chloroisopropyl) ether	ND		0.879	0.391		mg/Kg	✱	45	10 - 120
2,4,5-Trichlorophenol	ND		0.879	0.637		mg/Kg	✱	72	35 - 120
2,4,6-Trichlorophenol	ND		0.879	0.525		mg/Kg	✱	60	18 - 120
2,4-Dichlorophenol	ND		0.879	0.633		mg/Kg	✱	72	21 - 120
2,4-Dimethylphenol	ND		0.879	0.507		mg/Kg	✱	58	10 - 120
2,4-Dinitrophenol	ND	F1	1.76	ND	F1	mg/Kg	✱	0	10 - 126
2,4-Dinitrotoluene	ND		0.879	0.775		mg/Kg	✱	88	46 - 120
2,6-Dinitrotoluene	ND		0.879	0.755		mg/Kg	✱	86	44 - 120
2-Chloronaphthalene	ND		0.879	0.645		mg/Kg	✱	73	33 - 120
2-Chlorophenol	ND		0.879	0.468		mg/Kg	✱	53	19 - 120
2-Methylnaphthalene	0.30		0.879	1.08		mg/Kg	✱	88	13 - 122
2-Methylphenol	ND		0.879	0.516		mg/Kg	✱	59	12 - 120
2-Nitroaniline	ND		0.879	0.953		mg/Kg	✱	108	36 - 122
2-Nitrophenol	ND		0.879	0.483		mg/Kg	✱	55	28 - 120
3,3'-Dichlorobenzidine	ND	F1	1.76	0.0594	J F1	mg/Kg	✱	3	10 - 179
3-Nitroaniline	ND		0.879	0.445		mg/Kg	✱	51	10 - 123
4,6-Dinitro-2-methylphenol	ND	F1	1.76	0.141	J F1	mg/Kg	✱	8	11 - 120
4-Bromophenyl phenyl ether	ND		0.879	0.598		mg/Kg	✱	68	49 - 120
4-Chloro-3-methylphenol	ND		0.879	0.727		mg/Kg	✱	83	35 - 120
4-Chloroaniline	ND		0.879	0.429		mg/Kg	✱	49	10 - 120
4-Chlorophenyl phenyl ether	ND		0.879	0.668		mg/Kg	✱	76	45 - 120
4-Nitroaniline	ND		0.879	0.387		mg/Kg	✱	44	13 - 129
4-Nitrophenol	ND		1.76	1.34		mg/Kg	✱	76	28 - 123
Acenaphthene	0.023		0.879	0.793		mg/Kg	✱	88	33 - 120
Acenaphthylene	0.027		0.879	0.812		mg/Kg	✱	89	39 - 120
Acetophenone	ND		0.879	0.475		mg/Kg	✱	54	11 - 120
Anthracene	0.047		0.879	0.891		mg/Kg	✱	96	30 - 127
Atrazine	ND		1.76	1.43		mg/Kg	✱	82	52 - 126
Benzaldehyde	ND		1.76	0.894		mg/Kg	✱	51	13 - 120
Benzo[a]anthracene	0.16		0.879	1.27		mg/Kg	✱	126	24 - 137
Benzo[a]pyrene	0.16		0.879	1.17		mg/Kg	✱	115	28 - 136
Benzo[b]fluoranthene	0.29		0.879	1.24		mg/Kg	✱	109	21 - 142

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182146-6 MS

Matrix: Solid

Analysis Batch: 566308

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Prep Type: Total/NA

Prep Batch: 566028

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Benzo[g,h,i]perylene	0.093		0.879	0.634		mg/Kg	⊛	62		10 - 144
Benzo[k]fluoranthene	0.058		0.879	1.12		mg/Kg	⊛	121		36 - 135
Bis(2-chloroethoxy)methane	ND		0.879	0.575		mg/Kg	⊛	65		25 - 120
Bis(2-chloroethyl)ether	ND		0.879	0.459		mg/Kg	⊛	52		16 - 120
Bis(2-ethylhexyl) phthalate	ND		0.879	1.00		mg/Kg	⊛	114		37 - 143
Butyl benzyl phthalate	ND		0.879	0.988		mg/Kg	⊛	112		49 - 130
Caprolactam	ND		1.76	1.71		mg/Kg	⊛	97		37 - 127
Carbazole	0.029	J	0.879	0.903		mg/Kg	⊛	99		33 - 132
Chrysene	0.22	F1	0.879	1.40	F1	mg/Kg	⊛	135		28 - 129
Dibenz(a,h)anthracene	0.031		0.879	0.645		mg/Kg	⊛	70		10 - 132
Dibenzofuran	0.11		0.879	0.934		mg/Kg	⊛	94		33 - 120
Diethyl phthalate	ND		0.879	0.737		mg/Kg	⊛	84		48 - 120
Dimethyl phthalate	ND		0.879	0.781		mg/Kg	⊛	89		45 - 120
Di-n-butyl phthalate	ND		0.879	0.848		mg/Kg	⊛	96		40 - 137
Di-n-octyl phthalate	ND		0.879	0.930		mg/Kg	⊛	106		34 - 152
Fluoranthene	0.32	F2 F1	0.879	1.81	F1	mg/Kg	⊛	169		31 - 140
Fluorene	0.022		0.879	0.934		mg/Kg	⊛	104		43 - 120
Hexachlorobenzene	ND		0.879	0.589		mg/Kg	⊛	67		44 - 120
Hexachlorobutadiene	ND		0.879	0.386		mg/Kg	⊛	44		13 - 120
Hexachlorocyclopentadiene	ND	F1	0.879	ND	F1	mg/Kg	⊛	0		10 - 120
Hexachloroethane	ND		0.879	0.276		mg/Kg	⊛	31		10 - 120
Indeno[1,2,3-cd]pyrene	0.091		0.879	0.777		mg/Kg	⊛	78		10 - 139
Isophorone	ND		0.879	0.575		mg/Kg	⊛	65		27 - 120
N-Nitrosodi-n-propylamine	ND		0.879	0.455		mg/Kg	⊛	52		23 - 120
N-Nitrosodiphenylamine	ND		0.879	0.616		mg/Kg	⊛	70		30 - 128
Naphthalene	0.21		0.879	0.703		mg/Kg	⊛	57		10 - 120
Nitrobenzene	ND		0.879	0.483		mg/Kg	⊛	55		19 - 120
Pentachlorophenol	ND		1.76	0.804		mg/Kg	⊛	46		10 - 120
Phenanthrene	0.30	F2 F1	0.879	1.69	F1	mg/Kg	⊛	158		36 - 120
Phenol	ND		0.879	0.597		mg/Kg	⊛	68		10 - 120
Pyrene	0.29	F2 F1	0.879	1.74	F1	mg/Kg	⊛	165		31 - 134
3 & 4 Methylphenol	ND		0.879	0.598		mg/Kg	⊛	68		10 - 122
2-Butoxyethanol	ND	F2	0.879	0.491		mg/Kg	⊛	56		10 - 120

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	90		46 - 137
Phenol-d5 (Surr)	71		26 - 120
Nitrobenzene-d5 (Surr)	51		25 - 120
2-Fluorophenol (Surr)	54		20 - 120
2-Fluorobiphenyl (Surr)	73		34 - 120
2,4,6-Tribromophenol (Surr)	71		10 - 120

Lab Sample ID: 240-182146-6 MSD

Matrix: Solid

Analysis Batch: 566308

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Prep Type: Total/NA

Prep Batch: 566028

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						Limit	
1,1'-Biphenyl	0.031	J	0.887	0.689		mg/Kg	⊛	74		29 - 120	3	45

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182146-6 MSD

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566308

Prep Batch: 566028

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
bis (2-chloroisopropyl) ether	ND		0.887	0.549		mg/Kg	✖	62	10 - 120	33	45
2,4,5-Trichlorophenol	ND		0.887	0.682		mg/Kg	✖	77	35 - 120	7	39
2,4,6-Trichlorophenol	ND		0.887	0.595		mg/Kg	✖	67	18 - 120	13	45
2,4-Dichlorophenol	ND		0.887	0.614		mg/Kg	✖	69	21 - 120	3	44
2,4-Dimethylphenol	ND		0.887	0.428		mg/Kg	✖	48	10 - 120	17	45
2,4-Dinitrophenol	ND	F1	1.77	ND	F1	mg/Kg	✖	0	10 - 126	NC	45
2,4-Dinitrotoluene	ND		0.887	0.781		mg/Kg	✖	88	46 - 120	1	45
2,6-Dinitrotoluene	ND		0.887	0.840		mg/Kg	✖	95	44 - 120	11	45
2-Chloronaphthalene	ND		0.887	0.721		mg/Kg	✖	81	33 - 120	11	45
2-Chlorophenol	ND		0.887	0.621		mg/Kg	✖	70	19 - 120	28	45
2-Methylnaphthalene	0.30		0.887	1.07		mg/Kg	✖	86	13 - 122	1	45
2-Methylphenol	ND		0.887	0.692		mg/Kg	✖	78	12 - 120	29	45
2-Nitroaniline	ND		0.887	0.914		mg/Kg	✖	103	36 - 122	4	42
2-Nitrophenol	ND		0.887	0.576		mg/Kg	✖	65	28 - 120	18	45
3,3'-Dichlorobenzidine	ND	F1	1.77	ND	F1	mg/Kg	✖	0	10 - 179	NC	45
3-Nitroaniline	ND		0.887	0.421		mg/Kg	✖	48	10 - 123	5	45
4,6-Dinitro-2-methylphenol	ND	F1	1.77	0.170	J F1	mg/Kg	✖	10	11 - 120	18	40
4-Bromophenyl phenyl ether	ND		0.887	0.635		mg/Kg	✖	72	49 - 120	6	42
4-Chloro-3-methylphenol	ND		0.887	0.810		mg/Kg	✖	91	35 - 120	11	42
4-Chloroaniline	ND		0.887	0.376		mg/Kg	✖	42	10 - 120	13	45
4-Chlorophenyl phenyl ether	ND		0.887	0.701		mg/Kg	✖	79	45 - 120	5	44
4-Nitroaniline	ND		0.887	0.292		mg/Kg	✖	33	13 - 129	28	38
4-Nitrophenol	ND		1.77	1.50		mg/Kg	✖	85	28 - 123	11	45
Acenaphthene	0.023		0.887	0.743		mg/Kg	✖	81	33 - 120	7	45
Acenaphthylene	0.027		0.887	0.757		mg/Kg	✖	82	39 - 120	7	45
Acetophenone	ND		0.887	0.666		mg/Kg	✖	75	11 - 120	33	45
Anthracene	0.047		0.887	0.720		mg/Kg	✖	76	30 - 127	21	45
Atrazine	ND		1.77	1.31		mg/Kg	✖	74	52 - 126	9	34
Benzaldehyde	ND		1.77	1.12		mg/Kg	✖	63	13 - 120	22	45
Benzo[a]anthracene	0.16		0.887	0.924		mg/Kg	✖	86	24 - 137	31	42
Benzo[a]pyrene	0.16		0.887	0.869		mg/Kg	✖	80	28 - 136	30	41
Benzo[b]fluoranthene	0.29		0.887	1.01		mg/Kg	✖	82	21 - 142	20	42
Benzo[g,h,i]perylene	0.093		0.887	0.576		mg/Kg	✖	54	10 - 144	10	40
Benzo[k]fluoranthene	0.058		0.887	0.883		mg/Kg	✖	93	36 - 135	24	44
Bis(2-chloroethoxy)methane	ND		0.887	0.655		mg/Kg	✖	74	25 - 120	13	45
Bis(2-chloroethyl)ether	ND		0.887	0.651		mg/Kg	✖	73	16 - 120	35	45
Bis(2-ethylhexyl) phthalate	ND		0.887	0.965		mg/Kg	✖	109	37 - 143	4	38
Butyl benzyl phthalate	ND		0.887	0.909		mg/Kg	✖	102	49 - 130	8	41
Caprolactam	ND		1.77	1.64		mg/Kg	✖	93	37 - 127	4	45
Carbazole	0.029	J	0.887	0.791		mg/Kg	✖	86	33 - 132	13	45
Chrysene	0.22	F1	0.887	0.965		mg/Kg	✖	84	28 - 129	37	42
Dibenz(a,h)anthracene	0.031		0.887	0.573		mg/Kg	✖	61	10 - 132	12	37
Dibenzofuran	0.11		0.887	0.923		mg/Kg	✖	92	33 - 120	1	43
Diethyl phthalate	ND		0.887	0.733		mg/Kg	✖	83	48 - 120	1	38
Dimethyl phthalate	ND		0.887	0.717		mg/Kg	✖	81	45 - 120	8	43
Di-n-butyl phthalate	ND		0.887	0.833		mg/Kg	✖	94	40 - 137	2	42
Di-n-octyl phthalate	ND		0.887	0.881		mg/Kg	✖	99	34 - 152	5	39
Fluoranthene	0.32	F2 F1	0.887	1.06	F2	mg/Kg	✖	84	31 - 140	52	45
Fluorene	0.022		0.887	0.748		mg/Kg	✖	82	43 - 120	22	39

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182146-6 MSD

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566308

Prep Batch: 566028

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Hexachlorobenzene	ND		0.887	0.591		mg/Kg	☼	67	44 - 120	0	39
Hexachlorobutadiene	ND		0.887	0.500		mg/Kg	☼	56	13 - 120	26	45
Hexachlorocyclopentadiene	ND	F1	0.887	ND	F1	mg/Kg	☼	0	10 - 120	NC	45
Hexachloroethane	ND		0.887	0.417		mg/Kg	☼	47	10 - 120	41	45
Indeno[1,2,3-cd]pyrene	0.091		0.887	0.642		mg/Kg	☼	62	10 - 139	19	41
Isophorone	ND		0.887	0.648		mg/Kg	☼	73	27 - 120	12	45
N-Nitrosodi-n-propylamine	ND		0.887	0.619		mg/Kg	☼	70	23 - 120	30	45
N-Nitrosodiphenylamine	ND		0.887	0.584		mg/Kg	☼	66	30 - 128	5	44
Naphthalene	0.21		0.887	0.942		mg/Kg	☼	83	10 - 120	29	45
Nitrobenzene	ND		0.887	0.587		mg/Kg	☼	66	19 - 120	19	45
Pentachlorophenol	ND		1.77	0.891		mg/Kg	☼	50	10 - 120	10	45
Phenanthrene	0.30	F2 F1	0.887	0.993	F2	mg/Kg	☼	78	36 - 120	52	41
Phenol	ND		0.887	0.727		mg/Kg	☼	82	10 - 120	20	45
Pyrene	0.29	F2 F1	0.887	1.10	F2	mg/Kg	☼	91	31 - 134	45	43
3 & 4 Methylphenol	ND		0.887	0.663		mg/Kg	☼	75	10 - 122	10	45
2-Butoxyethanol	ND	F2	0.887	0.778	F2	mg/Kg	☼	88	10 - 120	45	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	83		46 - 137
Phenol-d5 (Surr)	85		26 - 120
Nitrobenzene-d5 (Surr)	61		25 - 120
2-Fluorophenol (Surr)	76		20 - 120
2-Fluorobiphenyl (Surr)	84		34 - 120
2,4,6-Tribromophenol (Surr)	70		10 - 120

Lab Sample ID: MB 240-566085/12-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566310

Prep Batch: 566085

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/20/23 12:32	03/22/23 12:32	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/20/23 12:32	03/22/23 12:32	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/20/23 12:32	03/22/23 12:32	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/20/23 12:32	03/22/23 12:32	1
Pyridine	ND		0.0040	0.00036	mg/L		03/20/23 12:32	03/22/23 12:32	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/20/23 12:32	03/22/23 12:32	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/20/23 12:32	03/22/23 12:32	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/20/23 12:32	03/22/23 12:32	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/20/23 12:32	03/22/23 12:32	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/20/23 12:32	03/22/23 12:32	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/20/23 12:32	03/22/23 12:32	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/20/23 12:32	03/22/23 12:32	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	104		46 - 137	03/20/23 12:32	03/22/23 12:32	1
Phenol-d5 (Surr)	61		26 - 120	03/20/23 12:32	03/22/23 12:32	1
Nitrobenzene-d5 (Surr)	87		24 - 120	03/20/23 12:32	03/22/23 12:32	1
2-Fluorophenol (Surr)	69		19 - 120	03/20/23 12:32	03/22/23 12:32	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566085/12-A
Matrix: Solid
Analysis Batch: 566310

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566085

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl (Surr)	97		33 - 120	03/20/23 12:32	03/22/23 12:32	1
2,4,6-Tribromophenol (Surr)	82		10 - 120	03/20/23 12:32	03/22/23 12:32	1

Lab Sample ID: LCS 240-566085/13-A
Matrix: Solid
Analysis Batch: 566310

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566085

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,4-Dichlorobenzene	0.0800	0.0563		mg/L		70	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0673		mg/L		84	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0736		mg/L		92	51 - 120
2,4-Dinitrotoluene	0.0800	0.0748		mg/L		94	58 - 125
Pyridine	0.160	0.0387		mg/L		24	10 - 120
2-Methylphenol	0.0800	0.0596		mg/L		75	45 - 120
Hexachlorobenzene	0.0800	0.0717		mg/L		90	55 - 120
Hexachlorobutadiene	0.0800	0.0628		mg/L		79	41 - 120
Hexachloroethane	0.0800	0.0586		mg/L		73	39 - 120
Nitrobenzene	0.0800	0.0673		mg/L		84	47 - 120
Pentachlorophenol	0.160	0.0995		mg/L		62	19 - 132
3 & 4 Methylphenol	0.0800	0.0636		mg/L		79	40 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	111		46 - 137
Phenol-d5 (Surr)	70		26 - 120
Nitrobenzene-d5 (Surr)	90		24 - 120
2-Fluorophenol (Surr)	73		19 - 120
2-Fluorobiphenyl (Surr)	97		33 - 120
2,4,6-Tribromophenol (Surr)	90		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-566087/10-A
Matrix: Solid
Analysis Batch: 566467

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566087

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/20/23 12:38	03/23/23 11:20	1
Endrin	ND		0.00050	0.0000065	mg/L		03/20/23 12:38	03/23/23 11:20	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/20/23 12:38	03/23/23 11:20	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/20/23 12:38	03/23/23 11:20	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/20/23 12:38	03/23/23 11:20	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/20/23 12:38	03/23/23 11:20	1
Toxaphene	ND		0.020	0.000058	mg/L		03/20/23 12:38	03/23/23 11:20	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	74		10 - 145	03/20/23 12:38	03/23/23 11:20	1
DCB Decachlorobiphenyl	78		10 - 145	03/20/23 12:38	03/23/23 11:20	1
Tetrachloro-m-xylene	65		10 - 123	03/20/23 12:38	03/23/23 11:20	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 240-566087/10-A
Matrix: Solid
Analysis Batch: 566467

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566087

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	69		10 - 123	03/20/23 12:38	03/23/23 11:20	1

Lab Sample ID: LCS 240-566087/11-A
Matrix: Solid
Analysis Batch: 566467

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566087

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Endrin	0.00100	0.000878		mg/L		88	36 - 120
Heptachlor	0.00100	0.000809		mg/L		81	29 - 120
Heptachlor epoxide	0.00100	0.000782		mg/L		78	36 - 120
gamma-BHC (Lindane)	0.00100	0.000802		mg/L		80	23 - 120
Methoxychlor	0.00100	0.00108		mg/L		108	23 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	75		10 - 145
DCB Decachlorobiphenyl	78		10 - 145
Tetrachloro-m-xylene	63		10 - 123
Tetrachloro-m-xylene	67		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-565996/1-A
Matrix: Solid
Analysis Batch: 566033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565996

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1221	ND		50	30	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1232	ND		50	21	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1242	ND		50	19	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1248	ND		50	17	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1254	ND		50	21	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1260	ND		50	21	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1262	ND		50	22	ug/Kg		03/20/23 08:55	03/20/23 15:22	1
Aroclor-1268	ND		50	16	ug/Kg		03/20/23 08:55	03/20/23 15:22	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	85		10 - 149	03/20/23 08:55	03/20/23 15:22	1
DCB Decachlorobiphenyl	122		10 - 174	03/20/23 08:55	03/20/23 15:22	1

Lab Sample ID: LCS 240-565996/2-A
Matrix: Solid
Analysis Batch: 566033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565996

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	Limits
		Result	Qualifier				
Aroclor-1016	1000	1080		ug/Kg		108	28 - 140
Aroclor-1260	1000	1210		ug/Kg		121	39 - 153

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-565996/2-A
Matrix: Solid
Analysis Batch: 566033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565996

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	119		10 - 149
DCB Decachlorobiphenyl	132		10 - 174

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-356471/1-A
Matrix: Solid
Analysis Batch: 356491

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 356471

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/22/23 21:04	03/23/23 05:51	1
2,4-D	ND		0.050	0.016	mg/L		03/22/23 21:04	03/23/23 05:51	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4-Dichlorophenylacetic acid (Surr)	51		26 - 136	03/22/23 21:04	03/23/23 05:51	1
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136	03/22/23 21:04	03/23/23 05:51	1

Lab Sample ID: LCS 410-356471/2-A
Matrix: Solid
Analysis Batch: 356491

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356471

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Silvex (2,4,5-TP)	0.00500	0.00383	J	mg/L		77	58 - 148
2,4-D	0.0502	0.0396	J	mg/L		79	42 - 147

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid (Surr)	66		26 - 136
2,4-Dichlorophenylacetic acid (Surr)	73		26 - 136

Lab Sample ID: LCSD 410-356471/3-A
Matrix: Solid
Analysis Batch: 356491

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 356471

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec Limits	RPD	
		Result	Qualifier					RPD	Limit
Silvex (2,4,5-TP)	0.00500	0.00390	J	mg/L		78	58 - 148	2	30
2,4-D	0.0502	0.0397	J	mg/L		79	42 - 147	0	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid (Surr)	70		26 - 136
2,4-Dichlorophenylacetic acid (Surr)	73		26 - 136

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-357694/1-A
Matrix: Solid
Analysis Batch: 358197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 357694

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3,4,6,7,8-HpCDD	0.297	J I	5.0	0.053	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,4,6,7,8-HpCDF	0.0947	J I	5.0	0.023	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,4,7,8-HxCDD	ND		5.0	0.0056	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,4,7,8-HxCDF	0.0426	J I	5.0	0.0090	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,4,7,8,9-HpCDF	0.0700	J I	5.0	0.033	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,6,7,8-HxCDD	0.0333	J I	5.0	0.0057	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,6,7,8-HxCDF	ND		5.0	0.0087	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,7,8-PeCDD	0.0319	J I	5.0	0.010	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,7,8-PeCDF	ND		5.0	0.012	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,7,8,9-HxCDD	0.0602	J I	5.0	0.0059	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
1,2,3,7,8,9-HxCDF	0.0776	J I	5.0	0.011	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
2,3,4,6,7,8-HxCDF	ND		5.0	0.0083	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
2,3,4,7,8-PeCDF	ND		5.0	0.0095	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
2,3,7,8-TCDD	ND		1.0	0.0074	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
2,3,7,8-TCDF	ND		1.0	0.0064	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
OCDD	1.14	J I	10	0.0077	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
OCDF	ND		10	0.0077	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total HxCDD	0.261	J I	5.0	0.0057	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total HxCDF	0.160	J I	5.0	0.0092	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total HpCDD	0.297	J I	5.0	0.053	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total HpCDF	0.165	J I	5.0	0.028	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total PeCDD	0.0876	J I	5.0	0.010	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total PeCDF	0.0359	J I	5.0	0.011	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total TCDD	0.0474	J I	1.0	0.0074	ng/Kg		03/27/23 09:45	03/28/23 16:33	1
Total TCDF	ND		1.0	0.0064	ng/Kg		03/27/23 09:45	03/28/23 16:33	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-OCDF	51		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-OCDD	53		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-2,3,7,8-TCDF	49		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-2,3,7,8-TCDD	56		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-2,3,4,7,8-PeCDF	41		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-2,3,4,6,7,8-HxCDF	57		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,7,8,9-HxCDF	54		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,7,8,9-HxCDD	51		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,7,8-PeCDF	40		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,7,8-PeCDD	43		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,6,7,8-HxCDF	60		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,6,7,8-HxCDD	54		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,4,7,8,9-HpCDF	54		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,4,7,8-HxCDF	56		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,4,7,8-HxCDD	51		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,4,6,7,8-HpCDF	55		40 - 135	03/27/23 09:45	03/28/23 16:33	1
13C-1,2,3,4,6,7,8-HpCDD	49		40 - 135	03/27/23 09:45	03/28/23 16:33	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-357694/2-A
Matrix: Solid
Analysis Batch: 358197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 357694

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,3,4,6,7,8-HpCDD	100	112		ng/Kg		112	77 - 127
1,2,3,4,6,7,8-HpCDF	100	110		ng/Kg		110	77 - 127
1,2,3,4,7,8-HxCDD	100	122		ng/Kg		122	77 - 127
1,2,3,4,7,8-HxCDF	100	117		ng/Kg		117	77 - 129
1,2,3,4,7,8,9-HpCDF	100	104		ng/Kg		104	77 - 127
1,2,3,6,7,8-HxCDD	100	115		ng/Kg		115	76 - 127
1,2,3,6,7,8-HxCDF	100	111		ng/Kg		111	77 - 129
1,2,3,7,8-PeCDD	100	113		ng/Kg		113	77 - 127
1,2,3,7,8-PeCDF	100	115		ng/Kg		115	75 - 129
1,2,3,7,8,9-HxCDD	100	124		ng/Kg		124	76 - 127
1,2,3,7,8,9-HxCDF	100	116		ng/Kg		116	76 - 126
2,3,4,6,7,8-HxCDF	100	107		ng/Kg		107	78 - 128
2,3,4,7,8-PeCDF	100	115		ng/Kg		115	75 - 131
2,3,7,8-TCDD	20.0	22.4		ng/Kg		112	68 - 142
2,3,7,8-TCDF	20.0	22.2		ng/Kg		111	70 - 133
OCDD	200	230		ng/Kg		115	77 - 125
OCDF	200	232		ng/Kg		116	75 - 128

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C-OCDF	72		40 - 135
13C-OCDD	74		40 - 135
13C-2,3,7,8-TCDF	57		40 - 135
13C-2,3,7,8-TCDD	63		40 - 135
13C-2,3,4,7,8-PeCDF	49		40 - 135
13C-2,3,4,6,7,8-HxCDF	71		40 - 135
13C-1,2,3,7,8,9-HxCDF	71		40 - 135
13C-1,2,3,7,8,9-HxCDD	68		40 - 135
13C-1,2,3,7,8-PeCDF	47		40 - 135
13C-1,2,3,7,8-PeCDD	48		40 - 135
13C-1,2,3,6,7,8-HxCDF	76		40 - 135
13C-1,2,3,6,7,8-HxCDD	71		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	75		40 - 135
13C-1,2,3,4,7,8-HxCDF	67		40 - 135
13C-1,2,3,4,7,8-HxCDD	64		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	76		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	69		40 - 135

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-566090/2-A
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566090

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/20/23 14:00	03/21/23 17:35	1
Barium	ND		0.50	0.0013	mg/L		03/20/23 14:00	03/21/23 17:35	1
Cadmium	ND		0.050	0.00020	mg/L		03/20/23 14:00	03/21/23 17:35	1
Chromium	ND		0.050	0.0040	mg/L		03/20/23 14:00	03/21/23 17:35	1
Lead	ND		0.050	0.0028	mg/L		03/20/23 14:00	03/21/23 17:35	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: MB 240-566090/2-A
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566090

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Selenium	ND		0.050	0.0060	mg/L		03/20/23 14:00	03/21/23 17:35	1
Silver	ND		0.050	0.00062	mg/L		03/20/23 14:00	03/21/23 17:35	1

Lab Sample ID: LCS 240-566090/3-A
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566090

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	2.00	1.95		mg/L		97	50 - 150
Cadmium	1.00	0.991		mg/L		99	50 - 150
Chromium	1.00	0.930		mg/L		93	50 - 150
Lead	1.00	0.918		mg/L		92	50 - 150
Selenium	2.00	2.04		mg/L		102	50 - 150
Silver	0.100	0.0991		mg/L		99	50 - 150

Lab Sample ID: LB 240-565954/1-B
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 566090

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	0.00437	J	0.050	0.0041	mg/L		03/20/23 14:00	03/21/23 17:31	1
Barium	ND		0.50	0.0013	mg/L		03/20/23 14:00	03/21/23 17:31	1
Cadmium	ND		0.050	0.00020	mg/L		03/20/23 14:00	03/21/23 17:31	1
Chromium	ND		0.050	0.0040	mg/L		03/20/23 14:00	03/21/23 17:31	1
Lead	ND		0.050	0.0028	mg/L		03/20/23 14:00	03/21/23 17:31	1
Selenium	ND		0.050	0.0060	mg/L		03/20/23 14:00	03/21/23 17:31	1
Silver	ND		0.050	0.00062	mg/L		03/20/23 14:00	03/21/23 17:31	1

Lab Sample ID: 240-182146-1 MS
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: WC-VB1402-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 566090

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.11	J	50.0	50.6			101	75 - 125	
Cadmium	ND		1.00	1.02			102	75 - 125	
Chromium	ND		5.00	5.04			101	75 - 125	
Lead	ND		5.00	5.00			100	75 - 125	
Selenium	ND		1.00	1.07			107	75 - 125	
Silver	ND		1.00	1.03			103	75 - 125	

Lab Sample ID: 240-182146-1 MSD
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: WC-VB1402-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 566090

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	0.11	J	50.0	49.3			98	75 - 125	3	20	
Cadmium	ND		1.00	1.01			101	75 - 125	1	20	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-182146-1 MSD
Matrix: Solid
Analysis Batch: 566223

Client Sample ID: WC-VB1402-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 566090

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Chromium	ND		5.00	4.97		mg/L		99	75 - 125	1	20	
Lead	ND		5.00	4.95		mg/L		99	75 - 125	1	20	
Selenium	ND		1.00	1.06		mg/L		106	75 - 125	1	20	
Silver	ND		1.00	1.01		mg/L		101	75 - 125	2	20	

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-566092/2-A
Matrix: Solid
Analysis Batch: 566198

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566092

Analyte	MB		RL	MDL		Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier		Result	Qualifier					
Mercury	ND		0.0020	0.00013		mg/L		03/20/23 14:00	03/21/23 13:56	1

Lab Sample ID: LCS 240-566092/3-A
Matrix: Solid
Analysis Batch: 566198

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566092

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec	
		Result	Qualifier				Limits	RPD
Mercury	0.00500	0.00500		mg/L		100	80 - 120	

Lab Sample ID: LB 240-565954/1-C
Matrix: Solid
Analysis Batch: 566198

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 566092

Analyte	LB		RL	MDL		Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier		Result	Qualifier					
Mercury	ND		0.0020	0.00013		mg/L		03/20/23 14:00	03/21/23 13:54	1

Lab Sample ID: 240-182146-1 MS
Matrix: Solid
Analysis Batch: 566198

Client Sample ID: WC-VB1402-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 566092

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec	
				Result	Qualifier				Limits	RPD
Mercury	ND		0.00500	0.00531		mg/L		106	80 - 120	

Lab Sample ID: 240-182146-1 MSD
Matrix: Solid
Analysis Batch: 566198

Client Sample ID: WC-VB1402-PLASTIC PELLETS
Prep Type: TCLP
Prep Batch: 566092

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Mercury	ND		0.00500	0.00531		mg/L		106	80 - 120	0	20	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

GC/MS VOA

Composite Batch: 565939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	Composite	
240-182146-4 MS	WC-COMP-PLASTIC PELLETS	TCLP	Solid	Composite	
240-182146-4 MSD	WC-COMP-PLASTIC PELLETS	TCLP	Solid	Composite	

Leach Batch: 565958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	1311	565939
LB 240-565958/1-A MB	Method Blank	TCLP	Solid	1311	
240-182146-4 MS	WC-COMP-PLASTIC PELLETS	TCLP	Solid	1311	565939
240-182146-4 MSD	WC-COMP-PLASTIC PELLETS	TCLP	Solid	1311	565939

Analysis Batch: 566055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8260D	565958
LB 240-565958/1-A MB	Method Blank	TCLP	Solid	8260D	565958
LCS 240-566055/11	Lab Control Sample	Total/NA	Solid	8260D	
240-182146-4 MS	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8260D	565958
240-182146-4 MSD	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8260D	565958

Prep Batch: 566125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	Total/NA	Solid	5035	
240-182146-2	WC-VB1344-PLASTIC PELLETS	Total/NA	Solid	5035	
240-182146-3	WC-VB1108-PLASTIC PELLETS	Total/NA	Solid	5035	
240-182146-6	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	5035	
MB 240-566125/1-A	Method Blank	Total/NA	Solid	5035	
MB 240-566125/3-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 566130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-2	WC-VB1344-PLASTIC PELLETS	Total/NA	Solid	8260D	566125
240-182146-3	WC-VB1108-PLASTIC PELLETS	Total/NA	Solid	8260D	566125
240-182146-6	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	8260D	566125
MB 240-566125/1-A	Method Blank	Total/NA	Solid	8260D	566125
LCS 240-566130/5	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 566249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	Total/NA	Solid	8260D	566125
MB 240-566125/3-A	Method Blank	Total/NA	Solid	8260D	566125
LCS 240-566249/3	Lab Control Sample	Total/NA	Solid	8260D	

GC/MS Semi VOA

Composite Batch: 565939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	Composite	

Leach Batch: 565954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	1311	565939

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

GC/MS Semi VOA

Prep Batch: 566028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	Total/NA	Solid	3540C	
240-182146-2	WC-VB1344-PLASTIC PELLETS	Total/NA	Solid	3540C	
240-182146-3	WC-VB1108-PLASTIC PELLETS	Total/NA	Solid	3540C	
240-182146-6	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	3540C	
MB 240-566028/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-566028/2-A	Lab Control Sample	Total/NA	Solid	3540C	
240-182146-6 MS	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	3540C	
240-182146-6 MSD	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	3540C	

Prep Batch: 566085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	3510C	565954
MB 240-566085/12-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-566085/13-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 566308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	Total/NA	Solid	8270E	566028
240-182146-2	WC-VB1344-PLASTIC PELLETS	Total/NA	Solid	8270E	566028
240-182146-3	WC-VB1108-PLASTIC PELLETS	Total/NA	Solid	8270E	566028
240-182146-6	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	8270E	566028
MB 240-566028/1-A	Method Blank	Total/NA	Solid	8270E	566028
LCS 240-566028/2-A	Lab Control Sample	Total/NA	Solid	8270E	566028
240-182146-6 MS	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	8270E	566028
240-182146-6 MSD	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	8270E	566028

Analysis Batch: 566310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-566085/12-A	Method Blank	Total/NA	Solid	8270E	566085
LCS 240-566085/13-A	Lab Control Sample	Total/NA	Solid	8270E	566085

Analysis Batch: 566469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8270E	566085

GC Semi VOA

Leach Batch: 355845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	1311	

Prep Batch: 356471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8151A	355845
MB 410-356471/1-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-356471/2-A	Lab Control Sample	Total/NA	Solid	8151A	
LCSD 410-356471/3-A	Lab Control Sample Dup	Total/NA	Solid	8151A	

Analysis Batch: 356491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8151A	356471

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

GC Semi VOA (Continued)

Analysis Batch: 356491 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-356471/1-A	Method Blank	Total/NA	Solid	8151A	356471
LCS 410-356471/2-A	Lab Control Sample	Total/NA	Solid	8151A	356471
LCSD 410-356471/3-A	Lab Control Sample Dup	Total/NA	Solid	8151A	356471

Composite Batch: 565939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	Composite	

Composite Batch: 565940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	Total/NA	Solid	Composite	

Leach Batch: 565954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	1311	565939

Prep Batch: 565996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	Total/NA	Solid	3546	565940
MB 240-565996/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-565996/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 566033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	Total/NA	Solid	8082A	565996
MB 240-565996/1-A	Method Blank	Total/NA	Solid	8082A	565996
LCS 240-565996/2-A	Lab Control Sample	Total/NA	Solid	8082A	565996

Prep Batch: 566087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	3510C	565954
MB 240-566087/10-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-566087/11-A	Lab Control Sample	Total/NA	Solid	3510C	

Analysis Batch: 566467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	TCLP	Solid	8081B	566087
MB 240-566087/10-A	Method Blank	Total/NA	Solid	8081B	566087
LCS 240-566087/11-A	Lab Control Sample	Total/NA	Solid	8081B	566087

Specialty Organics

Prep Batch: 357694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-5	WC-COMP1-N. DITCH	Total/NA	Solid	HRMS-Soxtherm	
MB 410-357694/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-357694/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 358197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-357694/1-A	Method Blank	Total/NA	Solid	8290A	357694

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Specialty Organics (Continued)

Analysis Batch: 358197 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 410-357694/2-A	Lab Control Sample	Total/NA	Solid	8290A	357694

Analysis Batch: 358612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-5	WC-COMP1-N. DITCH	Total/NA	Solid	8290A	357694

Metals

Leach Batch: 565954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	1311	
240-182146-2	WC-VB1344-PLASTIC PELLETS	TCLP	Solid	1311	
240-182146-3	WC-VB1108-PLASTIC PELLETS	TCLP	Solid	1311	
240-182146-6	WC-SB1597-SOIL & DEBRIS	TCLP	Solid	1311	
LB 240-565954/1-B	Method Blank	TCLP	Solid	1311	
LB 240-565954/1-C	Method Blank	TCLP	Solid	1311	
240-182146-1 MS	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	1311	
240-182146-1 MSD	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	1311	

Prep Batch: 566090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	3010A	565954
240-182146-2	WC-VB1344-PLASTIC PELLETS	TCLP	Solid	3010A	565954
240-182146-3	WC-VB1108-PLASTIC PELLETS	TCLP	Solid	3010A	565954
240-182146-6	WC-SB1597-SOIL & DEBRIS	TCLP	Solid	3010A	565954
LB 240-565954/1-B	Method Blank	TCLP	Solid	3010A	565954
MB 240-566090/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-566090/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-182146-1 MS	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	3010A	565954
240-182146-1 MSD	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	3010A	565954

Prep Batch: 566092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	7470A	565954
240-182146-2	WC-VB1344-PLASTIC PELLETS	TCLP	Solid	7470A	565954
240-182146-3	WC-VB1108-PLASTIC PELLETS	TCLP	Solid	7470A	565954
240-182146-6	WC-SB1597-SOIL & DEBRIS	TCLP	Solid	7470A	565954
LB 240-565954/1-C	Method Blank	TCLP	Solid	7470A	565954
MB 240-566092/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-566092/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-182146-1 MS	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	7470A	565954
240-182146-1 MSD	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	7470A	565954

Analysis Batch: 566198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	7470A	566092
240-182146-2	WC-VB1344-PLASTIC PELLETS	TCLP	Solid	7470A	566092
240-182146-3	WC-VB1108-PLASTIC PELLETS	TCLP	Solid	7470A	566092
240-182146-6	WC-SB1597-SOIL & DEBRIS	TCLP	Solid	7470A	566092
LB 240-565954/1-C	Method Blank	TCLP	Solid	7470A	566092
MB 240-566092/2-A	Method Blank	Total/NA	Solid	7470A	566092

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Metals (Continued)

Analysis Batch: 566198 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-566092/3-A	Lab Control Sample	Total/NA	Solid	7470A	566092
240-182146-1 MS	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	7470A	566092
240-182146-1 MSD	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	7470A	566092

Analysis Batch: 566223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	6010D	566090
240-182146-2	WC-VB1344-PLASTIC PELLETS	TCLP	Solid	6010D	566090
240-182146-3	WC-VB1108-PLASTIC PELLETS	TCLP	Solid	6010D	566090
240-182146-6	WC-SB1597-SOIL & DEBRIS	TCLP	Solid	6010D	566090
LB 240-565954/1-B	Method Blank	TCLP	Solid	6010D	566090
MB 240-566090/2-A	Method Blank	Total/NA	Solid	6010D	566090
LCS 240-566090/3-A	Lab Control Sample	Total/NA	Solid	6010D	566090
240-182146-1 MS	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	6010D	566090
240-182146-1 MSD	WC-VB1402-PLASTIC PELLETS	TCLP	Solid	6010D	566090

General Chemistry

Analysis Batch: 356146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-5	WC-COMP1-N. DITCH	Total/NA	Solid	Moisture	

Composite Batch: 565940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-4	WC-COMP-PLASTIC PELLETS	Total/NA	Solid	Composite	

Analysis Batch: 566074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182146-1	WC-VB1402-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-182146-2	WC-VB1344-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-182146-3	WC-VB1108-PLASTIC PELLETS	Total/NA	Solid	Moisture	
240-182146-4	WC-COMP-PLASTIC PELLETS	Total/NA	Solid	Moisture	565940
240-182146-6	WC-SB1597-SOIL & DEBRIS	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Date Collected: 03/17/23 14:45

Matrix: Solid

Date Received: 03/17/23 19:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	3010A			566090	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	6010D		1	566223	RKT	EET CAN	03/21/23 17:56
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	7470A			566092	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	7470A		1	566198	MRL	EET CAN	03/21/23 14:00
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50

Client Sample ID: WC-VB1402-PLASTIC PELLETS

Lab Sample ID: 240-182146-1

Date Collected: 03/17/23 14:45

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/17/23 20:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 19:51
Total/NA	Prep	3540C			566028	BMB	EET CAN	03/20/23 09:24
Total/NA	Analysis	8270E		1	566308	JMG	EET CAN	03/22/23 12:56

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Date Collected: 03/17/23 14:30

Matrix: Solid

Date Received: 03/17/23 19:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	3010A			566090	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	6010D		1	566223	RKT	EET CAN	03/21/23 18:18
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	7470A			566092	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	7470A		1	566198	MRL	EET CAN	03/21/23 14:12
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50

Client Sample ID: WC-VB1344-PLASTIC PELLETS

Lab Sample ID: 240-182146-2

Date Collected: 03/17/23 14:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 100.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/17/23 20:00
Total/NA	Analysis	8260D		1	566130	CS	EET CAN	03/20/23 23:34
Total/NA	Prep	3540C			566028	BMB	EET CAN	03/20/23 09:24
Total/NA	Analysis	8270E		1	566308	JMG	EET CAN	03/22/23 13:20

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Date Collected: 03/17/23 15:30

Matrix: Solid

Date Received: 03/17/23 19:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	3010A			566090	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	6010D		1	566223	RKT	EET CAN	03/21/23 18:22
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	7470A			566092	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	7470A		1	566198	MRL	EET CAN	03/21/23 14:15
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50

Client Sample ID: WC-VB1108-PLASTIC PELLETS

Lab Sample ID: 240-182146-3

Date Collected: 03/17/23 15:30

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/17/23 20:00
Total/NA	Analysis	8260D		1	566130	CS	EET CAN	03/20/23 23:59
Total/NA	Prep	3540C			566028	BMB	EET CAN	03/20/23 09:24
Total/NA	Analysis	8270E		1	566308	JMG	EET CAN	03/22/23 13:45

Client Sample ID: WC-COMP-PLASTIC PELLETS

Lab Sample ID: 240-182146-4

Date Collected: 03/17/23 00:00

Matrix: Solid

Date Received: 03/17/23 19:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			565939	KLE	EET CAN	03/19/23 10:10
TCLP	Leach	1311			565958	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Analysis	8260D		1	566055	TJL1	EET CAN	03/20/23 14:32
TCLP	Composite	Composite			565939	KLE	EET CAN	03/19/23 10:10
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	3510C			566085	SDE	EET CAN	03/20/23 12:32
TCLP	Analysis	8270E		1	566469	JMG	EET CAN	03/23/23 20:57
TCLP	Composite	Composite			565939	KLE	EET CAN	03/19/23 10:10
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	3510C			566087	SDE	EET CAN	03/20/23 12:38
TCLP	Analysis	8081B		1	566467	BPM	EET CAN	03/23/23 12:56
TCLP	Leach	1311			355845	UNWS	ELLE	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	8151A			356471	UKL2	ELLE	03/22/23 21:04
TCLP	Analysis	8151A		1	356491	UAMZ	ELLE	03/23/23 11:26
Total/NA	Composite	Composite			565940	KLE	EET CAN	03/19/23 10:12
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Client Sample ID: WC-COMP-PLASTIC PELLETS

Lab Sample ID: 240-182146-4

Date Collected: 03/17/23 00:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 99.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			565940	KLE	EET CAN	03/19/23 10:12
Total/NA	Prep	3546			565996	AJ	EET CAN	03/20/23 08:55
Total/NA	Analysis	8082A		1	566033	RR	EET CAN	03/20/23 17:57

Client Sample ID: WC-COMP1-N. DITCH

Lab Sample ID: 240-182146-5

Date Collected: 03/17/23 14:00

Matrix: Solid

Date Received: 03/17/23 19:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	HRMS-Soxtherm			357694	RGA5	ELLE	03/27/23 09:45
Total/NA	Analysis	8290A		1	358612	DZ6A	ELLE	03/29/23 12:16
Total/NA	Analysis	Moisture		1	356146	UVJN	ELLE	03/22/23 09:53

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Date Collected: 03/17/23 15:00

Matrix: Solid

Date Received: 03/17/23 19:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	3010A			566090	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	6010D		1	566223	RKT	EET CAN	03/21/23 18:27
TCLP	Leach	1311			565954	KLE	EET CAN	03/19/23 16:40 - 03/20/23 08:55 ¹
TCLP	Prep	7470A			566092	AJC	EET CAN	03/20/23 14:00
TCLP	Analysis	7470A		1	566198	MRL	EET CAN	03/21/23 14:17
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50

Client Sample ID: WC-SB1597-SOIL & DEBRIS

Lab Sample ID: 240-182146-6

Date Collected: 03/17/23 15:00

Matrix: Solid

Date Received: 03/17/23 19:00

Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/17/23 20:00
Total/NA	Analysis	8260D		1	566130	CS	EET CAN	03/21/23 00:24
Total/NA	Prep	3540C			566028	BMB	EET CAN	03/20/23 09:24
Total/NA	Analysis	8270E		1	566308	JMG	EET CAN	03/22/23 19:02

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-28-24
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	03-27-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24



Chain of Custody Record

645688  eurofins

Environment Testing
America

TAL-8210

Address: _____

Regulatory Program: DW NPDES RCRA Other:

Client Contact: _____
 Company Name: **Arcadis**
 Address: **111-D Sanders Lane**
 City/State/Zip: **Bluesfield VA 24605**
 Phone: **304-396-9424**
 Fax: _____
 Project Name: **East Palestine OH decontamination**
 Site: **East Palestine OH**
 PO #: **24030745**

Project Manager: **Jason Arcadis**
 Tell/Email: **Jason arcadis@arcadis.com**
 Analysis Turnaround Time:
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below: **RUSH**
 2 weeks
 1 week
 2 days
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Total VOC	Total PCB	Total SVOC	TCRP Metals	TCRP VOC	TCRP SVOC	TCRP Rest/Hxbs	Dioxins/Hxons	Carrier	Date: 3-17-23	COC No. 1 of 1	COCs
1 WC-VB1402-Plastic Pellets	3/17/23	1445	G	W	9	N	X	X	X	X	X	X	X	X	X				
2 WC-VB1344-Plastic Pellets	3/17/23	1430	G	W	9	N	X	X	X	X	X	X	X	X	X				
3 WC-VB1108-Plastic Pellets	3/17/23	1530	G	W	9	N	X	X	X	X	X	X	X	X	X				
4 UNC-COMP-Plastic Pellets	3/17/23	-	C	W	-	N	X	X	X	X	X	X	X	X	X				
5 UNC-COMP1 - N Ditch	3/17/23	1400	C	W	1	N	X	X	X	X	X	X	X	X	X				
6 UNC-SB1597-Soil? Debris	3/17/23	1500	G	B	9	N	X	X	X	X	X	X	X	X	X				

Sample Disposal (A fee may apply): _____
 Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other
 Possible Hazard Identification: _____
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: **Lab to generate 3 point composite sample of P. pellets (# 1, 2, 3)**

Custody Seal No.: _____
 Relinquished by: **Michelle Clayton**
 Relinquished by: **Arcadis**
 Relinquished by: _____
 Received by: **Jason Umrigar**
 Received by: **Eurofins**
 Received in Laboratory by: _____
 Date/Time: **3/17/23 17:50**
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____



Eurofins - Canton Sample Receipt Form/Narrative Login # : 182146
Barberton Facility

Client NSRR-ER Site Name Arcadis Cooler unpacked by: me
Cooler Received on 3-17-23 Opened on 3-17-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

Eurofins Cooler # EL Foam Box Client Cooler Box Other _____
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2°C) Observed Cooler Temp. 5.3 °C Corrected Cooler Temp. 5.1 °C
IR GUN # IR-16 (CF -0.1°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by:

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins Canton

180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)				Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:							
Client Contact: Shipping/Receiving				Phone:	DelMonico, Michael	State of Origin:				240-165200.1				
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):				Page: Page 1 of 1						
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601				Due Date Requested:	Analysis Requested								Job #:	
Phone: 717-656-2300(Tel)				TAT Requested (days):									240-182146-1	
Email:				PO #:	Preservation Codes:								A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
Project Name: NS East Palestine				Project #:	<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Sample (Yes or No)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Perform MS/MSD (Yes or No)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8290A/HRMS_Soxhlm_P 8290 17 + Totals</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Moisture/ Percent Moisture</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of containers</div> </div>								Other:	
Site:				SSOW#:										
Sample Identification - Client ID (Lab ID)				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=waste/oil, BT= tissue, A=Air)	Preservation Code:				Special Instructions/Note:		
WC-COMP1-N. DITCH (240-182146-5)				3/17/23	14:00 Eastern		Solid	X	X					1
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>														
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)								
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:								
Empty Kit Relinquished by:				Date:	Time:	Method of Shipment:								
Relinquished by: <i>[Signature]</i>				Date/Time: 3/21/23 10:30	Company: BEIN		Received by: _____				Date/Time:	Company:		
Relinquished by: _____				Date/Time:	Company:		Received by: _____				Date/Time:	Company:		
Relinquished by: _____				Date/Time:	Company:		Received by: <i>[Signature]</i>				Date/Time: 3/21/23 09:14	Company: BLLBY		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.10								

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-182146-1

Login Number: 182146

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 03/21/23 10:13 AM

Creator: McBeth, Jessica

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182146-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-182146-5	WC-COMP1-N. DITCH	73	80	69	70	74	72	70	76
LCS 410-357694/2-A	Lab Control Sample	72	74	57	63	49	71	71	68
MB 410-357694/1-A	Method Blank	51	53	49	56	41	57	54	51

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-182146-5	WC-COMP1-N. DITCH	69	70	74	75	72	71	72	73
LCS 410-357694/2-A	Lab Control Sample	47	48	76	71	75	67	64	76
MB 410-357694/1-A	Method Blank	40	43	60	54	54	56	51	55

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-182146-5	WC-COMP1-N. DITCH	73
LCS 410-357694/2-A	Lab Control Sample	69
MB 410-357694/1-A	Method Blank	49

Surrogate Legend

- OCDF = 13C-OCDF
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- TCDD = 13C-2,3,7,8-TCDD
- PeCF = 13C-2,3,4,7,8-PeCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

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ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/31/2023 7:30:10 AM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182202-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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Authorized for release by
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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*3	ISTD response or retention time outside acceptable limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit

Eurofins Canton

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Job ID: 240-182202-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182202-1

Comments

No additional comments.

Receipt

The samples were received on 3/18/2023 6:42 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.5° C, 3.7° C, 4.3° C and 4.3° C.

All soil samples collected in TerraCore kits were frozen within 48hours of collection.

GC/MS VOA

Method 5035: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results: WC-S. TRACK-DEEP-01 (8-10') (240-182202-1), WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-S. TRACK-DEEP-07 (4-6') (240-182202-7), WC-S. TRACK-DEEP-08 (2-4') (240-182202-8), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-S. TRACK-DEEP-10 (4-6') (240-182202-10), WC-SB1188-SOIL + DEBRIS (240-182202-13), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15) and WC-SB2455-SOIL + DEBRIS (240-182202-16).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566249 recovered above the upper control limit for Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

Method 8260D: Surrogate recovery for the following samples was outside control limits: WC-S. TRACK-DEEP-05 (4-6') (240-182202-5) and WC-SB1188-SOIL + DEBRIS (240-182202-13). Re-extraction and/or re-analysis was performed and surrogate recovery was outside control limits.

Method 8260D: The MS/MSD for Prep Batch 240-566108 is not reported because the parent sample is reported as a low level soil sample.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566133 recovered above the upper control limit for: 1,1,2-Trichloro-1,2,2-trifluoroethane and Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The laboratory control sample (LCS) for preparation batch 240-566125 and analytical batch 240-566133 recovered outside control limits for the following analytes: 1,1,2-Trichloroethane, Toluene and Xylenes, Total. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: Internal standard responses were outside of acceptance limits for the following sample: WC-S. TRACK-DEEP-02 (6-8') (240-182202-2). The sample shows evidence of matrix interference.

Method 8260D: Internal standard (ISTD) response for the following samples were outside control limits: WC-SB2655-SOIL + DEBRIS (240-182202-15) and WC-SB2455-SOIL + DEBRIS (240-182202-16). The samples were re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 8260D: A MS/MSD was prepared for batch 240-566108, but was analyzed in a different analytical batch: WC-S. TRACK-DEEP-04 (6-8') (240-182202-4).

Method 5035: These samples were taken off a shelf in the sample receiving refrigerator, if these plastic bags were opened in another part of the lab they could have been contaminated: WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19), WC-SB2446-ABSORBENTS (240-182202-20), WC-SB1450-ABSORBENTS (240-182202-21), WC-SB1905-ABSORBENTS (240-182202-22), (240-182202-B-22 MS) and (240-182202-B-22 MSD).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-566725 was outside the method criteria for the

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Job ID: 240-182202-1 (Continued)

Laboratory: Eurofins Canton (Continued)

following analytes: Methyl tert-butyl ether and Chloromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes are considered estimated.

Method 8260D: A MS/MSD was prepared for batch 240-566719, but it was analyzed in a different analytical batch: WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19) and WC-SB2446-ABSORBENTS (240-182202-20).

Method 8260D: The following samples were diluted due to the nature of the sample matrix: WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19) and WC-SB2446-ABSORBENTS (240-182202-20). Elevated reporting limits (RLs) are provided.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566934 recovered above the upper control limit for: Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The laboratory control sample (LCS) associated with samples WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11), WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12), WC-COMP-SOIL + DEBRIS (240-182202-17) and (240-182136-D-1-F) had an acid surrogate recovery above acceptance criteria. Because the associated samples were ND for all analytes no corrective action was necessary. The results have been flagged accordingly and reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-566576 recovered above the upper control limit for 2-Nitrophenol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-S. TRACK-DEEP-01 (8-10') (240-182202-1), WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-S. TRACK-DEEP-07 (4-6') (240-182202-7), WC-S. TRACK-DEEP-08 (2-4') (240-182202-8), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-S. TRACK-DEEP-10 (4-6') (240-182202-10), WC-SB1188-SOIL + DEBRIS (240-182202-13), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15), WC-SB2455-SOIL + DEBRIS (240-182202-16), WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19), WC-SB2446-ABSORBENTS (240-182202-20), WC-SB1450-ABSORBENTS (240-182202-21) and WC-SB1905-ABSORBENTS (240-182202-22).

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-SB1450-ABSORBENTS (240-182202-21) and WC-SB1905-ABSORBENTS (240-182202-22). Elevated reporting limits (RLs) are provided.

Method 8270E: The following samples were diluted to bring the concentration of target analytes within the calibration range: WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15), (240-182202-F-1-B MS) and (240-182202-F-1-C MSD). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11), WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12) and WC-COMP-SOIL + DEBRIS (240-182202-17).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Job ID: 240-182202-1 (Continued)

Laboratory: Eurofins Canton (Continued)

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 6010D: The continuing calibration verification (CCV) associated with batch 240-566447 recovered above the upper control limit for silver and chromium. The samples associated with this CCV were below the reporting limit for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-S. TRACK-DEEP-01 (8-10') (240-182202-1), WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-S. TRACK-DEEP-07 (4-6') (240-182202-7), WC-S. TRACK-DEEP-08 (2-4') (240-182202-8), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-S. TRACK-DEEP-10 (4-6') (240-182202-10), WC-SB1188-SOIL + DEBRIS (240-182202-13), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15), WC-SB2455-SOIL + DEBRIS (240-182202-16), WC-SB1833-ABSORBENTS (240-182202-19), WC-SB2446-ABSORBENTS (240-182202-20), WC-SB1450-ABSORBENTS (240-182202-21) and WC-SB1905-ABSORBENTS (240-182202-22).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
Part Size Red	Particle Size Reduction Preparation	None	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Solid	03/18/23 09:01	03/18/23 18:42
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Solid	03/18/23 09:10	03/18/23 18:42
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Solid	03/18/23 09:39	03/18/23 18:42
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Solid	03/18/23 09:40	03/18/23 18:42
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Solid	03/18/23 11:08	03/18/23 18:42
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Solid	03/18/23 11:15	03/18/23 18:42
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Solid	03/18/23 11:33	03/18/23 18:42
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Solid	03/18/23 11:40	03/18/23 18:42
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Solid	03/18/23 11:51	03/18/23 18:42
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Solid	03/18/23 12:00	03/18/23 18:42
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Solid	03/18/23 00:00	03/18/23 18:42
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Solid	03/18/23 00:00	03/18/23 18:42
240-182202-13	WC-SB1188-SOIL + DEBRIS	Solid	03/18/23 13:35	03/18/23 18:42
240-182202-14	WC-AMU112-SOIL + DEBRIS	Solid	03/18/23 14:05	03/18/23 18:42
240-182202-15	WC-SB2655-SOIL + DEBRIS	Solid	03/18/23 14:35	03/18/23 18:42
240-182202-16	WC-SB2455-SOIL + DEBRIS	Solid	03/18/23 14:20	03/18/23 18:42
240-182202-17	WC-COMP-SOIL + DEBRIS	Solid	03/18/23 00:00	03/18/23 18:42
240-182202-18	WC-SB2418-ABSORBENTS	Solid	03/18/23 14:45	03/18/23 18:42
240-182202-19	WC-SB1833-ABSORBENTS	Solid	03/18/23 15:00	03/18/23 18:42
240-182202-20	WC-SB2446-ABSORBENTS	Solid	03/18/23 15:10	03/18/23 18:42
240-182202-21	WC-SB1450-ABSORBENTS	Solid	03/18/23 15:25	03/18/23 18:42
240-182202-22	WC-SB1905-ABSORBENTS	Solid	03/18/23 15:35	03/18/23 18:42

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.32	J	0.72	0.094	mg/Kg	40	✳	8270E	Total/NA
Benzo[a]anthracene	0.18	J	0.72	0.16	mg/Kg	40	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.38	J	0.72	0.31	mg/Kg	40	✳	8270E	Total/NA
Chrysene	0.16	J	0.72	0.072	mg/Kg	40	✳	8270E	Total/NA
Fluoranthene	0.21	J	0.72	0.21	mg/Kg	40	✳	8270E	Total/NA
Naphthalene	0.26	J	0.72	0.12	mg/Kg	40	✳	8270E	Total/NA
Phenanthrene	0.51	J F1	0.72	0.11	mg/Kg	40	✳	8270E	Total/NA
Pyrene	0.22	J	0.72	0.10	mg/Kg	40	✳	8270E	Total/NA
Arsenic	0.037	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.13	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0034	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0070	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0070	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0027	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0022	J	0.0045	0.0016	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.11	J	0.18	0.023	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.066	J	0.18	0.040	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.12	J	0.18	0.077	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.072	J	0.18	0.018	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.12	J	0.18	0.053	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.094	J	0.18	0.087	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.076	J	0.18	0.029	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.20		0.18	0.026	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.12	J	0.18	0.025	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.013	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.28	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0024	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0043	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.27	J	1.0	0.25	mg/Kg	1	✳	8260D	Total/NA
Benzo[a]anthracene	0.099	J	0.35	0.080	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.21	J	0.35	0.15	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.089	J	0.35	0.035	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.15	J	0.35	0.10	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.17	J	0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	0.18	J	0.35	0.052	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.14	J	0.35	0.050	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.13	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0032	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	8.2		3.2	1.6	mg/Kg	10	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8') (Continued)

Lab Sample ID: 240-182202-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.26	J	0.90	0.12	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]anthracene	1.2		0.90	0.21	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]pyrene	1.4		0.90	0.56	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.8		0.90	0.39	mg/Kg	50	✳	8270E	Total/NA
Benzo[g,h,i]perylene	1.1		0.90	0.43	mg/Kg	50	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.81	J	0.90	0.42	mg/Kg	50	✳	8270E	Total/NA
Chrysene	1.3		0.90	0.090	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	1.8		0.90	0.27	mg/Kg	50	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.0		0.90	0.44	mg/Kg	50	✳	8270E	Total/NA
Naphthalene	0.20	J	0.90	0.15	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	0.69	J	0.90	0.13	mg/Kg	50	✳	8270E	Total/NA
Pyrene	1.9		0.90	0.13	mg/Kg	50	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.0	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00096	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0040	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Mercury	0.00013	J	0.0020	0.00013	mg/L	1		7470A	TCLP

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0065	J	0.022	0.0039	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.047	B	0.028	0.023	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.014		0.0055	0.0020	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.13		0.075	0.0098	mg/Kg	4	✳	8270E	Total/NA
Anthracene	0.017	J	0.075	0.012	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	0.073	J	0.075	0.017	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.070	J	0.075	0.047	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.096		0.075	0.032	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.061	J	0.075	0.035	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.063	J	0.075	0.035	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.096		0.075	0.0074	mg/Kg	4	✳	8270E	Total/NA
Dibenzofuran	0.068	J	0.25	0.065	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.13		0.075	0.022	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.064	J	0.075	0.037	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.073	J	0.075	0.012	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	0.16		0.075	0.011	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.13		0.075	0.011	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.016	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00088	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0060	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0052	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0013	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0091	J	0.021	0.0038	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.047		0.026	0.022	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.039		0.038	0.0050	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.013	J	0.038	0.0062	mg/Kg	2	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6') (Continued)

Lab Sample ID: 240-182202-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.028	J	0.038	0.0087	mg/Kg	2	☼	8270E	Total/NA
Benzo[a]pyrene	0.024	J	0.038	0.024	mg/Kg	2	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.044		0.038	0.017	mg/Kg	2	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.024	J	0.038	0.018	mg/Kg	2	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.021	J	0.038	0.018	mg/Kg	2	☼	8270E	Total/NA
Chrysene	0.030	J	0.038	0.0038	mg/Kg	2	☼	8270E	Total/NA
Fluoranthene	0.060		0.038	0.011	mg/Kg	2	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.025	J	0.038	0.019	mg/Kg	2	☼	8270E	Total/NA
Naphthalene	0.025	J	0.038	0.0062	mg/Kg	2	☼	8270E	Total/NA
Phenanthrene	0.063		0.038	0.0057	mg/Kg	2	☼	8270E	Total/NA
Pyrene	0.057		0.038	0.0055	mg/Kg	2	☼	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00097	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0045	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0061	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.019	J	0.024	0.0042	mg/Kg	1	☼	8260D	Total/NA
Acetone	0.087		0.030	0.025	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.0072	J	0.019	0.0031	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.022		0.019	0.0044	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.020		0.019	0.012	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.032		0.019	0.0084	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.022		0.019	0.0092	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.014	J	0.019	0.0090	mg/Kg	1	☼	8270E	Total/NA
Chrysene	0.024		0.019	0.0019	mg/Kg	1	☼	8270E	Total/NA
Dibenz(a,h)anthracene	0.010	J	0.019	0.0090	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.022	J	0.065	0.017	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.040		0.019	0.0058	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.0058	J	0.019	0.0036	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.017	J	0.019	0.0095	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.024		0.019	0.0031	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.055		0.019	0.0029	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.043		0.019	0.0028	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0054	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0057	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0029	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.047	B	0.026	0.022	mg/Kg	1	☼	8260D	Total/NA
Arsenic	0.017	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.88	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J	0.050	0.00020	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4') (Continued)

Lab Sample ID: 240-182202-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0063	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0043	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0021	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0051	J	0.020	0.0036	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.028		0.025	0.021	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.0027	J	0.0050	0.0018	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.069		0.038	0.0049	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.010	J	0.038	0.0072	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.012	J	0.038	0.0061	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.035	J	0.038	0.0086	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.030	J	0.038	0.023	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.047		0.038	0.016	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.028	J	0.038	0.018	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.026	J	0.038	0.017	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.070		0.038	0.0037	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.018	J	0.038	0.017	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	0.060		0.038	0.011	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.0092	J	0.038	0.0069	mg/Kg	2	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.028	J	0.038	0.018	mg/Kg	2	✳	8270E	Total/NA
Naphthalene	0.040		0.038	0.0061	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	0.091		0.038	0.0056	mg/Kg	2	✳	8270E	Total/NA
Pyrene	0.062		0.038	0.0054	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.83	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0052	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0040	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0015	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.012	J	0.024	0.0043	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.069		0.030	0.026	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.0089		0.0061	0.0022	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	1	✳	8270E	Total/NA
Acenaphthene	0.0057	J	0.019	0.0036	mg/Kg	1	✳	8270E	Total/NA
Anthracene	0.0086	J	0.019	0.0031	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]anthracene	0.032		0.019	0.0043	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]pyrene	0.028		0.019	0.012	mg/Kg	1	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.044		0.019	0.0082	mg/Kg	1	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.024		0.019	0.0090	mg/Kg	1	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.018	J	0.019	0.0088	mg/Kg	1	✳	8270E	Total/NA
Chrysene	0.032		0.019	0.0019	mg/Kg	1	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.011	J	0.019	0.0088	mg/Kg	1	✳	8270E	Total/NA
Dibenzofuran	0.024	J	0.063	0.016	mg/Kg	1	✳	8270E	Total/NA
Fluoranthene	0.054		0.019	0.0056	mg/Kg	1	✳	8270E	Total/NA
Fluorene	0.0061	J	0.019	0.0035	mg/Kg	1	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6') (Continued)

Lab Sample ID: 240-182202-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	0.021		0.019	0.0093	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.024		0.019	0.0031	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.067		0.019	0.0028	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.055		0.019	0.0027	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.014	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.99	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0088	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0041	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0029	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	27	B	6.2	0.066	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	10	B	6.2	0.021	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDD	0.36	J B	6.2	0.021	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDF	1.9	J B	6.2	0.040	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	1.3	J B	6.2	0.026	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDD	1.2	J B	6.2	0.020	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDF	1.6	J B	6.2	0.040	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDD	0.58	J I B	6.2	0.012	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDF	0.72	J B	6.2	0.024	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDD	0.88	J B	6.2	0.020	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDF	0.42	J B	6.2	0.044	ng/Kg	1	☼	8290A	Total/NA
2,3,4,6,7,8-HxCDF	1.2	J B	6.2	0.039	ng/Kg	1	☼	8290A	Total/NA
2,3,4,7,8-PeCDF	1.6	J B	6.2	0.019	ng/Kg	1	☼	8290A	Total/NA
2,3,7,8-TCDD	0.44	J B	1.2	0.0093	ng/Kg	1	☼	8290A	Total/NA
2,3,7,8-TCDF	0.43	J I	1.2	0.022	ng/Kg	1	☼	8290A	Total/NA
OCDD	450	B	12	0.075	ng/Kg	1	☼	8290A	Total/NA
OCDF	22	B	12	0.034	ng/Kg	1	☼	8290A	Total/NA
Total HxCDD	12	B	6.2	0.020	ng/Kg	1	☼	8290A	Total/NA
Total HxCDF	19	B	6.2	0.041	ng/Kg	1	☼	8290A	Total/NA
Total HpCDD	27	B	6.2	0.066	ng/Kg	1	☼	8290A	Total/NA
Total HpCDF	25	B	6.2	0.023	ng/Kg	1	☼	8290A	Total/NA
Total PeCDD	5.4	J I B	6.2	0.012	ng/Kg	1	☼	8290A	Total/NA
Total PeCDF	12	I B	6.2	0.021	ng/Kg	1	☼	8290A	Total/NA
Total TCDD	3.5	I B	1.2	0.0093	ng/Kg	1	☼	8290A	Total/NA
Total TCDF	6.2	I	1.2	0.022	ng/Kg	1	☼	8290A	Total/NA

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	6.5	B	6.0	0.060	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	0.84	J I B	6.0	0.0084	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDD	0.15	J I B	6.0	0.0066	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDF	0.21	J B	6.0	0.010	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	0.13	J I B	6.0	0.011	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDD	0.18	J I B	6.0	0.0071	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDF	0.16	J B	6.0	0.010	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDF	0.12	J B	6.0	0.0068	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDD	0.26	J B	6.0	0.0067	ng/Kg	1	☼	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)
(Continued)

Lab Sample ID: 240-182202-12

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
2,3,4,6,7,8-HxCDF	0.18	J B	6.0	0.0096	ng/Kg	1	☼	8290A	Total/NA
2,3,4,7,8-PeCDF	0.18	J B	6.0	0.0053	ng/Kg	1	☼	8290A	Total/NA
OCDD	250	B	12	0.065	ng/Kg	1	☼	8290A	Total/NA
OCDF	1.7	J B	12	0.013	ng/Kg	1	☼	8290A	Total/NA
Total HxCDD	3.9	J I B	6.0	0.0068	ng/Kg	1	☼	8290A	Total/NA
Total HxCDF	1.4	J I B	6.0	0.011	ng/Kg	1	☼	8290A	Total/NA
Total HpCDD	6.5	B	6.0	0.060	ng/Kg	1	☼	8290A	Total/NA
Total HpCDF	0.97	J I B	6.0	0.0097	ng/Kg	1	☼	8290A	Total/NA
Total PeCDD	0.76	J I B	6.0	0.0044	ng/Kg	1	☼	8290A	Total/NA
Total PeCDF	1.6	J I B	6.0	0.0060	ng/Kg	1	☼	8290A	Total/NA
Total TCDD	0.20	J I B	1.2	0.013	ng/Kg	1	☼	8290A	Total/NA
Total TCDF	0.49	J I	1.2	0.0061	ng/Kg	1	☼	8290A	Total/NA

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0048		0.0042	0.0015	mg/Kg	1	☼	8260D	Total/NA
1,1'-Biphenyl	0.049	J	0.082	0.028	mg/Kg	1	☼	8270E	Total/NA
2-Methylnaphthalene	0.49		0.025	0.0032	mg/Kg	1	☼	8270E	Total/NA
Acenaphthene	0.035		0.025	0.0047	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.035		0.025	0.0066	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.083		0.025	0.0040	mg/Kg	1	☼	8270E	Total/NA
Benzaldehyde	0.065	J	0.16	0.038	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.41		0.025	0.0056	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.50		0.025	0.015	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.80		0.025	0.011	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.20		0.025	0.012	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.28		0.025	0.011	mg/Kg	1	☼	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.14		0.12	0.084	mg/Kg	1	☼	8270E	Total/NA
Carbazole	0.063	J	0.082	0.031	mg/Kg	1	☼	8270E	Total/NA
Chrysene	0.62		0.025	0.0025	mg/Kg	1	☼	8270E	Total/NA
Dibenz(a,h)anthracene	0.066		0.025	0.011	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.19		0.082	0.021	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.90		0.025	0.0073	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.047		0.025	0.0045	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.19		0.025	0.012	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.28		0.025	0.0040	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.54		0.025	0.0037	mg/Kg	1	☼	8270E	Total/NA
Phenol	0.014	J	0.082	0.013	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.85		0.025	0.0035	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.016	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.43	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0031	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0042	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.020	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0018	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1'-Biphenyl	0.14		0.12	0.041	mg/Kg	2	☼	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS (Continued)

Lab Sample ID: 240-182202-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.95		0.036	0.0047	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.39		0.036	0.0069	mg/Kg	2	✳	8270E	Total/NA
Acenaphthylene	0.26		0.036	0.0097	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.40		0.036	0.0058	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.90		0.036	0.0083	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.92		0.036	0.023	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.4		0.036	0.016	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.36		0.036	0.017	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.48		0.036	0.017	mg/Kg	2	✳	8270E	Total/NA
Carbazole	0.21		0.12	0.046	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.85		0.036	0.0036	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.11		0.036	0.017	mg/Kg	2	✳	8270E	Total/NA
Dibenzofuran	0.65		0.12	0.031	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	1.8		0.036	0.011	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.47		0.036	0.0066	mg/Kg	2	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.32		0.036	0.018	mg/Kg	2	✳	8270E	Total/NA
Naphthalene	1.2		0.036	0.0058	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	1.7		0.036	0.0054	mg/Kg	2	✳	8270E	Total/NA
Pyrene	1.9		0.036	0.0052	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.67	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0022	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.024	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.013		0.013	0.0024	mg/Kg	1	✳	8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	0.012	J	0.013	0.0025	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.072		0.017	0.014	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.0016	J	0.0033	0.00046	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.0012	J	0.0066	0.00081	mg/Kg	1	✳	8260D	Total/NA
Toluene	0.00095	J **	0.0033	0.00051	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.0017	J **	0.0066	0.0011	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.17		0.035	0.0046	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.13		0.035	0.0067	mg/Kg	2	✳	8270E	Total/NA
Acenaphthylene	0.015	J	0.035	0.0093	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.28		0.035	0.0056	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.68		0.035	0.0079	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.64		0.035	0.022	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.93		0.035	0.015	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.26		0.035	0.017	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.39		0.035	0.016	mg/Kg	2	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.16		0.16	0.12	mg/Kg	2	✳	8270E	Total/NA
Butyl benzyl phthalate	0.089	J	0.16	0.051	mg/Kg	2	✳	8270E	Total/NA
Carbazole	0.25		0.12	0.044	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.85		0.035	0.0035	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.083		0.035	0.016	mg/Kg	2	✳	8270E	Total/NA
Dibenzofuran	0.13		0.12	0.030	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	2.1		0.035	0.010	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.19		0.035	0.0064	mg/Kg	2	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS (Continued)

Lab Sample ID: 240-182202-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	0.25		0.035	0.017	mg/Kg	2	☼	8270E	Total/NA
Naphthalene	0.12		0.035	0.0056	mg/Kg	2	☼	8270E	Total/NA
Phenanthrene	1.5		0.035	0.0052	mg/Kg	2	☼	8270E	Total/NA
Pyrene	1.7		0.035	0.0050	mg/Kg	2	☼	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.62	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0010	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	0.0047	J *+	0.0083	0.0013	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.13		0.017	0.0023	mg/Kg	1	☼	8270E	Total/NA
Acenaphthene	0.010	J	0.017	0.0033	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.0065	J	0.017	0.0047	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.018		0.017	0.0028	mg/Kg	1	☼	8270E	Total/NA
Benzaldehyde	0.042	J	0.12	0.027	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.095		0.017	0.0040	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.096		0.017	0.011	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.15		0.017	0.0075	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.035		0.017	0.0082	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.048		0.017	0.0080	mg/Kg	1	☼	8270E	Total/NA
Chrysene	0.12		0.017	0.0017	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.062		0.058	0.015	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.21		0.017	0.0052	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.0097	J	0.017	0.0032	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.033		0.017	0.0085	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.071		0.017	0.0028	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.19		0.017	0.0026	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.19		0.017	0.0025	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.0071	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.69	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0042	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	180	B	7.9	0.12	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	62	B	7.9	0.14	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDD	4.4	J B	7.9	0.057	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDF	4.2	J B	7.9	0.14	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	2.8	J B	7.9	0.18	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDD	9.4	B	7.9	0.059	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDF	3.9	J B	7.9	0.14	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDD	5.1	J B	7.9	0.039	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDF	1.4	J B	7.9	0.051	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDD	20	B	7.9	0.060	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDF	0.79	J B	7.9	0.16	ng/Kg	1	☼	8290A	Total/NA
2,3,4,6,7,8-HxCDF	5.2	J B	7.9	0.13	ng/Kg	1	☼	8290A	Total/NA
2,3,4,7,8-PeCDF	6.4	J B	7.9	0.040	ng/Kg	1	☼	8290A	Total/NA
2,3,7,8-TCDD	1.2	J B	1.6	0.019	ng/Kg	1	☼	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS (Continued)

Lab Sample ID: 240-182202-17

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
2,3,7,8-TCDF	1.2	J	1.6	0.041	ng/Kg	1	✳	8290A	Total/NA
OCDD	1600	B	16	0.14	ng/Kg	1	✳	8290A	Total/NA
OCDF	80	B	16	0.087	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	130	B	7.9	0.059	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	91	B	7.9	0.14	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	180	B	7.9	0.12	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	130	B	7.9	0.16	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	42	I B	7.9	0.039	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	39	I B	7.9	0.046	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	11	I B	1.6	0.019	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	34	I	1.6	0.041	ng/Kg	1	✳	8290A	Total/NA

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0082	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.036	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00034	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0066	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.13	J	0.42	0.067	mg/Kg	1		8270E	Total/NA
Arsenic	0.0048	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.068	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Lead	0.0077	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0066	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.020	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Lead	0.0050	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.50	J	1.9	0.43	mg/Kg	5		8270E	Total/NA
Benzo[b]fluoranthene	1.0	J	1.9	0.81	mg/Kg	5		8270E	Total/NA
Butyl benzyl phthalate	3.4	J	8.8	2.8	mg/Kg	5		8270E	Total/NA
Fluoranthene	0.78	J	1.9	0.56	mg/Kg	5		8270E	Total/NA
Phenanthrene	0.96	J	1.9	0.28	mg/Kg	5		8270E	Total/NA
Pyrene	0.82	J	1.9	0.27	mg/Kg	5		8270E	Total/NA
Arsenic	0.0075	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.080	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00041	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0077	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.23	J	0.91	0.17	mg/Kg	4		8270E	Total/NA
Benzo[a]anthracene	0.34	J	0.91	0.21	mg/Kg	4		8270E	Total/NA
Bis(2-ethylhexyl) phthalate	4.1	J	4.2	3.1	mg/Kg	4		8270E	Total/NA
Chrysene	0.37	J	0.91	0.090	mg/Kg	4		8270E	Total/NA
Fluoranthene	1.2		0.91	0.27	mg/Kg	4		8270E	Total/NA
Fluorene	0.20	J	0.91	0.17	mg/Kg	4		8270E	Total/NA
Phenanthrene	0.90	J	0.91	0.14	mg/Kg	4		8270E	Total/NA
Pyrene	1.2		0.91	0.13	mg/Kg	4		8270E	Total/NA
Arsenic	0.0071	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.066	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00038	J	0.050	0.00020	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0049	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1,2,2-Tetrachloroethane	ND		0.0049	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0049	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1,2-Trichloroethane	ND	+	0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1-Dichloroethane	ND		0.0049	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1-Dichloroethene	ND		0.0049	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2,4-Trichlorobenzene	ND		0.0049	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dibromo-3-Chloropropane	ND		0.0098	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Ethylene Dibromide	ND		0.0049	0.00075	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichlorobenzene	ND		0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichloroethane	ND		0.0049	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichloropropane	ND		0.0049	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,3-Dichlorobenzene	ND		0.0049	0.00080	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,4-Dichlorobenzene	ND		0.0049	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
2-Butanone (MEK)	ND		0.020	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
2-Hexanone	ND		0.020	0.0040	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Acetone	ND		0.024	0.021	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Benzene	ND		0.0049	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Dichlorobromomethane	ND		0.0049	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Bromoform	ND		0.0049	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Bromomethane	ND		0.0049	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Carbon disulfide	ND		0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Carbon tetrachloride	ND		0.0049	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chlorobenzene	ND		0.0049	0.00090	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chloroethane	ND		0.0049	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chloroform	ND		0.0049	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chloromethane	ND		0.0049	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
cis-1,2-Dichloroethene	ND		0.0049	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
cis-1,3-Dichloropropene	ND		0.0049	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Cyclohexane	ND		0.0098	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chlorodibromomethane	ND		0.0049	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Dichlorodifluoromethane	ND		0.0049	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Ethylbenzene	ND		0.0049	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Isopropylbenzene	ND		0.0049	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methyl acetate	ND		0.024	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methyl tert-butyl ether	ND		0.0049	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methylcyclohexane	ND		0.0098	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methylene Chloride	ND		0.024	0.012	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Styrene	ND		0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Tetrachloroethene	ND		0.0049	0.00071	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Toluene	ND	+	0.0049	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
trans-1,2-Dichloroethene	ND		0.0049	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
trans-1,3-Dichloropropene	ND		0.0049	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Trichloroethene	ND		0.0049	0.00062	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Trichlorofluoromethane	ND		0.0049	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Vinyl chloride	ND		0.0049	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Xylenes, Total	ND	+	0.0098	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	82		56 - 125	03/19/23 13:00	03/21/23 10:48	1
Dibromofluoromethane (Surr)	84		41 - 138	03/19/23 13:00	03/21/23 10:48	1
4-Bromofluorobenzene (Surr)	77		41 - 143	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichloroethane-d4 (Surr)	86		58 - 125	03/19/23 13:00	03/21/23 10:48	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.4	0.82	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
bis (2-chloroisopropyl) ether	ND	F1	4.8	0.48	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4,5-Trichlorophenol	ND		7.2	3.3	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4,6-Trichlorophenol	ND		7.2	3.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dichlorophenol	ND		7.2	2.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dimethylphenol	ND		7.2	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dinitrophenol	ND		16	6.8	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dinitrotoluene	ND		9.6	3.0	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,6-Dinitrotoluene	ND		9.6	2.7	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Chloronaphthalene	ND	F1	2.4	0.67	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Chlorophenol	ND	F1	2.4	0.48	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Methylnaphthalene	0.32	J	0.72	0.094	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Methylphenol	ND		9.6	1.5	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Nitroaniline	ND		9.6	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Nitrophenol	ND	F1	2.4	0.63	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
3,3'-Dichlorobenzidine	ND		4.8	2.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
3-Nitroaniline	ND		9.6	2.4	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4,6-Dinitro-2-methylphenol	ND		16	3.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Bromophenyl phenyl ether	ND	F1	2.4	0.67	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Chloro-3-methylphenol	ND		7.2	2.2	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Chloroaniline	ND		7.2	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Chlorophenyl phenyl ether	ND	F1	2.4	0.67	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Nitroaniline	ND		9.6	2.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Nitrophenol	ND		16	4.5	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Acenaphthene	ND		0.72	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Acenaphthylene	ND		0.72	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Acetophenone	ND	F1	4.8	0.53	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Anthracene	ND		0.72	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Atrazine	ND		9.6	1.7	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzaldehyde	ND	F1	4.8	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[a]anthracene	0.18	J	0.72	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[a]pyrene	ND		0.72	0.45	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[b]fluoranthene	0.38	J	0.72	0.31	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[g,h,i]perylene	ND		0.72	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[k]fluoranthene	ND		0.72	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Bis(2-chloroethoxy)methane	ND	F1	4.8	0.58	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Bis(2-chloroethyl)ether	ND	F1	4.8	0.58	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Bis(2-ethylhexyl) phthalate	ND		3.4	2.5	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Butyl benzyl phthalate	ND		3.4	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Caprolactam	ND		16	3.6	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Carbazole	ND		2.4	0.91	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Chrysene	0.16	J	0.72	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Dibenz(a,h)anthracene	ND		0.72	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND	F1	2.4	0.63	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Diethyl phthalate	ND		3.4	1.5	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Dimethyl phthalate	ND	F1	3.4	0.67	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Di-n-butyl phthalate	ND		3.4	2.4	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Di-n-octyl phthalate	ND		3.4	1.3	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Fluoranthene	0.21	J	0.72	0.21	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Fluorene	ND		0.72	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Hexachlorobenzene	ND		0.72	0.14	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Hexachlorobutadiene	ND	F1	2.4	0.58	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Hexachlorocyclopentadiene	ND		16	3.0	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Hexachloroethane	ND	F1	2.4	0.43	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Indeno[1,2,3-cd]pyrene	ND		0.72	0.35	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Isophorone	ND	F1	2.4	0.58	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
N-Nitrosodi-n-propylamine	ND	F1	2.4	0.53	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
N-Nitrosodiphenylamine	ND	F1	2.4	0.58	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Naphthalene	0.26	J	0.72	0.12	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Nitrobenzene	ND	F1	4.8	0.63	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Pentachlorophenol	ND		7.2	2.8	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Phenanthrene	0.51	J F1	0.72	0.11	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Phenol	ND		2.4	0.39	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
Pyrene	0.22	J	0.72	0.10	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40
3 & 4 Methylphenol	ND		19	1.4	mg/Kg	✱	03/22/23 08:13	03/24/23 11:10	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	87		46 - 137	03/22/23 08:13	03/24/23 11:10	40
Phenol-d5 (Surr)	61		26 - 120	03/22/23 08:13	03/24/23 11:10	40
Nitrobenzene-d5 (Surr)	40		25 - 120	03/22/23 08:13	03/24/23 11:10	40
2-Fluorophenol (Surr)	45		20 - 120	03/22/23 08:13	03/24/23 11:10	40
2-Fluorobiphenyl (Surr)	61		34 - 120	03/22/23 08:13	03/24/23 11:10	40
2,4,6-Tribromophenol (Surr)	48		10 - 120	03/22/23 08:13	03/24/23 11:10	40

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.037	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:41	1
Barium	0.13	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:41	1
Cadmium	0.0034	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:41	1
Chromium	0.0070	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:41	1
Lead	0.0070	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:41	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:41	1
Silver	0.0027	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:41	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	16.0		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0045	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1,2,2-Tetrachloroethane	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0045	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1,2-Trichloroethane	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1-Dichloroethane	ND		0.0045	0.00062	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1-Dichloroethene	ND		0.0045	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2,4-Trichlorobenzene	ND		0.0045	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dibromo-3-Chloropropane	ND		0.0090	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Ethylene Dibromide	ND		0.0045	0.00069	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichlorobenzene	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichloroethane	ND		0.0045	0.00069	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichloropropane	ND		0.0045	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,3-Dichlorobenzene	ND		0.0045	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,4-Dichlorobenzene	ND		0.0045	0.00079	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
2-Butanone (MEK)	ND		0.018	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
2-Hexanone	ND		0.018	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
4-Methyl-2-pentanone (MIBK)	ND		0.018	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Acetone	ND		0.022	0.019	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Benzene	ND		0.0045	0.00063	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Dichlorobromomethane	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Bromoform	ND		0.0045	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Bromomethane	ND		0.0045	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Carbon disulfide	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Carbon tetrachloride	ND		0.0045	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chlorobenzene	ND		0.0045	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chloroethane	ND		0.0045	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chloroform	ND		0.0045	0.00071	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chloromethane	ND		0.0045	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
cis-1,2-Dichloroethene	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
cis-1,3-Dichloropropene	ND		0.0045	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Cyclohexane	ND		0.0090	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chlorodibromomethane	ND		0.0045	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Dichlorodifluoromethane	ND		0.0045	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Ethylbenzene	ND		0.0045	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Isopropylbenzene	ND		0.0045	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methyl acetate	ND		0.022	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methyl tert-butyl ether	ND		0.0045	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methylcyclohexane	ND		0.0090	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methylene Chloride	ND		0.022	0.011	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Styrene	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Tetrachloroethene	ND		0.0045	0.00066	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Toluene	ND		0.0045	0.00069	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
trans-1,2-Dichloroethene	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
trans-1,3-Dichloropropene	ND		0.0045	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Trichloroethene	ND		0.0045	0.00057	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Trichlorofluoromethane	ND		0.0045	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Vinyl chloride	0.0022	J	0.0045	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Xylenes, Total	ND		0.0090	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	73	*3	56 - 125	03/19/23 13:00	03/21/23 14:23	1
Toluene-d8 (Surr)	122		56 - 125	03/19/23 13:00	03/21/23 21:06	1
Dibromofluoromethane (Surr)	95	*3	41 - 138	03/19/23 13:00	03/21/23 14:23	1
Dibromofluoromethane (Surr)	106		41 - 138	03/19/23 13:00	03/21/23 21:06	1
4-Bromofluorobenzene (Surr)	77	*3	41 - 143	03/19/23 13:00	03/21/23 14:23	1
4-Bromofluorobenzene (Surr)	127		41 - 143	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichloroethane-d4 (Surr)	122	*3	58 - 125	03/19/23 13:00	03/21/23 14:23	1
1,2-Dichloroethane-d4 (Surr)	117		58 - 125	03/19/23 13:00	03/21/23 21:06	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.59	0.20	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
bis (2-chloroisopropyl) ether	ND		1.2	0.12	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4,5-Trichlorophenol	ND		1.8	0.82	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4,6-Trichlorophenol	ND		1.8	0.76	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dichlorophenol	ND		1.8	0.52	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dimethylphenol	ND		1.8	0.47	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dinitrophenol	ND		3.9	1.7	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dinitrotoluene	ND		2.4	0.74	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,6-Dinitrotoluene	ND		2.4	0.66	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Chloronaphthalene	ND		0.59	0.17	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Chlorophenol	ND		0.59	0.12	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Methylnaphthalene	0.11	J	0.18	0.023	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Methylphenol	ND		2.4	0.37	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Nitroaniline	ND		2.4	0.47	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Nitrophenol	ND		0.59	0.15	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
3,3'-Dichlorobenzidine	ND		1.2	0.51	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
3-Nitroaniline	ND		2.4	0.58	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4,6-Dinitro-2-methylphenol	ND		3.9	0.95	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Bromophenyl phenyl ether	ND		0.59	0.17	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Chloro-3-methylphenol	ND		1.8	0.53	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Chloroaniline	ND		1.8	0.36	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Chlorophenyl phenyl ether	ND		0.59	0.17	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Nitroaniline	ND		2.4	0.71	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Nitrophenol	ND		3.9	1.1	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Acenaphthene	ND		0.18	0.034	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Acenaphthylene	ND		0.18	0.048	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Acetophenone	ND		1.2	0.13	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Anthracene	ND		0.18	0.029	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Atrazine	ND		2.4	0.43	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzaldehyde	ND		1.2	0.27	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[a]anthracene	0.066	J	0.18	0.040	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[a]pyrene	ND		0.18	0.11	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[b]fluoranthene	0.12	J	0.18	0.077	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[g,h,i]perylene	ND		0.18	0.084	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[k]fluoranthene	ND		0.18	0.082	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Bis(2-chloroethoxy)methane	ND		1.2	0.14	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Bis(2-chloroethyl)ether	ND		1.2	0.14	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Bis(2-ethylhexyl) phthalate	ND		0.83	0.61	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Butyl benzyl phthalate	ND		0.83	0.26	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		3.9	0.89	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Carbazole	ND		0.59	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Chrysene	0.072	J	0.18	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Dibenz(a,h)anthracene	ND		0.18	0.082	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Dibenzofuran	ND		0.59	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Diethyl phthalate	ND		0.83	0.37	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Dimethyl phthalate	ND		0.83	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Di-n-butyl phthalate	ND		0.83	0.60	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Di-n-octyl phthalate	ND		0.83	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Fluoranthene	0.12	J	0.18	0.053	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Fluorene	ND		0.18	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachlorobenzene	ND		0.18	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachlorobutadiene	ND		0.59	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachlorocyclopentadiene	ND		3.9	0.74	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachloroethane	ND		0.59	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Indeno[1,2,3-cd]pyrene	0.094	J	0.18	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Isophorone	ND		0.59	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
N-Nitrosodi-n-propylamine	ND		0.59	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
N-Nitrosodiphenylamine	ND		0.59	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Naphthalene	0.076	J	0.18	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Nitrobenzene	ND		1.2	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Pentachlorophenol	ND		1.8	0.69	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Phenanthrene	0.20		0.18	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Phenol	ND		0.59	0.095	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Pyrene	0.12	J	0.18	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
3 & 4 Methylphenol	ND		4.7	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		46 - 137	03/22/23 08:13	03/24/23 13:04	10
Phenol-d5 (Surr)	53		26 - 120	03/22/23 08:13	03/24/23 13:04	10
Nitrobenzene-d5 (Surr)	39		25 - 120	03/22/23 08:13	03/24/23 13:04	10
2-Fluorophenol (Surr)	44		20 - 120	03/22/23 08:13	03/24/23 13:04	10
2-Fluorobiphenyl (Surr)	57		34 - 120	03/22/23 08:13	03/24/23 13:04	10
2,4,6-Tribromophenol (Surr)	55		10 - 120	03/22/23 08:13	03/24/23 13:04	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.013	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:45	1
Barium	0.28	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:45	1
Cadmium	0.0024	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:45	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:45	1
Lead	0.0043	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:45	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:45	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:45	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:36	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	17.0		0.1	0.1	%			03/21/23 11:05	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.26	0.081	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1,2,2-Tetrachloroethane	ND		0.26	0.15	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.26	0.069	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1,2-Trichloroethane	ND		0.26	0.059	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1-Dichloroethane	ND		0.26	0.050	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1-Dichloroethene	ND		0.26	0.085	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2,4-Trichlorobenzene	ND		0.26	0.14	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dibromo-3-Chloropropane	ND		0.52	0.23	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Ethylene Dibromide	ND		0.26	0.082	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichlorobenzene	ND		0.26	0.12	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichloroethane	ND		0.26	0.049	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichloropropane	ND		0.26	0.038	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,3-Dichlorobenzene	ND		0.26	0.048	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,4-Dichlorobenzene	ND		0.26	0.057	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
2-Hexanone	ND		1.0	0.27	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.25	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Acetone	0.27	J	1.0	0.25	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Benzene	ND		0.26	0.043	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Dichlorobromomethane	ND		0.26	0.063	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Bromoform	ND		0.26	0.24	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Bromomethane	ND		0.26	0.17	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Carbon disulfide	ND		0.26	0.11	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Carbon tetrachloride	ND		0.26	0.11	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chlorobenzene	ND		0.26	0.036	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chloroethane	ND		0.26	0.15	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chloroform	ND		0.26	0.056	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chloromethane	ND		0.26	0.068	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
cis-1,2-Dichloroethene	ND		0.26	0.041	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
cis-1,3-Dichloropropene	ND		0.26	0.13	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Cyclohexane	ND		0.52	0.17	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chlorodibromomethane	ND		0.26	0.12	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Dichlorodifluoromethane	ND		0.26	0.055	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Ethylbenzene	ND		0.26	0.049	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Isopropylbenzene	ND		0.26	0.039	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methyl acetate	ND		1.3	0.17	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methyl tert-butyl ether	ND		0.26	0.038	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methylcyclohexane	ND		0.52	0.068	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methylene Chloride	ND		0.52	0.40	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Styrene	ND		0.26	0.054	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Tetrachloroethene	ND		0.26	0.10	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Toluene	ND		0.26	0.25	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
trans-1,2-Dichloroethene	ND		0.26	0.064	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
trans-1,3-Dichloropropene	ND		0.26	0.11	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Trichloroethene	ND		0.26	0.15	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Trichlorofluoromethane	ND		0.26	0.14	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Vinyl chloride	ND		0.26	0.13	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Xylenes, Total	ND		0.52	0.094	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	119		56 - 125	03/20/23 14:08	03/21/23 23:37	1
Dibromofluoromethane (Surr)	102		41 - 138	03/20/23 14:08	03/21/23 23:37	1
4-Bromofluorobenzene (Surr)	119		41 - 143	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichloroethane-d4 (Surr)	118		58 - 125	03/20/23 14:08	03/21/23 23:37	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dimethylphenol	ND		3.5	0.93	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dinitrotoluene	ND		4.7	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Methylnaphthalene	ND		0.35	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Methylphenol	ND		4.7	0.72	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Nitroaniline	ND		4.7	0.93	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Nitrophenol	ND		1.2	0.30	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
3-Nitroaniline	ND		4.7	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Chloroaniline	ND		3.5	0.70	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Nitrophenol	ND		7.7	2.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Acenaphthene	ND		0.35	0.067	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Acenaphthylene	ND		0.35	0.094	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Acetophenone	ND		2.3	0.26	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Anthracene	ND		0.35	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Atrazine	ND		4.7	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzaldehyde	ND		2.3	0.54	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[a]anthracene	0.099	J	0.35	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[a]pyrene	ND		0.35	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[b]fluoranthene	0.21	J	0.35	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[g,h,i]perylene	ND		0.35	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[k]fluoranthene	ND		0.35	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Butyl benzyl phthalate	ND		1.6	0.51	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Caprolactam	ND		7.7	1.8	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Carbazole	ND		1.2	0.44	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Chrysene	0.089	J	0.35	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.2	0.30	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Diethyl phthalate	ND		1.6	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Di-n-octyl phthalate	ND		1.6	0.65	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Fluoranthene	0.15	J	0.35	0.10	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Fluorene	ND		0.35	0.064	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Hexachlorocyclopentadiene	ND		7.7	1.4	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Indeno[1,2,3-cd]pyrene	0.17	J	0.35	0.17	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Isophorone	ND		1.2	0.28	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Naphthalene	ND		0.35	0.056	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Nitrobenzene	ND		2.3	0.30	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Phenanthrene	0.18	J	0.35	0.052	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Phenol	ND		1.2	0.19	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
Pyrene	0.14	J	0.35	0.050	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20
3 & 4 Methylphenol	ND		9.3	0.68	mg/Kg	✱	03/22/23 08:13	03/24/23 12:41	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	83		46 - 137	03/22/23 08:13	03/24/23 12:41	20
Phenol-d5 (Surr)	47		26 - 120	03/22/23 08:13	03/24/23 12:41	20
Nitrobenzene-d5 (Surr)	33		25 - 120	03/22/23 08:13	03/24/23 12:41	20
2-Fluorophenol (Surr)	38		20 - 120	03/22/23 08:13	03/24/23 12:41	20
2-Fluorobiphenyl (Surr)	50		34 - 120	03/22/23 08:13	03/24/23 12:41	20
2,4,6-Tribromophenol (Surr)	42		10 - 120	03/22/23 08:13	03/24/23 12:41	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:50	1
Barium	0.13	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:50	1
Cadmium	0.0032	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:50	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:50	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:50	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:50	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:50	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.7		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	15.3		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.2	0.99	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1,2,2-Tetrachloroethane	ND		3.2	1.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.2	0.85	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1,2-Trichloroethane	ND		3.2	0.73	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1-Dichloroethane	ND		3.2	0.61	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1-Dichloroethene	ND		3.2	1.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2,4-Trichlorobenzene	ND		3.2	1.7	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dibromo-3-Chloropropane	ND		6.4	2.8	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Ethylene Dibromide	ND		3.2	1.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichlorobenzene	ND		3.2	1.5	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichloroethane	ND		3.2	0.60	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichloropropane	ND		3.2	0.47	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,3-Dichlorobenzene	ND		3.2	0.59	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,4-Dichlorobenzene	ND		3.2	0.70	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
2-Butanone (MEK)	ND		13	2.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
2-Hexanone	ND		13	3.3	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
4-Methyl-2-pentanone (MIBK)	ND		13	3.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Acetone	ND		13	3.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Benzene	ND		3.2	0.53	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Dichlorobromomethane	ND		3.2	0.77	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Bromoform	ND		3.2	2.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Bromomethane	ND		3.2	2.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Carbon disulfide	ND		3.2	1.4	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Carbon tetrachloride	ND		3.2	1.3	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chlorobenzene	ND		3.2	0.45	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chloroethane	ND		3.2	1.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chloroform	ND		3.2	0.69	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chloromethane	ND		3.2	0.84	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
cis-1,2-Dichloroethene	ND		3.2	0.51	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
cis-1,3-Dichloropropene	ND		3.2	1.6	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Cyclohexane	ND		6.4	2.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chlorodibromomethane	ND		3.2	1.5	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Dichlorodifluoromethane	ND		3.2	0.67	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Ethylbenzene	ND		3.2	0.60	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Isopropylbenzene	ND		3.2	0.48	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methyl acetate	ND		16	2.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methyl tert-butyl ether	ND		3.2	0.47	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methylcyclohexane	ND		6.4	0.84	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methylene Chloride	ND		6.4	4.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Styrene	ND		3.2	0.66	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Tetrachloroethene	ND		3.2	1.2	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Toluene	ND		3.2	3.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
trans-1,2-Dichloroethene	ND		3.2	0.79	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
trans-1,3-Dichloropropene	ND		3.2	1.3	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Trichloroethene	ND		3.2	1.8	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Trichlorofluoromethane	ND		3.2	1.7	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Vinyl chloride	8.2		3.2	1.6	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Xylenes, Total	ND		6.4	1.2	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	82		56 - 125	03/20/23 14:08	03/22/23 05:06	10
Dibromofluoromethane (Surr)	76		41 - 138	03/20/23 14:08	03/22/23 05:06	10
4-Bromofluorobenzene (Surr)	80		41 - 143	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichloroethane-d4 (Surr)	83		58 - 125	03/20/23 14:08	03/22/23 05:06	10

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.0	1.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
bis (2-chloroisopropyl) ether	ND		6.0	0.60	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4,5-Trichlorophenol	ND		9.0	4.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4,6-Trichlorophenol	ND		9.0	3.9	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dichlorophenol	ND		9.0	2.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dimethylphenol	ND		9.0	2.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dinitrophenol	ND		20	8.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dinitrotoluene	ND		12	3.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,6-Dinitrotoluene	ND		12	3.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Chloronaphthalene	ND		3.0	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Chlorophenol	ND		3.0	0.60	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Methylnaphthalene	0.26	J	0.90	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Methylphenol	ND		12	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Nitroaniline	ND		12	2.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Nitrophenol	ND		3.0	0.78	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
3,3'-Dichlorobenzidine	ND		6.0	2.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
3-Nitroaniline	ND		12	3.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4,6-Dinitro-2-methylphenol	ND		20	4.8	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Bromophenyl phenyl ether	ND		3.0	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Chloro-3-methylphenol	ND		9.0	2.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Chloroaniline	ND		9.0	1.8	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Chlorophenyl phenyl ether	ND		3.0	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Nitroaniline	ND		12	3.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Nitrophenol	ND		20	5.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Acenaphthene	ND		0.90	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Acenaphthylene	ND		0.90	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Acetophenone	ND		6.0	0.66	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Anthracene	ND		0.90	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Atrazine	ND		12	2.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzaldehyde	ND		6.0	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[a]anthracene	1.2		0.90	0.21	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[a]pyrene	1.4		0.90	0.56	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[b]fluoranthene	1.8		0.90	0.39	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[g,h,i]perylene	1.1		0.90	0.43	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[k]fluoranthene	0.81	J	0.90	0.42	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Bis(2-chloroethoxy)methane	ND		6.0	0.72	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Bis(2-chloroethyl)ether	ND		6.0	0.72	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Bis(2-ethylhexyl) phthalate	ND		4.2	3.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Butyl benzyl phthalate	ND		4.2	1.3	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Caprolactam	ND		20	4.5	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Carbazole	ND		3.0	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Chrysene	1.3		0.90	0.090	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Dibenz(a,h)anthracene	ND		0.90	0.42	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		3.0	0.78	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Diethyl phthalate	ND		4.2	1.9	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Dimethyl phthalate	ND		4.2	0.84	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Di-n-butyl phthalate	ND		4.2	3.0	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Di-n-octyl phthalate	ND		4.2	1.7	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Fluoranthene	1.8		0.90	0.27	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Fluorene	ND		0.90	0.17	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachlorobenzene	ND		0.90	0.17	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachlorobutadiene	ND		3.0	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachlorocyclopentadiene	ND		20	3.7	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachloroethane	ND		3.0	0.54	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Indeno[1,2,3-cd]pyrene	1.0		0.90	0.44	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Isophorone	ND		3.0	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
N-Nitrosodi-n-propylamine	ND		3.0	0.66	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
N-Nitrosodiphenylamine	ND		3.0	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Naphthalene	0.20	J	0.90	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Nitrobenzene	ND		6.0	0.78	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Pentachlorophenol	ND		9.0	3.5	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Phenanthrene	0.69	J	0.90	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Phenol	ND		3.0	0.48	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Pyrene	1.9		0.90	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
3 & 4 Methylphenol	ND		24	1.7	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137	03/22/23 08:13	03/24/23 12:19	50
Phenol-d5 (Surr)	69		26 - 120	03/22/23 08:13	03/24/23 12:19	50
Nitrobenzene-d5 (Surr)	51		25 - 120	03/22/23 08:13	03/24/23 12:19	50
2-Fluorophenol (Surr)	54		20 - 120	03/22/23 08:13	03/24/23 12:19	50
2-Fluorobiphenyl (Surr)	80		34 - 120	03/22/23 08:13	03/24/23 12:19	50
2,4,6-Tribromophenol (Surr)	61		10 - 120	03/22/23 08:13	03/24/23 12:19	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:55	1
Barium	1.0	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:55	1
Cadmium	0.00096	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:55	1
Chromium	0.0040	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:55	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:55	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:55	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:55	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00013	J	0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.3		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	16.7		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0055	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1,2,2-Tetrachloroethane	ND		0.0055	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0055	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1,2-Trichloroethane	ND		0.0055	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1-Dichloroethane	ND		0.0055	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1-Dichloroethene	ND		0.0055	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2,4-Trichlorobenzene	ND		0.0055	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dibromo-3-Chloropropane	ND		0.011	0.0040	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Ethylene Dibromide	ND		0.0055	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichlorobenzene	ND		0.0055	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichloroethane	ND		0.0055	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichloropropane	ND		0.0055	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,3-Dichlorobenzene	ND		0.0055	0.00091	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,4-Dichlorobenzene	ND		0.0055	0.00098	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
2-Butanone (MEK)	0.0065	J	0.022	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
2-Hexanone	ND		0.022	0.0045	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
4-Methyl-2-pentanone (MIBK)	ND		0.022	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Acetone	0.047	B	0.028	0.023	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Benzene	ND		0.0055	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Dichlorobromomethane	ND		0.0055	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Bromoform	ND		0.0055	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Bromomethane	ND		0.0055	0.0046	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Carbon disulfide	ND		0.0055	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Carbon tetrachloride	ND		0.0055	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chlorobenzene	ND		0.0055	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chloroethane	ND		0.0055	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chloroform	ND		0.0055	0.00087	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chloromethane	ND		0.0055	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
cis-1,2-Dichloroethene	ND		0.0055	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
cis-1,3-Dichloropropene	ND		0.0055	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Cyclohexane	ND		0.011	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chlorodibromomethane	ND		0.0055	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Dichlorodifluoromethane	ND		0.0055	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Ethylbenzene	ND		0.0055	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Isopropylbenzene	ND		0.0055	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methyl acetate	ND		0.028	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methyl tert-butyl ether	ND		0.0055	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methylcyclohexane	ND		0.011	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methylene Chloride	ND		0.028	0.013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Styrene	ND		0.0055	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Tetrachloroethene	ND		0.0055	0.00081	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Toluene	ND		0.0055	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
trans-1,2-Dichloroethene	ND		0.0055	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
trans-1,3-Dichloropropene	ND		0.0055	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Trichloroethene	ND		0.0055	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Trichlorofluoromethane	ND		0.0055	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Vinyl chloride	0.014		0.0055	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Xylenes, Total	ND		0.011	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	128	S1+	56 - 125	03/19/23 13:00	03/21/23 21:31	1
Dibromofluoromethane (Surr)	108		41 - 138	03/19/23 13:00	03/21/23 21:31	1
4-Bromofluorobenzene (Surr)	138		41 - 143	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/19/23 13:00	03/21/23 21:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.25	0.085	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
bis (2-chloroisopropyl) ether	ND		0.50	0.050	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4,5-Trichlorophenol	ND		0.75	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4,6-Trichlorophenol	ND		0.75	0.32	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dichlorophenol	ND		0.75	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dimethylphenol	ND		0.75	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dinitrophenol	ND		1.6	0.71	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dinitrotoluene	ND		1.0	0.31	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,6-Dinitrotoluene	ND		1.0	0.28	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Chloronaphthalene	ND		0.25	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Chlorophenol	ND		0.25	0.050	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Methylnaphthalene	0.13		0.075	0.0098	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Methylphenol	ND		1.0	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Nitroaniline	ND		1.0	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Nitrophenol	ND		0.25	0.065	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
3,3'-Dichlorobenzidine	ND		0.50	0.21	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
3-Nitroaniline	ND		1.0	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4,6-Dinitro-2-methylphenol	ND		1.6	0.40	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Bromophenyl phenyl ether	ND		0.25	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Chloro-3-methylphenol	ND		0.75	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Chloroaniline	ND		0.75	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Chlorophenyl phenyl ether	ND		0.25	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Nitroaniline	ND		1.0	0.30	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Nitrophenol	ND		1.6	0.47	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Acenaphthene	ND		0.075	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Acenaphthylene	ND		0.075	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Acetophenone	ND		0.50	0.055	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Anthracene	0.017	J	0.075	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Atrazine	ND		1.0	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzaldehyde	ND		0.50	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[a]anthracene	0.073	J	0.075	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[a]pyrene	0.070	J	0.075	0.047	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[b]fluoranthene	0.096		0.075	0.032	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[g,h,i]perylene	0.061	J	0.075	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[k]fluoranthene	0.063	J	0.075	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Bis(2-chloroethoxy)methane	ND		0.50	0.060	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Bis(2-chloroethyl)ether	ND		0.50	0.060	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Bis(2-ethylhexyl) phthalate	ND		0.35	0.25	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Butyl benzyl phthalate	ND		0.35	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Caprolactam	ND		1.6	0.37	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Carbazole	ND		0.25	0.095	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Chrysene	0.096		0.075	0.0074	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Dibenz(a,h)anthracene	ND		0.075	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.068	J	0.25	0.065	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Diethyl phthalate	ND		0.35	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Dimethyl phthalate	ND		0.35	0.070	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Di-n-butyl phthalate	ND		0.35	0.25	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Di-n-octyl phthalate	ND		0.35	0.14	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Fluoranthene	0.13		0.075	0.022	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Fluorene	ND		0.075	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Hexachlorobenzene	ND		0.075	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Hexachlorobutadiene	ND		0.25	0.060	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Hexachlorocyclopentadiene	ND		1.6	0.31	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Hexachloroethane	ND		0.25	0.045	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Indeno[1,2,3-cd]pyrene	0.064	J	0.075	0.037	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Isophorone	ND		0.25	0.060	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
N-Nitrosodi-n-propylamine	ND		0.25	0.055	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
N-Nitrosodiphenylamine	ND		0.25	0.060	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Naphthalene	0.073	J	0.075	0.012	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Nitrobenzene	ND		0.50	0.065	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Pentachlorophenol	ND		0.75	0.29	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Phenanthrene	0.16		0.075	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Phenol	ND		0.25	0.040	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
Pyrene	0.13		0.075	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4
3 & 4 Methylphenol	ND		2.0	0.14	mg/Kg	✱	03/22/23 08:13	03/24/23 13:27	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	107		46 - 137	03/22/23 08:13	03/24/23 13:27	4
Phenol-d5 (Surr)	65		26 - 120	03/22/23 08:13	03/24/23 13:27	4
Nitrobenzene-d5 (Surr)	48		25 - 120	03/22/23 08:13	03/24/23 13:27	4
2-Fluorophenol (Surr)	54		20 - 120	03/22/23 08:13	03/24/23 13:27	4
2-Fluorobiphenyl (Surr)	77		34 - 120	03/22/23 08:13	03/24/23 13:27	4
2,4,6-Tribromophenol (Surr)	98		10 - 120	03/22/23 08:13	03/24/23 13:27	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.016	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:59	1
Barium	1.1	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:59	1
Cadmium	0.00088	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:59	1
Chromium	0.0060	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:59	1
Lead	0.0052	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:59	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:59	1
Silver	0.0013	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:59	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	20.0		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1,2,2-Tetrachloroethane	ND		0.0053	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0053	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1,2-Trichloroethane	ND	+	0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1-Dichloroethane	ND		0.0053	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1-Dichloroethene	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2,4-Trichlorobenzene	ND		0.0053	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dibromo-3-Chloropropane	ND		0.011	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Ethylene Dibromide	ND		0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichlorobenzene	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichloroethane	ND		0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichloropropane	ND		0.0053	0.00090	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,3-Dichlorobenzene	ND		0.0053	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,4-Dichlorobenzene	ND		0.0053	0.00093	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
2-Butanone (MEK)	0.0091	J	0.021	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
2-Hexanone	ND		0.021	0.0043	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
4-Methyl-2-pentanone (MIBK)	ND		0.021	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Acetone	0.047		0.026	0.022	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Benzene	ND		0.0053	0.00074	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Dichlorobromomethane	ND		0.0053	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Bromoform	ND		0.0053	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Bromomethane	ND		0.0053	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Carbon disulfide	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Carbon tetrachloride	ND		0.0053	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chlorobenzene	ND		0.0053	0.00097	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chloroethane	ND		0.0053	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chloroform	ND		0.0053	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chloromethane	ND		0.0053	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
cis-1,2-Dichloroethene	ND		0.0053	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
cis-1,3-Dichloropropene	ND		0.0053	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Cyclohexane	ND		0.011	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chlorodibromomethane	ND		0.0053	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Dichlorodifluoromethane	ND		0.0053	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Ethylbenzene	ND		0.0053	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Isopropylbenzene	ND		0.0053	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methyl acetate	ND		0.026	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methyl tert-butyl ether	ND		0.0053	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methylcyclohexane	ND		0.011	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methylene Chloride	ND		0.026	0.013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Styrene	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Tetrachloroethene	ND		0.0053	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Toluene	ND	+	0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
trans-1,2-Dichloroethene	ND		0.0053	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
trans-1,3-Dichloropropene	ND		0.0053	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Trichloroethene	ND		0.0053	0.00067	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Trichlorofluoromethane	ND		0.0053	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Vinyl chloride	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Xylenes, Total	ND	+	0.011	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	86		56 - 125	03/19/23 13:00	03/21/23 11:09	1
Dibromofluoromethane (Surr)	86		41 - 138	03/19/23 13:00	03/21/23 11:09	1
4-Bromofluorobenzene (Surr)	69		41 - 143	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/19/23 13:00	03/21/23 11:09	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.13	0.043	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
bis (2-chloroisopropyl) ether	ND		0.26	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4,5-Trichlorophenol	ND		0.38	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4,6-Trichlorophenol	ND		0.38	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dichlorophenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dimethylphenol	ND		0.38	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dinitrophenol	ND		0.84	0.36	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dinitrotoluene	ND		0.51	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,6-Dinitrotoluene	ND		0.51	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Chloronaphthalene	ND		0.13	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Chlorophenol	ND		0.13	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Methylnaphthalene	0.039		0.038	0.0050	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Methylphenol	ND		0.51	0.079	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Nitroaniline	ND		0.51	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Nitrophenol	ND		0.13	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
3,3'-Dichlorobenzidine	ND		0.26	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
3-Nitroaniline	ND		0.51	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4,6-Dinitro-2-methylphenol	ND		0.84	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Bromophenyl phenyl ether	ND		0.13	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Chloro-3-methylphenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Chloroaniline	ND		0.38	0.077	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Chlorophenyl phenyl ether	ND		0.13	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Nitroaniline	ND		0.51	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Nitrophenol	ND		0.84	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Acenaphthene	ND		0.038	0.0073	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Acenaphthylene	ND		0.038	0.010	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Acetophenone	ND		0.26	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Anthracene	0.013	J	0.038	0.0062	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Atrazine	ND		0.51	0.092	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzaldehyde	ND		0.26	0.059	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[a]anthracene	0.028	J	0.038	0.0087	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[a]pyrene	0.024	J	0.038	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[b]fluoranthene	0.044		0.038	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[g,h,i]perylene	0.024	J	0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[k]fluoranthene	0.021	J	0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Bis(2-chloroethoxy)methane	ND		0.26	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Bis(2-chloroethyl)ether	ND		0.26	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Bis(2-ethylhexyl) phthalate	ND		0.18	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Butyl benzyl phthalate	ND		0.18	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Caprolactam	ND		0.84	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Carbazole	ND		0.13	0.049	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Chrysene	0.030	J	0.038	0.0038	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Dibenz(a,h)anthracene	ND		0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.13	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Diethyl phthalate	ND		0.18	0.079	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Dimethyl phthalate	ND		0.18	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Di-n-butyl phthalate	ND		0.18	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Di-n-octyl phthalate	ND		0.18	0.072	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Fluoranthene	0.060		0.038	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Fluorene	ND		0.038	0.0070	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachlorobenzene	ND		0.038	0.0073	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachlorobutadiene	ND		0.13	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachlorocyclopentadiene	ND		0.84	0.16	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachloroethane	ND		0.13	0.023	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Indeno[1,2,3-cd]pyrene	0.025	J	0.038	0.019	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Isophorone	ND		0.13	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
N-Nitrosodi-n-propylamine	ND		0.13	0.028	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
N-Nitrosodiphenylamine	ND		0.13	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Naphthalene	0.025	J	0.038	0.0062	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Nitrobenzene	ND		0.26	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Pentachlorophenol	ND		0.38	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Phenanthrene	0.063		0.038	0.0057	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Phenol	ND		0.13	0.020	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Pyrene	0.057		0.038	0.0055	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
3 & 4 Methylphenol	ND		1.0	0.074	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	03/22/23 08:13	03/24/23 14:13	2
Phenol-d5 (Surr)	59		26 - 120	03/22/23 08:13	03/24/23 14:13	2
Nitrobenzene-d5 (Surr)	46		25 - 120	03/22/23 08:13	03/24/23 14:13	2
2-Fluorophenol (Surr)	53		20 - 120	03/22/23 08:13	03/24/23 14:13	2
2-Fluorobiphenyl (Surr)	64		34 - 120	03/22/23 08:13	03/24/23 14:13	2
2,4,6-Tribromophenol (Surr)	79		10 - 120	03/22/23 08:13	03/24/23 14:13	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:04	1
Barium	1.1	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:04	1
Cadmium	0.00097	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:04	1
Chromium	0.0045	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:04	1
Lead	0.0061	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:04	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:04	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:04	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.9		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	21.1		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0060	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1,2,2-Tetrachloroethane	ND		0.0060	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0060	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1,2-Trichloroethane	ND	+	0.0060	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1-Dichloroethane	ND		0.0060	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1-Dichloroethene	ND		0.0060	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2,4-Trichlorobenzene	ND		0.0060	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dibromo-3-Chloropropane	ND		0.012	0.0043	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Ethylene Dibromide	ND		0.0060	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichlorobenzene	ND		0.0060	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichloroethane	ND		0.0060	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichloropropane	ND		0.0060	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,3-Dichlorobenzene	ND		0.0060	0.00097	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,4-Dichlorobenzene	ND		0.0060	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
2-Butanone (MEK)	0.019	J	0.024	0.0042	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
2-Hexanone	ND		0.024	0.0049	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
4-Methyl-2-pentanone (MIBK)	ND		0.024	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Acetone	0.087		0.030	0.025	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Benzene	ND		0.0060	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Dichlorobromomethane	ND		0.0060	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Bromoform	ND		0.0060	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Bromomethane	ND		0.0060	0.0049	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Carbon disulfide	ND		0.0060	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Carbon tetrachloride	ND		0.0060	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chlorobenzene	ND		0.0060	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chloroethane	ND		0.0060	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chloroform	ND		0.0060	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chloromethane	ND		0.0060	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
cis-1,2-Dichloroethene	ND		0.0060	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
cis-1,3-Dichloropropene	ND		0.0060	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Cyclohexane	ND		0.012	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chlorodibromomethane	ND		0.0060	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Dichlorodifluoromethane	ND		0.0060	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Ethylbenzene	ND		0.0060	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Isopropylbenzene	ND		0.0060	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methyl acetate	ND		0.030	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methyl tert-butyl ether	ND		0.0060	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methylcyclohexane	ND		0.012	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methylene Chloride	ND		0.030	0.014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Styrene	ND		0.0060	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Tetrachloroethene	ND		0.0060	0.00087	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Toluene	ND	+	0.0060	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
trans-1,2-Dichloroethene	ND		0.0060	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
trans-1,3-Dichloropropene	ND		0.0060	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Trichloroethene	ND		0.0060	0.00075	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Trichlorofluoromethane	ND		0.0060	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Vinyl chloride	ND		0.0060	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Xylenes, Total	ND	+	0.012	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/19/23 13:00	03/21/23 11:30	1
Dibromofluoromethane (Surr)	83		41 - 138	03/19/23 13:00	03/21/23 11:30	1
4-Bromofluorobenzene (Surr)	73		41 - 143	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	03/19/23 13:00	03/21/23 11:30	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.065	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4,5-Trichlorophenol	ND		0.19	0.089	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4,6-Trichlorophenol	ND		0.19	0.083	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dichlorophenol	ND		0.19	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dimethylphenol	ND		0.19	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dinitrophenol	ND		0.43	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dinitrotoluene	ND		0.26	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,6-Dinitrotoluene	ND		0.26	0.073	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Chloronaphthalene	ND		0.065	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Chlorophenol	ND		0.065	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Methylphenol	ND		0.26	0.040	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Nitroaniline	ND		0.26	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Nitrophenol	ND		0.065	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
3,3'-Dichlorobenzidine	ND		0.13	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
3-Nitroaniline	ND		0.26	0.064	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4,6-Dinitro-2-methylphenol	ND		0.43	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Bromophenyl phenyl ether	ND		0.065	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Chloro-3-methylphenol	ND		0.19	0.058	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Chloroaniline	ND		0.19	0.039	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Chlorophenyl phenyl ether	ND		0.065	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Nitroaniline	ND		0.26	0.078	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Nitrophenol	ND		0.43	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Acenaphthene	ND		0.019	0.0037	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Acenaphthylene	ND		0.019	0.0052	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Acetophenone	ND		0.13	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Anthracene	0.0072	J	0.019	0.0031	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Atrazine	ND		0.26	0.047	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzaldehyde	ND		0.13	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[a]anthracene	0.022		0.019	0.0044	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[a]pyrene	0.020		0.019	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[b]fluoranthene	0.032		0.019	0.0084	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[g,h,i]perylene	0.022		0.019	0.0092	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[k]fluoranthene	0.014	J	0.019	0.0090	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Bis(2-chloroethoxy)methane	ND		0.13	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Bis(2-chloroethyl)ether	ND		0.13	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Bis(2-ethylhexyl) phthalate	ND		0.091	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Butyl benzyl phthalate	ND		0.091	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Caprolactam	ND		0.43	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Carbazole	ND		0.065	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Chrysene	0.024		0.019	0.0019	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Dibenz(a,h)anthracene	0.010	J	0.019	0.0090	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.022	J	0.065	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Diethyl phthalate	ND		0.091	0.040	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Dimethyl phthalate	ND		0.091	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Di-n-butyl phthalate	ND		0.091	0.066	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Di-n-octyl phthalate	ND		0.091	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Fluoranthene	0.040		0.019	0.0058	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Fluorene	0.0058	J	0.019	0.0036	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachlorobenzene	ND		0.019	0.0037	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachlorobutadiene	ND		0.065	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachlorocyclopentadiene	ND		0.43	0.080	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachloroethane	ND		0.065	0.012	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Indeno[1,2,3-cd]pyrene	0.017	J	0.019	0.0095	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Isophorone	ND		0.065	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
N-Nitrosodi-n-propylamine	ND		0.065	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
N-Nitrosodiphenylamine	ND		0.065	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Naphthalene	0.024		0.019	0.0031	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Nitrobenzene	ND		0.13	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Pentachlorophenol	ND		0.19	0.075	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Phenanthrene	0.055		0.019	0.0029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Phenol	ND		0.065	0.010	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Pyrene	0.043		0.019	0.0028	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
3 & 4 Methylphenol	ND		0.52	0.038	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	03/22/23 08:13	03/24/23 16:07	1
Phenol-d5 (Surr)	50		26 - 120	03/22/23 08:13	03/24/23 16:07	1
Nitrobenzene-d5 (Surr)	42		25 - 120	03/22/23 08:13	03/24/23 16:07	1
2-Fluorophenol (Surr)	48		20 - 120	03/22/23 08:13	03/24/23 16:07	1
2-Fluorobiphenyl (Surr)	54		34 - 120	03/22/23 08:13	03/24/23 16:07	1
2,4,6-Tribromophenol (Surr)	87		10 - 120	03/22/23 08:13	03/24/23 16:07	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:08	1
Barium	1.1	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:08	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:08	1
Chromium	0.0054	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:08	1
Lead	0.0057	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:08	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:08	1
Silver	0.0029	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:08	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	76.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	24.0		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0053	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,1,2,2-Tetrachloroethane	ND		0.0053	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0053	0.0014	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,1,2-Trichloroethane	ND		0.0053	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,1-Dichloroethane	ND		0.0053	0.00073	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,1-Dichloroethene	ND		0.0053	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,2,4-Trichlorobenzene	ND		0.0053	0.0026	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,2-Dibromo-3-Chloropropane	ND		0.011	0.0038	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Ethylene Dibromide	ND		0.0053	0.00081	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichlorobenzene	ND		0.0053	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichloroethane	ND		0.0053	0.00081	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichloropropane	ND		0.0053	0.00090	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,3-Dichlorobenzene	ND		0.0053	0.00086	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
1,4-Dichlorobenzene	ND		0.0053	0.00093	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
2-Butanone (MEK)	ND		0.021	0.0038	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
2-Hexanone	ND		0.021	0.0043	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
4-Methyl-2-pentanone (MIBK)	ND		0.021	0.0039	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Acetone	0.047	B	0.026	0.022	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Benzene	ND		0.0053	0.00074	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Dichlorobromomethane	ND		0.0053	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Bromoform	ND		0.0053	0.0025	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Bromomethane	ND		0.0053	0.0044	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Carbon disulfide	ND		0.0053	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Carbon tetrachloride	ND		0.0053	0.0034	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Chlorobenzene	ND		0.0053	0.00097	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Chloroethane	ND		0.0053	0.0029	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Chloroform	ND		0.0053	0.00083	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Chloromethane	ND		0.0053	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
cis-1,2-Dichloroethene	ND		0.0053	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
cis-1,3-Dichloropropene	ND		0.0053	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Cyclohexane	ND		0.011	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Chlorodibromomethane	ND		0.0053	0.0029	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Dichlorodifluoromethane	ND		0.0053	0.0010	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Ethylbenzene	ND		0.0053	0.0011	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Isopropylbenzene	ND		0.0053	0.0020	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Methyl acetate	ND		0.026	0.0036	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Methyl tert-butyl ether	ND		0.0053	0.0021	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Methylcyclohexane	ND		0.011	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Methylene Chloride	ND		0.026	0.013	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Styrene	ND		0.0053	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Tetrachloroethene	ND		0.0053	0.00077	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Toluene	ND		0.0053	0.00082	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
trans-1,2-Dichloroethene	ND		0.0053	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
trans-1,3-Dichloropropene	ND		0.0053	0.0039	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Trichloroethene	ND		0.0053	0.00067	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Trichlorofluoromethane	ND		0.0053	0.0028	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Vinyl chloride	ND		0.0053	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1
Xylenes, Total	ND		0.011	0.0017	mg/Kg	✱	03/19/23 13:00	03/21/23 21:57	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	121		56 - 125	03/19/23 13:00	03/21/23 21:57	1
Dibromofluoromethane (Surr)	105		41 - 138	03/19/23 13:00	03/21/23 21:57	1
4-Bromofluorobenzene (Surr)	126		41 - 143	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/19/23 13:00	03/21/23 21:57	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.064	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4,5-Trichlorophenol	ND		0.19	0.089	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4,6-Trichlorophenol	ND		0.19	0.082	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dichlorophenol	ND		0.19	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dimethylphenol	ND		0.19	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dinitrophenol	ND		0.42	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dinitrotoluene	ND		0.26	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,6-Dinitrotoluene	ND		0.26	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Chloronaphthalene	ND		0.064	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Chlorophenol	ND		0.064	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Methylnaphthalene	ND		0.019	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Methylphenol	ND		0.26	0.040	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Nitroaniline	ND		0.26	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Nitrophenol	ND		0.064	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
3,3'-Dichlorobenzidine	ND		0.13	0.055	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
3-Nitroaniline	ND		0.26	0.063	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4,6-Dinitro-2-methylphenol	ND		0.42	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Bromophenyl phenyl ether	ND		0.064	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Chloro-3-methylphenol	ND		0.19	0.058	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Chloroaniline	ND		0.19	0.039	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Chlorophenyl phenyl ether	ND		0.064	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Nitroaniline	ND		0.26	0.077	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Nitrophenol	ND		0.42	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Acenaphthene	ND		0.019	0.0037	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Acenaphthylene	ND		0.019	0.0052	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Acetophenone	ND		0.13	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Anthracene	ND		0.019	0.0031	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Atrazine	ND		0.26	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzaldehyde	ND		0.13	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[a]anthracene	ND		0.019	0.0044	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[a]pyrene	ND		0.019	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[b]fluoranthene	ND		0.019	0.0084	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[g,h,i]perylene	ND		0.019	0.0091	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[k]fluoranthene	ND		0.019	0.0089	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Bis(2-chloroethoxy)methane	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Bis(2-chloroethyl)ether	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Bis(2-ethylhexyl) phthalate	ND		0.090	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Butyl benzyl phthalate	ND		0.090	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Caprolactam	ND		0.42	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Carbazole	ND		0.064	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Chrysene	ND		0.019	0.0019	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Dibenz(a,h)anthracene	ND		0.019	0.0089	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.064	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Diethyl phthalate	ND		0.090	0.040	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Dimethyl phthalate	ND		0.090	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Di-n-butyl phthalate	ND		0.090	0.065	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Di-n-octyl phthalate	ND		0.090	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Fluoranthene	ND		0.019	0.0057	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Fluorene	ND		0.019	0.0035	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachlorobenzene	ND		0.019	0.0037	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachlorobutadiene	ND		0.064	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachlorocyclopentadiene	ND		0.42	0.080	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachloroethane	ND		0.064	0.012	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Indeno[1,2,3-cd]pyrene	ND		0.019	0.0095	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Isophorone	ND		0.064	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
N-Nitrosodi-n-propylamine	ND		0.064	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
N-Nitrosodiphenylamine	ND		0.064	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Naphthalene	ND		0.019	0.0031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Nitrobenzene	ND		0.13	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Pentachlorophenol	ND		0.19	0.075	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Phenanthrene	ND		0.019	0.0029	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Phenol	ND		0.064	0.010	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Pyrene	ND		0.019	0.0028	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
3 & 4 Methylphenol	ND		0.52	0.037	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	95		46 - 137	03/22/23 08:13	03/24/23 14:35	1
Phenol-d5 (Surr)	51		26 - 120	03/22/23 08:13	03/24/23 14:35	1
Nitrobenzene-d5 (Surr)	42		25 - 120	03/22/23 08:13	03/24/23 14:35	1
2-Fluorophenol (Surr)	49		20 - 120	03/22/23 08:13	03/24/23 14:35	1
2-Fluorobiphenyl (Surr)	48		34 - 120	03/22/23 08:13	03/24/23 14:35	1
2,4,6-Tribromophenol (Surr)	68		10 - 120	03/22/23 08:13	03/24/23 14:35	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.017	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:21	1
Barium	0.88	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:21	1
Cadmium	0.0015	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:21	1
Chromium	0.0063	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:21	1
Lead	0.0043	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:21	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:21	1
Silver	0.0021	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:21	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	21.0		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1,2-Trichloroethane	ND	+	0.0050	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1-Dichloroethane	ND		0.0050	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Ethylene Dibromide	ND		0.0050	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichloroethane	ND		0.0050	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichloropropane	ND		0.0050	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,4-Dichlorobenzene	ND		0.0050	0.00089	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
2-Butanone (MEK)	0.0051	J	0.020	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
2-Hexanone	ND		0.020	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Acetone	0.028		0.025	0.021	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Benzene	ND		0.0050	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Bromoform	ND		0.0050	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Bromomethane	ND		0.0050	0.0042	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chloroethane	ND		0.0050	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chloroform	ND		0.0050	0.00079	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chloromethane	ND		0.0050	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Cyclohexane	ND		0.010	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Dichlorodifluoromethane	ND		0.0050	0.00095	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Ethylbenzene	ND		0.0050	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methyl acetate	ND		0.025	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methylene Chloride	ND		0.025	0.012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Styrene	ND		0.0050	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Toluene	ND	+	0.0050	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Trichloroethene	ND		0.0050	0.00064	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Vinyl chloride	0.0027	J	0.0050	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Xylenes, Total	ND	+	0.010	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/19/23 13:00	03/21/23 12:13	1
Dibromofluoromethane (Surr)	89		41 - 138	03/19/23 13:00	03/21/23 12:13	1
4-Bromofluorobenzene (Surr)	73		41 - 143	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	03/19/23 13:00	03/21/23 12:13	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.13	0.043	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
bis (2-chloroisopropyl) ether	ND		0.25	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4,5-Trichlorophenol	ND		0.38	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4,6-Trichlorophenol	ND		0.38	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dichlorophenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dimethylphenol	ND		0.38	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dinitrophenol	ND		0.83	0.36	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dinitrotoluene	ND		0.50	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,6-Dinitrotoluene	ND		0.50	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Chloronaphthalene	ND		0.13	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Chlorophenol	ND		0.13	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Methylnaphthalene	0.069		0.038	0.0049	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Methylphenol	ND		0.50	0.078	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Nitroaniline	ND		0.50	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Nitrophenol	ND		0.13	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
3,3'-Dichlorobenzidine	ND		0.25	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
3-Nitroaniline	ND		0.50	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4,6-Dinitro-2-methylphenol	ND		0.83	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Bromophenyl phenyl ether	ND		0.13	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Chloro-3-methylphenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Chloroaniline	ND		0.38	0.075	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Chlorophenyl phenyl ether	ND		0.13	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Nitroaniline	ND		0.50	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Nitrophenol	ND		0.83	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Acenaphthene	0.010	J	0.038	0.0072	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Acenaphthylene	ND		0.038	0.010	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Acetophenone	ND		0.25	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Anthracene	0.012	J	0.038	0.0061	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Atrazine	ND		0.50	0.090	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzaldehyde	ND		0.25	0.058	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[a]anthracene	0.035	J	0.038	0.0086	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[a]pyrene	0.030	J	0.038	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[b]fluoranthene	0.047		0.038	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[g,h,i]perylene	0.028	J	0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[k]fluoranthene	0.026	J	0.038	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Bis(2-chloroethoxy)methane	ND		0.25	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Bis(2-chloroethyl)ether	ND		0.25	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Bis(2-ethylhexyl) phthalate	ND		0.18	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Butyl benzyl phthalate	ND		0.18	0.055	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Caprolactam	ND		0.83	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Carbazole	ND		0.13	0.048	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Chrysene	0.070		0.038	0.0037	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Dibenz(a,h)anthracene	0.018	J	0.038	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.13	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Diethyl phthalate	ND		0.18	0.078	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Dimethyl phthalate	ND		0.18	0.035	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Di-n-butyl phthalate	ND		0.18	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Di-n-octyl phthalate	ND		0.18	0.070	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Fluoranthene	0.060		0.038	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Fluorene	0.0092	J	0.038	0.0069	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Hexachlorobenzene	ND		0.038	0.0072	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Hexachlorobutadiene	ND		0.13	0.030	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Hexachlorocyclopentadiene	ND		0.83	0.16	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Hexachloroethane	ND		0.13	0.023	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Indeno[1,2,3-cd]pyrene	0.028	J	0.038	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Isophorone	ND		0.13	0.030	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
N-Nitrosodi-n-propylamine	ND		0.13	0.028	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
N-Nitrosodiphenylamine	ND		0.13	0.030	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Naphthalene	0.040		0.038	0.0061	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Nitrobenzene	ND		0.25	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Pentachlorophenol	ND		0.38	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Phenanthrene	0.091		0.038	0.0056	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Phenol	ND		0.13	0.020	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
Pyrene	0.062		0.038	0.0054	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2
3 & 4 Methylphenol	ND		1.0	0.073	mg/Kg	✱	03/22/23 08:13	03/24/23 13:50	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	101		46 - 137	03/22/23 08:13	03/24/23 13:50	2
Phenol-d5 (Surr)	78		26 - 120	03/22/23 08:13	03/24/23 13:50	2
Nitrobenzene-d5 (Surr)	66		25 - 120	03/22/23 08:13	03/24/23 13:50	2
2-Fluorophenol (Surr)	77		20 - 120	03/22/23 08:13	03/24/23 13:50	2
2-Fluorobiphenyl (Surr)	80		34 - 120	03/22/23 08:13	03/24/23 13:50	2
2,4,6-Tribromophenol (Surr)	96		10 - 120	03/22/23 08:13	03/24/23 13:50	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:25	1
Barium	0.83	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:25	1
Cadmium	0.0011	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:25	1
Chromium	0.0052	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:25	1
Lead	0.0040	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:25	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:25	1
Silver	0.0015	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:25	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.6		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	21.4		0.1	0.1	%			03/21/23 11:05	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0061	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,1,2,2-Tetrachloroethane	ND		0.0061	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0061	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,1,2-Trichloroethane	ND	+	0.0061	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,1-Dichloroethane	ND		0.0061	0.00084	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,1-Dichloroethene	ND		0.0061	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,2,4-Trichlorobenzene	ND		0.0061	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,2-Dibromo-3-Chloropropane	ND		0.012	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Ethylene Dibromide	ND		0.0061	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichlorobenzene	ND		0.0061	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichloroethane	ND		0.0061	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichloropropane	ND		0.0061	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,3-Dichlorobenzene	ND		0.0061	0.00099	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
1,4-Dichlorobenzene	ND		0.0061	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
2-Butanone (MEK)	0.012	J	0.024	0.0043	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
2-Hexanone	ND		0.024	0.0050	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
4-Methyl-2-pentanone (MIBK)	ND		0.024	0.0045	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Acetone	0.069		0.030	0.026	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Benzene	ND		0.0061	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Dichlorobromomethane	ND		0.0061	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Bromoform	ND		0.0061	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Bromomethane	ND		0.0061	0.0051	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Carbon disulfide	ND		0.0061	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Carbon tetrachloride	ND		0.0061	0.0040	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Chlorobenzene	ND		0.0061	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Chloroethane	ND		0.0061	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Chloroform	ND		0.0061	0.00096	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Chloromethane	ND		0.0061	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
cis-1,2-Dichloroethene	ND		0.0061	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
cis-1,3-Dichloropropene	ND		0.0061	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Cyclohexane	ND		0.012	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Chlorodibromomethane	ND		0.0061	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Dichlorodifluoromethane	ND		0.0061	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Ethylbenzene	ND		0.0061	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Isopropylbenzene	ND		0.0061	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Methyl acetate	ND		0.030	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Methyl tert-butyl ether	ND		0.0061	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Methylcyclohexane	ND		0.012	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Methylene Chloride	ND		0.030	0.015	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Styrene	ND		0.0061	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Tetrachloroethene	ND		0.0061	0.00089	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Toluene	ND	+	0.0061	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
trans-1,2-Dichloroethene	ND		0.0061	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
trans-1,3-Dichloropropene	ND		0.0061	0.0045	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Trichloroethene	ND		0.0061	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Trichlorofluoromethane	ND		0.0061	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Vinyl chloride	0.0089		0.0061	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1
Xylenes, Total	ND	+	0.012	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 14:00	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	84		56 - 125	03/19/23 13:00	03/21/23 14:00	1
Dibromofluoromethane (Surr)	84		41 - 138	03/19/23 13:00	03/21/23 14:00	1
4-Bromofluorobenzene (Surr)	70		41 - 143	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	03/19/23 13:00	03/21/23 14:00	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.063	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4,5-Trichlorophenol	ND		0.19	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4,6-Trichlorophenol	ND		0.19	0.081	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dichlorophenol	ND		0.19	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dimethylphenol	ND		0.19	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dinitrophenol	ND		0.42	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dinitrotoluene	ND		0.25	0.079	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,6-Dinitrotoluene	ND		0.25	0.071	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Chloronaphthalene	ND		0.063	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Chlorophenol	ND		0.063	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Methylphenol	ND		0.25	0.039	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Nitroaniline	ND		0.25	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Nitrophenol	ND		0.063	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
3,3'-Dichlorobenzidine	ND		0.13	0.054	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
3-Nitroaniline	ND		0.25	0.062	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4,6-Dinitro-2-methylphenol	ND		0.42	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Bromophenyl phenyl ether	ND		0.063	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Chloro-3-methylphenol	ND		0.19	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Chloroaniline	ND		0.19	0.038	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Chlorophenyl phenyl ether	ND		0.063	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Nitroaniline	ND		0.25	0.076	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Nitrophenol	ND		0.42	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Acenaphthene	0.0057	J	0.019	0.0036	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Acenaphthylene	ND		0.019	0.0051	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Acetophenone	ND		0.13	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Anthracene	0.0086	J	0.019	0.0031	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Atrazine	ND		0.25	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzaldehyde	ND		0.13	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[a]anthracene	0.032		0.019	0.0043	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[a]pyrene	0.028		0.019	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[b]fluoranthene	0.044		0.019	0.0082	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[g,h,i]perylene	0.024		0.019	0.0090	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[k]fluoranthene	0.018	J	0.019	0.0088	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Bis(2-chloroethoxy)methane	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Bis(2-chloroethyl)ether	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Bis(2-ethylhexyl) phthalate	ND		0.089	0.065	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Butyl benzyl phthalate	ND		0.089	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Caprolactam	ND		0.42	0.095	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Carbazole	ND		0.063	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Chrysene	0.032		0.019	0.0019	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Dibenz(a,h)anthracene	0.011	J	0.019	0.0088	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.024	J	0.063	0.016	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Diethyl phthalate	ND		0.089	0.039	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Dimethyl phthalate	ND		0.089	0.018	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Di-n-butyl phthalate	ND		0.089	0.064	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Di-n-octyl phthalate	ND		0.089	0.035	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Fluoranthene	0.054		0.019	0.0056	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Fluorene	0.0061	J	0.019	0.0035	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachlorobenzene	ND		0.019	0.0036	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachlorobutadiene	ND		0.063	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachlorocyclopentadiene	ND		0.42	0.079	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachloroethane	ND		0.063	0.011	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Indeno[1,2,3-cd]pyrene	0.021		0.019	0.0093	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Isophorone	ND		0.063	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
N-Nitrosodi-n-propylamine	ND		0.063	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
N-Nitrosodiphenylamine	ND		0.063	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Naphthalene	0.024		0.019	0.0031	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Nitrobenzene	ND		0.13	0.016	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Pentachlorophenol	ND		0.19	0.073	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Phenanthrene	0.067		0.019	0.0028	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Phenol	ND		0.063	0.010	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Pyrene	0.055		0.019	0.0027	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
3 & 4 Methylphenol	ND		0.51	0.037	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	03/22/23 08:13	03/24/23 16:30	1
Phenol-d5 (Surr)	52		26 - 120	03/22/23 08:13	03/24/23 16:30	1
Nitrobenzene-d5 (Surr)	41		25 - 120	03/22/23 08:13	03/24/23 16:30	1
2-Fluorophenol (Surr)	48		20 - 120	03/22/23 08:13	03/24/23 16:30	1
2-Fluorobiphenyl (Surr)	56		34 - 120	03/22/23 08:13	03/24/23 16:30	1
2,4,6-Tribromophenol (Surr)	90		10 - 120	03/22/23 08:13	03/24/23 16:30	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.014	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:30	1
Barium	0.99	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:30	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:30	1
Chromium	0.0088	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:30	1
Lead	0.0041	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:30	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:30	1
Silver	0.0029	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:30	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.4		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	20.6		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 16:16	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 16:16	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 16:16	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 16:16	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 16:16	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 16:16	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:16	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:16	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 16:16	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 16:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		03/22/23 16:16	1
Dibromofluoromethane (Surr)	98		71 - 121		03/22/23 16:16	1
4-Bromofluorobenzene (Surr)	108		80 - 120		03/22/23 16:16	1
1,2-Dichloroethane-d4 (Surr)	100		76 - 120		03/22/23 16:16	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 15:15	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 15:15	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 15:15	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 15:15	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 15:15	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 15:15	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 15:15	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 15:15	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 15:15	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 15:15	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 15:15	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 15:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		46 - 137	03/21/23 12:03	03/23/23 15:15	1
Phenol-d5 (Surr)	61		26 - 120	03/21/23 12:03	03/23/23 15:15	1
Nitrobenzene-d5 (Surr)	76		24 - 120	03/21/23 12:03	03/23/23 15:15	1
2-Fluorophenol (Surr)	70		19 - 120	03/21/23 12:03	03/23/23 15:15	1
2-Fluorobiphenyl (Surr)	91		33 - 120	03/21/23 12:03	03/23/23 15:15	1
2,4,6-Tribromophenol (Surr)	114		10 - 120	03/21/23 12:03	03/23/23 15:15	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 14:07	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 14:07	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 14:07	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 14:07	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 14:07	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 14:07	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 14:07	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	80		10 - 145	03/21/23 12:08	03/22/23 14:07	1
DCB Decachlorobiphenyl	79		10 - 145	03/21/23 12:08	03/22/23 14:07	1
Tetrachloro-m-xylene	63		10 - 123	03/21/23 12:08	03/22/23 14:07	1
Tetrachloro-m-xylene	67		10 - 123	03/21/23 12:08	03/22/23 14:07	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		65	32	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1221	ND		65	39	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1232	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1242	ND		65	25	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1248	ND		65	22	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1254	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1260	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1262	ND		65	29	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1268	ND		65	21	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	88		10 - 149	03/21/23 08:36	03/21/23 16:42	1
Tetrachloro-m-xylene	88		10 - 149	03/21/23 08:36	03/21/23 16:42	1
DCB Decachlorobiphenyl	82		10 - 174	03/21/23 08:36	03/21/23 16:42	1
DCB Decachlorobiphenyl	86		10 - 174	03/21/23 08:36	03/21/23 16:42	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 08:39	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 08:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	53		26 - 136	03/23/23 21:15	03/24/23 08:39	1
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	03/23/23 21:15	03/24/23 08:39	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	27	B	6.2	0.066	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,6,7,8-HpCDF	10	B	6.2	0.021	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,7,8-HxCDD	0.36	J B	6.2	0.021	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,7,8-HxCDF	1.9	J B	6.2	0.040	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,7,8,9-HpCDF	1.3	J B	6.2	0.026	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,6,7,8-HxCDD	1.2	J B	6.2	0.020	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,6,7,8-HxCDF	1.6	J B	6.2	0.040	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8-PeCDD	0.58	J I B	6.2	0.012	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8-PeCDF	0.72	J B	6.2	0.024	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8,9-HxCDD	0.88	J B	6.2	0.020	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8,9-HxCDF	0.42	J B	6.2	0.044	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,4,6,7,8-HxCDF	1.2	J B	6.2	0.039	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,4,7,8-PeCDF	1.6	J B	6.2	0.019	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,7,8-TCDD	0.44	J B	1.2	0.0093	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,7,8-TCDF	0.43	J I	1.2	0.022	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
OCDD	450	B	12	0.075	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
OCDF	22	B	12	0.034	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	12	B	6.2	0.020	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total HxCDF	19	B	6.2	0.041	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total HpCDD	27	B	6.2	0.066	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total HpCDF	25	B	6.2	0.023	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total PeCDD	5.4	J I B	6.2	0.012	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total PeCDF	12	I B	6.2	0.021	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total TCDD	3.5	I B	1.2	0.0093	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total TCDF	6.2	I	1.2	0.022	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	100		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-OCDD	104		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,7,8-TCDF	72		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,7,8-TCDD	77		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,4,7,8-PeCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,4,6,7,8-HxCDF	74		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8,9-HxCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8,9-HxCDD	78		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8-PeCDF	73		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8-PeCDD	72		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,6,7,8-HxCDF	78		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,6,7,8-HxCDD	78		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,7,8,9-HpCDF	81		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,7,8-HxCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,7,8-HxCDD	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,6,7,8-HpCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,6,7,8-HpCDD	85		40 - 135				03/28/23 09:37	03/29/23 22:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.6		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	19.4		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 16:39	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 16:39	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 16:39	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 16:39	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 16:39	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 16:39	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:39	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:39	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 16:39	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	87		80 - 120		03/22/23 16:39	1
Dibromofluoromethane (Surr)	86		71 - 121		03/22/23 16:39	1
4-Bromofluorobenzene (Surr)	92		80 - 120		03/22/23 16:39	1
1,2-Dichloroethane-d4 (Surr)	92		76 - 120		03/22/23 16:39	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 15:38	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 15:38	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 15:38	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 15:38	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 15:38	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 15:38	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 15:38	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 15:38	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 15:38	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 15:38	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 15:38	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 15:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	115		46 - 137	03/21/23 12:03	03/23/23 15:38	1
Phenol-d5 (Surr)	52		26 - 120	03/21/23 12:03	03/23/23 15:38	1
Nitrobenzene-d5 (Surr)	66		24 - 120	03/21/23 12:03	03/23/23 15:38	1
2-Fluorophenol (Surr)	57		19 - 120	03/21/23 12:03	03/23/23 15:38	1
2-Fluorobiphenyl (Surr)	84		33 - 120	03/21/23 12:03	03/23/23 15:38	1
2,4,6-Tribromophenol (Surr)	112		10 - 120	03/21/23 12:03	03/23/23 15:38	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 14:39	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 14:39	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 14:39	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 14:39	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 14:39	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 14:39	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 14:39	1

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Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	76		10 - 145	03/21/23 12:08	03/22/23 14:39	1
DCB Decachlorobiphenyl	69		10 - 145	03/21/23 12:08	03/22/23 14:39	1
Tetrachloro-m-xylene	66		10 - 123	03/21/23 12:08	03/22/23 14:39	1
Tetrachloro-m-xylene	64		10 - 123	03/21/23 12:08	03/22/23 14:39	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		65	32	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1221	ND		65	39	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1232	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1242	ND		65	25	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1248	ND		65	22	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1254	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1260	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1262	ND		65	28	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1268	ND		65	21	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	88		10 - 149	03/21/23 08:36	03/21/23 16:59	1
DCB Decachlorobiphenyl	88		10 - 174	03/21/23 08:36	03/21/23 16:59	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 09:07	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 09:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	53		26 - 136	03/23/23 21:15	03/24/23 09:07	1
2,4-Dichlorophenylacetic acid (Surr)	59		26 - 136	03/23/23 21:15	03/24/23 09:07	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	6.5	B	6.0	0.060	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,6,7,8-HpCDF	0.84	J I B	6.0	0.0084	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,7,8-HxCDD	0.15	J I B	6.0	0.0066	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,7,8-HxCDF	0.21	J B	6.0	0.010	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,7,8,9-HpCDF	0.13	J I B	6.0	0.011	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,6,7,8-HxCDD	0.18	J I B	6.0	0.0071	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,6,7,8-HxCDF	0.16	J B	6.0	0.010	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8-PeCDD	ND		6.0	0.0044	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8-PeCDF	0.12	J B	6.0	0.0068	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8,9-HxCDD	0.26	J B	6.0	0.0067	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8,9-HxCDF	ND		6.0	0.012	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,4,6,7,8-HxCDF	0.18	J B	6.0	0.0096	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,4,7,8-PeCDF	0.18	J B	6.0	0.0053	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,7,8-TCDD	ND		1.2	0.013	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,7,8-TCDF	ND		1.2	0.0061	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
OCDD	250	B	12	0.065	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
OCDF	1.7	J B	12	0.013	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
Total HxCDD	3.9	J I B	6.0	0.0068	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
Total HxCDF	1.4	J I B	6.0	0.011	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1

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 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	6.5	B	6.0	0.060	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total HpCDF	0.97	J I B	6.0	0.0097	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total PeCDD	0.76	J I B	6.0	0.0044	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total PeCDF	1.6	J I B	6.0	0.0060	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total TCDD	0.20	J I B	1.2	0.013	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total TCDF	0.49	J I	1.2	0.0061	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	91		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-OCDD	95		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,7,8-TCDF	66		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,7,8-TCDD	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,4,7,8-PeCDF	73		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,4,6,7,8-HxCDF	71		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8,9-HxCDF	69		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8,9-HxCDD	73		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8-PeCDF	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8-PeCDD	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,6,7,8-HxCDF	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,6,7,8-HxCDD	75		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,7,8,9-HpCDF	75		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,7,8-HxCDF	70		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,7,8-HxCDD	71		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,6,7,8-HpCDF	71		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,6,7,8-HpCDD	78		40 - 135				03/28/23 09:37	03/29/23 23:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.7		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	20.3		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1,2,2-Tetrachloroethane	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0042	0.0011	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1,2-Trichloroethane	ND		0.0042	0.00096	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1-Dichloroethane	ND		0.0042	0.00059	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1-Dichloroethene	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2,4-Trichlorobenzene	ND		0.0042	0.0021	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dibromo-3-Chloropropane	ND		0.0085	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Ethylene Dibromide	ND		0.0042	0.00065	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichlorobenzene	ND		0.0042	0.00094	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichloroethane	ND		0.0042	0.00065	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichloropropane	ND		0.0042	0.00072	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,3-Dichlorobenzene	ND		0.0042	0.00069	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,4-Dichlorobenzene	ND		0.0042	0.00075	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
2-Butanone (MEK)	ND		0.017	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
2-Hexanone	ND		0.017	0.0035	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
4-Methyl-2-pentanone (MIBK)	ND		0.017	0.0031	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Acetone	ND		0.021	0.018	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Benzene	ND		0.0042	0.00059	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Dichlorobromomethane	ND		0.0042	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Bromoform	ND		0.0042	0.0020	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Bromomethane	ND		0.0042	0.0035	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Carbon disulfide	ND		0.0042	0.00098	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Carbon tetrachloride	ND		0.0042	0.0028	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chlorobenzene	ND		0.0042	0.00077	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chloroethane	ND		0.0042	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chloroform	ND		0.0042	0.00067	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chloromethane	ND		0.0042	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
cis-1,2-Dichloroethene	ND		0.0042	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
cis-1,3-Dichloropropene	ND		0.0042	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Cyclohexane	ND		0.0085	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chlorodibromomethane	ND		0.0042	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Dichlorodifluoromethane	ND		0.0042	0.00080	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Ethylbenzene	ND		0.0042	0.00089	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Isopropylbenzene	ND		0.0042	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methyl acetate	ND		0.021	0.0029	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methyl tert-butyl ether	ND		0.0042	0.0017	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methylcyclohexane	ND		0.0085	0.0010	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methylene Chloride	ND		0.021	0.010	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Styrene	ND		0.0042	0.00098	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Tetrachloroethene	ND		0.0042	0.00062	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Toluene	ND		0.0042	0.00065	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
trans-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
trans-1,3-Dichloropropene	ND		0.0042	0.0031	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Trichloroethene	ND		0.0042	0.00054	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Trichlorofluoromethane	ND		0.0042	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Vinyl chloride	0.0048		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Xylenes, Total	ND		0.0085	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	122		56 - 125	03/19/23 13:00	03/21/23 22:22	1
Dibromofluoromethane (Surr)	112		41 - 138	03/19/23 13:00	03/21/23 22:22	1
4-Bromofluorobenzene (Surr)	127		41 - 143	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichloroethane-d4 (Surr)	128	S1+	58 - 125	03/19/23 13:00	03/21/23 22:22	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.049	J	0.082	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
bis (2-chloroisopropyl) ether	ND		0.16	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4,5-Trichlorophenol	ND		0.25	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4,6-Trichlorophenol	ND		0.25	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dichlorophenol	ND		0.25	0.073	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dimethylphenol	ND		0.25	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dinitrophenol	ND		0.54	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dinitrotoluene	ND		0.33	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,6-Dinitrotoluene	ND		0.33	0.092	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Chloronaphthalene	ND		0.082	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Chlorophenol	ND		0.082	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Methylnaphthalene	0.49		0.025	0.0032	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Methylphenol	ND		0.33	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Nitroaniline	ND		0.33	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Nitrophenol	ND		0.082	0.021	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
3,3'-Dichlorobenzidine	ND		0.16	0.071	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
3-Nitroaniline	ND		0.33	0.081	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4,6-Dinitro-2-methylphenol	ND		0.54	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Bromophenyl phenyl ether	ND		0.082	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Chloro-3-methylphenol	ND		0.25	0.074	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Chloroaniline	ND		0.25	0.049	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Chlorophenyl phenyl ether	ND		0.082	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Nitroaniline	ND		0.33	0.099	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Nitrophenol	ND		0.54	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Acenaphthene	0.035		0.025	0.0047	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Acenaphthylene	0.035		0.025	0.0066	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Acetophenone	ND		0.16	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Anthracene	0.083		0.025	0.0040	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Atrazine	ND		0.33	0.059	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzaldehyde	0.065	J	0.16	0.038	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[a]anthracene	0.41		0.025	0.0056	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[a]pyrene	0.50		0.025	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[b]fluoranthene	0.80		0.025	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[g,h,i]perylene	0.20		0.025	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[k]fluoranthene	0.28		0.025	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Bis(2-chloroethoxy)methane	ND		0.16	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Bis(2-chloroethyl)ether	ND		0.16	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Bis(2-ethylhexyl) phthalate	0.14		0.12	0.084	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Butyl benzyl phthalate	ND		0.12	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Caprolactam	ND		0.54	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Carbazole	0.063	J	0.082	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Chrysene	0.62		0.025	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Dibenz(a,h)anthracene	0.066		0.025	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.19		0.082	0.021	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Diethyl phthalate	ND		0.12	0.051	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Dimethyl phthalate	ND		0.12	0.023	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Di-n-butyl phthalate	ND		0.12	0.083	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Di-n-octyl phthalate	ND		0.12	0.046	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Fluoranthene	0.90		0.025	0.0073	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Fluorene	0.047		0.025	0.0045	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachlorobenzene	ND		0.025	0.0047	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachlorobutadiene	ND		0.082	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachlorocyclopentadiene	ND		0.54	0.10	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachloroethane	ND		0.082	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Indeno[1,2,3-cd]pyrene	0.19		0.025	0.012	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Isophorone	ND		0.082	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
N-Nitrosodi-n-propylamine	ND		0.082	0.018	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
N-Nitrosodiphenylamine	ND		0.082	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Naphthalene	0.28		0.025	0.0040	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Nitrobenzene	ND		0.16	0.021	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Pentachlorophenol	ND		0.25	0.096	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Phenanthrene	0.54		0.025	0.0037	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Phenol	0.014	J	0.082	0.013	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Pyrene	0.85		0.025	0.0035	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
3 & 4 Methylphenol	ND		0.66	0.048	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137	03/22/23 08:13	03/24/23 18:24	1
Phenol-d5 (Surr)	62		26 - 120	03/22/23 08:13	03/24/23 18:24	1
Nitrobenzene-d5 (Surr)	40		25 - 120	03/22/23 08:13	03/24/23 18:24	1
2-Fluorophenol (Surr)	55		20 - 120	03/22/23 08:13	03/24/23 18:24	1
2-Fluorobiphenyl (Surr)	66		34 - 120	03/22/23 08:13	03/24/23 18:24	1
2,4,6-Tribromophenol (Surr)	102		10 - 120	03/22/23 08:13	03/24/23 18:24	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.016	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:35	1
Barium	0.43	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:35	1
Cadmium	0.0031	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:35	1
Chromium	0.0042	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:35	1
Lead	0.020	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:35	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:35	1
Silver	0.0018	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:35	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	60.5		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	39.5		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0047	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1,2,2-Tetrachloroethane	ND		0.0047	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0047	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1,2-Trichloroethane	ND	+	0.0047	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1-Dichloroethane	ND		0.0047	0.00065	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1-Dichloroethene	ND		0.0047	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2,4-Trichlorobenzene	ND		0.0047	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dibromo-3-Chloropropane	ND		0.0093	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Ethylene Dibromide	ND		0.0047	0.00072	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichlorobenzene	ND		0.0047	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichloroethane	ND		0.0047	0.00072	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichloropropane	ND		0.0047	0.00079	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,3-Dichlorobenzene	ND		0.0047	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,4-Dichlorobenzene	ND		0.0047	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
2-Butanone (MEK)	ND		0.019	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
2-Hexanone	ND		0.019	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
4-Methyl-2-pentanone (MIBK)	ND		0.019	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Acetone	ND		0.023	0.020	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Benzene	ND		0.0047	0.00065	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Dichlorobromomethane	ND		0.0047	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Bromoform	ND		0.0047	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Bromomethane	ND		0.0047	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Carbon disulfide	ND		0.0047	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Carbon tetrachloride	ND		0.0047	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chlorobenzene	ND		0.0047	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chloroethane	ND		0.0047	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chloroform	ND		0.0047	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chloromethane	ND		0.0047	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
cis-1,2-Dichloroethene	ND		0.0047	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
cis-1,3-Dichloropropene	ND		0.0047	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Cyclohexane	ND		0.0093	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chlorodibromomethane	ND		0.0047	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Dichlorodifluoromethane	ND		0.0047	0.00088	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Ethylbenzene	ND		0.0047	0.00098	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Isopropylbenzene	ND		0.0047	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methyl acetate	ND		0.023	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methyl tert-butyl ether	ND		0.0047	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methylcyclohexane	ND		0.0093	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methylene Chloride	ND		0.023	0.011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Styrene	ND		0.0047	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Tetrachloroethene	ND		0.0047	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Toluene	ND	+	0.0047	0.00072	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
trans-1,2-Dichloroethene	ND		0.0047	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
trans-1,3-Dichloropropene	ND		0.0047	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Trichloroethene	ND		0.0047	0.00059	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Trichlorofluoromethane	ND		0.0047	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Vinyl chloride	ND		0.0047	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Xylenes, Total	ND	+	0.0093	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	90		56 - 125	03/19/23 13:00	03/21/23 12:56	1
Dibromofluoromethane (Surr)	86		41 - 138	03/19/23 13:00	03/21/23 12:56	1
4-Bromofluorobenzene (Surr)	59		41 - 143	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichloroethane-d4 (Surr)	98		58 - 125	03/19/23 13:00	03/21/23 12:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.14		0.12	0.041	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
bis (2-chloroisopropyl) ether	ND		0.24	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4,5-Trichlorophenol	ND		0.36	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4,6-Trichlorophenol	ND		0.36	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dichlorophenol	ND		0.36	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dimethylphenol	ND		0.36	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dinitrophenol	ND		0.80	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dinitrotoluene	ND		0.48	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,6-Dinitrotoluene	ND		0.48	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Chloronaphthalene	ND		0.12	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Chlorophenol	ND		0.12	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Methylnaphthalene	0.95		0.036	0.0047	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Methylphenol	ND		0.48	0.075	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Nitroaniline	ND		0.48	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Nitrophenol	ND		0.12	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
3,3'-Dichlorobenzidine	ND		0.24	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
3-Nitroaniline	ND		0.48	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4,6-Dinitro-2-methylphenol	ND		0.80	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Bromophenyl phenyl ether	ND		0.12	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Chloro-3-methylphenol	ND		0.36	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Chloroaniline	ND		0.36	0.073	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Chlorophenyl phenyl ether	ND		0.12	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Nitroaniline	ND		0.48	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Nitrophenol	ND		0.80	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Acenaphthene	0.39		0.036	0.0069	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Acenaphthylene	0.26		0.036	0.0097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Acetophenone	ND		0.24	0.027	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Anthracene	0.40		0.036	0.0058	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Atrazine	ND		0.48	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzaldehyde	ND		0.24	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[a]anthracene	0.90		0.036	0.0083	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[a]pyrene	0.92		0.036	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[b]fluoranthene	1.4		0.036	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[g,h,i]perylene	0.36		0.036	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[k]fluoranthene	0.48		0.036	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Bis(2-chloroethoxy)methane	ND		0.24	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Bis(2-chloroethyl)ether	ND		0.24	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Bis(2-ethylhexyl) phthalate	ND		0.17	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Butyl benzyl phthalate	ND		0.17	0.053	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Caprolactam	ND		0.80	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Carbazole	0.21		0.12	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Chrysene	0.85		0.036	0.0036	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Dibenz(a,h)anthracene	0.11		0.036	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.65		0.12	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Diethyl phthalate	ND		0.17	0.075	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Dimethyl phthalate	ND		0.17	0.034	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Di-n-butyl phthalate	ND		0.17	0.12	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Di-n-octyl phthalate	ND		0.17	0.068	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Fluoranthene	1.8		0.036	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Fluorene	0.47		0.036	0.0066	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachlorobenzene	ND		0.036	0.0069	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachlorobutadiene	ND		0.12	0.029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachlorocyclopentadiene	ND		0.80	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachloroethane	ND		0.12	0.022	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Indeno[1,2,3-cd]pyrene	0.32		0.036	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Isophorone	ND		0.12	0.029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
N-Nitrosodi-n-propylamine	ND		0.12	0.027	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
N-Nitrosodiphenylamine	ND		0.12	0.029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Naphthalene	1.2		0.036	0.0058	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Nitrobenzene	ND		0.24	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Pentachlorophenol	ND		0.36	0.14	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Phenanthrene	1.7		0.036	0.0054	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Phenol	ND		0.12	0.019	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Pyrene	1.9		0.036	0.0052	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
3 & 4 Methylphenol	ND		0.97	0.070	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	67		46 - 137	03/22/23 08:13	03/24/23 16:52	2
Phenol-d5 (Surr)	67		26 - 120	03/22/23 08:13	03/24/23 16:52	2
Nitrobenzene-d5 (Surr)	52		25 - 120	03/22/23 08:13	03/24/23 16:52	2
2-Fluorophenol (Surr)	65		20 - 120	03/22/23 08:13	03/24/23 16:52	2
2-Fluorobiphenyl (Surr)	61		34 - 120	03/22/23 08:13	03/24/23 16:52	2
2,4,6-Tribromophenol (Surr)	83		10 - 120	03/22/23 08:13	03/24/23 16:52	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:39	1
Barium	0.67	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:39	1
Cadmium	0.0022	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:39	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:39	1
Lead	0.024	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:39	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:39	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:39	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.7		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	17.3		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0033	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,1,2,2-Tetrachloroethane	ND	*3	0.0033	0.00095	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0033	0.00085	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,1,2-Trichloroethane	ND	+	0.0033	0.00075	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,1-Dichloroethane	ND		0.0033	0.00046	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,1-Dichloroethene	ND		0.0033	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,2,4-Trichlorobenzene	ND	*3	0.0033	0.0017	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.0066	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Ethylene Dibromide	ND		0.0033	0.00051	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichlorobenzene	ND	*3	0.0033	0.00074	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichloroethane	ND		0.0033	0.00051	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichloropropane	ND		0.0033	0.00057	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,3-Dichlorobenzene	ND	*3	0.0033	0.00054	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
1,4-Dichlorobenzene	ND	*3	0.0033	0.00059	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
2-Butanone (MEK)	0.013		0.013	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
2-Hexanone	ND		0.013	0.0027	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
4-Methyl-2-pentanone (MIBK)	0.012	J	0.013	0.0025	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Acetone	0.072		0.017	0.014	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Benzene	0.0016	J	0.0033	0.00046	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Dichlorobromomethane	ND		0.0033	0.0010	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Bromoform	ND		0.0033	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Bromomethane	ND		0.0033	0.0028	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Carbon disulfide	ND		0.0033	0.00077	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Carbon tetrachloride	ND		0.0033	0.0022	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Chlorobenzene	ND		0.0033	0.00061	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Chloroethane	ND		0.0033	0.0018	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Chloroform	ND		0.0033	0.00052	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Chloromethane	ND		0.0033	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
cis-1,2-Dichloroethene	ND		0.0033	0.00098	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
cis-1,3-Dichloropropene	ND		0.0033	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Cyclohexane	ND		0.0066	0.00091	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Chlorodibromomethane	ND		0.0033	0.0018	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Dichlorodifluoromethane	ND		0.0033	0.00063	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Ethylbenzene	ND		0.0033	0.00070	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Isopropylbenzene	ND		0.0033	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Methyl acetate	ND		0.017	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Methyl tert-butyl ether	ND		0.0033	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Methylcyclohexane	0.0012	J	0.0066	0.00081	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Methylene Chloride	ND		0.017	0.0080	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Styrene	ND		0.0033	0.00077	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Tetrachloroethene	ND		0.0033	0.00048	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Toluene	0.00095	J**	0.0033	0.00051	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
trans-1,2-Dichloroethene	ND		0.0033	0.00094	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
trans-1,3-Dichloropropene	ND		0.0033	0.0025	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Trichloroethene	ND		0.0033	0.00042	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Trichlorofluoromethane	ND		0.0033	0.0018	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Vinyl chloride	ND		0.0033	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1
Xylenes, Total	0.0017	J**	0.0066	0.0011	mg/Kg	✱	03/19/23 13:00	03/21/23 13:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	03/19/23 13:00	03/21/23 13:17	1
Dibromofluoromethane (Surr)	83		41 - 138	03/19/23 13:00	03/21/23 13:17	1
4-Bromofluorobenzene (Surr)	53		41 - 143	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125	03/19/23 13:00	03/21/23 13:17	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.12	0.040	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
bis (2-chloroisopropyl) ether	ND		0.23	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4,5-Trichlorophenol	ND		0.35	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4,6-Trichlorophenol	ND		0.35	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dichlorophenol	ND		0.35	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dimethylphenol	ND		0.35	0.093	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dinitrophenol	ND		0.77	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dinitrotoluene	ND		0.47	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,6-Dinitrotoluene	ND		0.47	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Chloronaphthalene	ND		0.12	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Chlorophenol	ND		0.12	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Methylnaphthalene	0.17		0.035	0.0046	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Methylphenol	ND		0.47	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Nitroaniline	ND		0.47	0.093	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Nitrophenol	ND		0.12	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
3,3'-Dichlorobenzidine	ND		0.23	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
3-Nitroaniline	ND		0.47	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4,6-Dinitro-2-methylphenol	ND		0.77	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Bromophenyl phenyl ether	ND		0.12	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Chloro-3-methylphenol	ND		0.35	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Chloroaniline	ND		0.35	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Chlorophenyl phenyl ether	ND		0.12	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Nitroaniline	ND		0.47	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Nitrophenol	ND		0.77	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Acenaphthene	0.13		0.035	0.0067	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Acenaphthylene	0.015	J	0.035	0.0093	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Acetophenone	ND		0.23	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Anthracene	0.28		0.035	0.0056	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Atrazine	ND		0.47	0.084	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzaldehyde	ND		0.23	0.054	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[a]anthracene	0.68		0.035	0.0079	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[a]pyrene	0.64		0.035	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[b]fluoranthene	0.93		0.035	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[g,h,i]perylene	0.26		0.035	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[k]fluoranthene	0.39		0.035	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Bis(2-chloroethoxy)methane	ND		0.23	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Bis(2-chloroethyl)ether	ND		0.23	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Bis(2-ethylhexyl) phthalate	0.16		0.16	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Butyl benzyl phthalate	0.089	J	0.16	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Caprolactam	ND		0.77	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Carbazole	0.25		0.12	0.044	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Chrysene	0.85		0.035	0.0035	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Dibenz(a,h)anthracene	0.083		0.035	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.13		0.12	0.030	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Diethyl phthalate	ND		0.16	0.072	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Dimethyl phthalate	ND		0.16	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Di-n-butyl phthalate	ND		0.16	0.12	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Di-n-octyl phthalate	ND		0.16	0.065	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Fluoranthene	2.1		0.035	0.010	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Fluorene	0.19		0.035	0.0064	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Hexachlorobenzene	ND		0.035	0.0066	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Hexachlorobutadiene	ND		0.12	0.028	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Hexachlorocyclopentadiene	ND		0.77	0.14	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Hexachloroethane	ND		0.12	0.021	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Indeno[1,2,3-cd]pyrene	0.25		0.035	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Isophorone	ND		0.12	0.028	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
N-Nitrosodi-n-propylamine	ND		0.12	0.026	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
N-Nitrosodiphenylamine	ND		0.12	0.028	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Naphthalene	0.12		0.035	0.0056	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Nitrobenzene	ND		0.23	0.030	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Pentachlorophenol	ND		0.35	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Phenanthrene	1.5		0.035	0.0052	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Phenol	ND		0.12	0.019	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
Pyrene	1.7		0.035	0.0050	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2
3 & 4 Methylphenol	ND		0.93	0.067	mg/Kg	✱	03/22/23 08:13	03/24/23 17:15	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	82		46 - 137	03/22/23 08:13	03/24/23 17:15	2
Phenol-d5 (Surr)	68		26 - 120	03/22/23 08:13	03/24/23 17:15	2
Nitrobenzene-d5 (Surr)	54		25 - 120	03/22/23 08:13	03/24/23 17:15	2
2-Fluorophenol (Surr)	64		20 - 120	03/22/23 08:13	03/24/23 17:15	2
2-Fluorobiphenyl (Surr)	72		34 - 120	03/22/23 08:13	03/24/23 17:15	2
2,4,6-Tribromophenol (Surr)	86		10 - 120	03/22/23 08:13	03/24/23 17:15	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:44	1
Barium	0.62	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:44	1
Cadmium	0.0010	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:44	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:44	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:44	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:44	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:44	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.5		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	13.5		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,1,2,2-Tetrachloroethane	ND	*3	0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0042	0.0011	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,1,2-Trichloroethane	ND	+	0.0042	0.00094	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,1-Dichloroethane	ND		0.0042	0.00058	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,1-Dichloroethene	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,2,4-Trichlorobenzene	ND	*3	0.0042	0.0021	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.0083	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Ethylene Dibromide	ND		0.0042	0.00064	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichlorobenzene	ND	*3	0.0042	0.00092	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichloroethane	ND		0.0042	0.00064	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichloropropane	ND		0.0042	0.00071	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,3-Dichlorobenzene	ND	*3	0.0042	0.00068	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
1,4-Dichlorobenzene	ND	*3	0.0042	0.00073	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
2-Butanone (MEK)	ND		0.017	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
2-Hexanone	ND		0.017	0.0034	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
4-Methyl-2-pentanone (MIBK)	ND		0.017	0.0031	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Acetone	ND		0.021	0.017	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Benzene	ND		0.0042	0.00058	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Dichlorobromomethane	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Bromoform	ND		0.0042	0.0020	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Bromomethane	ND		0.0042	0.0035	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Carbon disulfide	ND		0.0042	0.00097	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Carbon tetrachloride	ND		0.0042	0.0027	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Chlorobenzene	ND		0.0042	0.00076	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Chloroethane	ND		0.0042	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Chloroform	ND		0.0042	0.00066	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Chloromethane	ND		0.0042	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
cis-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
cis-1,3-Dichloropropene	ND		0.0042	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Cyclohexane	ND		0.0083	0.0011	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Chlorodibromomethane	ND		0.0042	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Dichlorodifluoromethane	ND		0.0042	0.00078	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Ethylbenzene	ND		0.0042	0.00087	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Isopropylbenzene	ND		0.0042	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Methyl acetate	ND		0.021	0.0028	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Methyl tert-butyl ether	ND		0.0042	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Methylcyclohexane	ND		0.0083	0.0010	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Methylene Chloride	ND		0.021	0.010	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Styrene	ND		0.0042	0.00096	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Tetrachloroethene	ND		0.0042	0.00061	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Toluene	ND	+	0.0042	0.00064	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
trans-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
trans-1,3-Dichloropropene	ND		0.0042	0.0031	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Trichloroethene	ND		0.0042	0.00053	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Trichlorofluoromethane	ND		0.0042	0.0022	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Vinyl chloride	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1
Xylenes, Total	0.0047	J**	0.0083	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 13:38	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	03/19/23 13:00	03/21/23 13:38	1
Dibromofluoromethane (Surr)	95		41 - 138	03/19/23 13:00	03/21/23 13:38	1
4-Bromofluorobenzene (Surr)	54		41 - 143	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichloroethane-d4 (Surr)	107		58 - 125	03/19/23 13:00	03/21/23 13:38	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.058	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
bis (2-chloroisopropyl) ether	ND		0.12	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4,5-Trichlorophenol	ND		0.17	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4,6-Trichlorophenol	ND		0.17	0.074	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dichlorophenol	ND		0.17	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dimethylphenol	ND		0.17	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dinitrophenol	ND		0.38	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dinitrotoluene	ND		0.23	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,6-Dinitrotoluene	ND		0.23	0.065	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Chloronaphthalene	ND		0.058	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Chlorophenol	ND		0.058	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Methylnaphthalene	0.13		0.017	0.0023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Methylphenol	ND		0.23	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Nitroaniline	ND		0.23	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Nitrophenol	ND		0.058	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
3,3'-Dichlorobenzidine	ND		0.12	0.050	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
3-Nitroaniline	ND		0.23	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4,6-Dinitro-2-methylphenol	ND		0.38	0.093	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Bromophenyl phenyl ether	ND		0.058	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Chloro-3-methylphenol	ND		0.17	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Chloroaniline	ND		0.17	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Chlorophenyl phenyl ether	ND		0.058	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Nitroaniline	ND		0.23	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Nitrophenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Acenaphthene	0.010	J	0.017	0.0033	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Acenaphthylene	0.0065	J	0.017	0.0047	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Acetophenone	ND		0.12	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Anthracene	0.018		0.017	0.0028	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Atrazine	ND		0.23	0.042	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzaldehyde	0.042	J	0.12	0.027	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[a]anthracene	0.095		0.017	0.0040	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[a]pyrene	0.096		0.017	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[b]fluoranthene	0.15		0.017	0.0075	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[g,h,i]perylene	0.035		0.017	0.0082	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[k]fluoranthene	0.048		0.017	0.0080	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Bis(2-chloroethoxy)methane	ND		0.12	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Bis(2-chloroethyl)ether	ND		0.12	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Bis(2-ethylhexyl) phthalate	ND		0.081	0.059	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Butyl benzyl phthalate	ND		0.081	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Caprolactam	ND		0.38	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Carbazole	ND		0.058	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Chrysene	0.12		0.017	0.0017	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Dibenz(a,h)anthracene	ND		0.017	0.0080	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.062		0.058	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Diethyl phthalate	ND		0.081	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Dimethyl phthalate	ND		0.081	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Di-n-butyl phthalate	ND		0.081	0.059	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Di-n-octyl phthalate	ND		0.081	0.032	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Fluoranthene	0.21		0.017	0.0052	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Fluorene	0.0097	J	0.017	0.0032	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Hexachlorobenzene	ND		0.017	0.0033	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Hexachlorobutadiene	ND		0.058	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Hexachlorocyclopentadiene	ND		0.38	0.072	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Hexachloroethane	ND		0.058	0.010	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Indeno[1,2,3-cd]pyrene	0.033		0.017	0.0085	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Isophorone	ND		0.058	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
N-Nitrosodi-n-propylamine	ND		0.058	0.013	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
N-Nitrosodiphenylamine	ND		0.058	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Naphthalene	0.071		0.017	0.0028	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Nitrobenzene	ND		0.12	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Pentachlorophenol	ND		0.17	0.067	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Phenanthrene	0.19		0.017	0.0026	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Phenol	ND		0.058	0.0093	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
Pyrene	0.19		0.017	0.0025	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1
3 & 4 Methylphenol	ND		0.46	0.034	mg/Kg	✱	03/22/23 08:13	03/24/23 18:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	92		46 - 137	03/22/23 08:13	03/24/23 18:47	1
Phenol-d5 (Surr)	51		26 - 120	03/22/23 08:13	03/24/23 18:47	1
Nitrobenzene-d5 (Surr)	42		25 - 120	03/22/23 08:13	03/24/23 18:47	1
2-Fluorophenol (Surr)	47		20 - 120	03/22/23 08:13	03/24/23 18:47	1
2-Fluorobiphenyl (Surr)	57		34 - 120	03/22/23 08:13	03/24/23 18:47	1
2,4,6-Tribromophenol (Surr)	96		10 - 120	03/22/23 08:13	03/24/23 18:47	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0071	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:48	1
Barium	0.69	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:48	1
Cadmium	0.0018	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:48	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:48	1
Lead	0.0042	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:48	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:48	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:48	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.3		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	14.7		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 17:02	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 17:02	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 17:02	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 17:02	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 17:02	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 17:02	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 17:02	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 17:02	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 17:02	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 17:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120					03/22/23 17:02	1
Dibromofluoromethane (Surr)	96		71 - 121					03/22/23 17:02	1
4-Bromofluorobenzene (Surr)	108		80 - 120					03/22/23 17:02	1
1,2-Dichloroethane-d4 (Surr)	102		76 - 120					03/22/23 17:02	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 16:00	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 16:00	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 16:00	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 16:00	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 16:00	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 16:00	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 16:00	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 16:00	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 16:00	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 16:00	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 16:00	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 16:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		46 - 137				03/21/23 12:03	03/23/23 16:00	1
Phenol-d5 (Surr)	62		26 - 120				03/21/23 12:03	03/23/23 16:00	1
Nitrobenzene-d5 (Surr)	80		24 - 120				03/21/23 12:03	03/23/23 16:00	1
2-Fluorophenol (Surr)	72		19 - 120				03/21/23 12:03	03/23/23 16:00	1
2-Fluorobiphenyl (Surr)	95		33 - 120				03/21/23 12:03	03/23/23 16:00	1
2,4,6-Tribromophenol (Surr)	110		10 - 120				03/21/23 12:03	03/23/23 16:00	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 14:54	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 14:54	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 14:54	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 14:54	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 14:54	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 14:54	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 14:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	74		10 - 145	03/21/23 12:08	03/22/23 14:54	1
DCB Decachlorobiphenyl	71		10 - 145	03/21/23 12:08	03/22/23 14:54	1
Tetrachloro-m-xylene	66		10 - 123	03/21/23 12:08	03/22/23 14:54	1
Tetrachloro-m-xylene	68		10 - 123	03/21/23 12:08	03/22/23 14:54	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		81	41	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1221	ND		81	49	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1232	ND		81	34	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1242	ND		81	31	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1248	ND		81	28	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1254	ND		81	34	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1260	ND		81	34	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1262	ND		81	36	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1268	ND		81	26	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	86		10 - 149	03/21/23 08:36	03/21/23 17:15	1
DCB Decachlorobiphenyl	74		10 - 174	03/21/23 08:36	03/21/23 17:15	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 09:35	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 09:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	51		26 - 136	03/23/23 21:15	03/24/23 09:35	1
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136	03/23/23 21:15	03/24/23 09:35	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	180	B	7.9	0.12	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,6,7,8-HpCDF	62	B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,7,8-HxCDD	4.4	J B	7.9	0.057	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,7,8-HxCDF	4.2	J B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,7,8,9-HpCDF	2.8	J B	7.9	0.18	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,6,7,8-HxCDD	9.4	B	7.9	0.059	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,6,7,8-HxCDF	3.9	J B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8-PeCDD	5.1	J B	7.9	0.039	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8-PeCDF	1.4	J B	7.9	0.051	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8,9-HxCDD	20	B	7.9	0.060	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8,9-HxCDF	0.79	J B	7.9	0.16	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,4,6,7,8-HxCDF	5.2	J B	7.9	0.13	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,4,7,8-PeCDF	6.4	J B	7.9	0.040	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,7,8-TCDD	1.2	J B	1.6	0.019	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,7,8-TCDF	1.2	J	1.6	0.041	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
OCDD	1600	B	16	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
OCDF	80	B	16	0.087	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
Total HxCDD	130	B	7.9	0.059	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
Total HxCDF	91	B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	180	B	7.9	0.12	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total HpCDF	130	B	7.9	0.16	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total PeCDD	42	I B	7.9	0.039	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total PeCDF	39	I B	7.9	0.046	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total TCDD	11	I B	1.6	0.019	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total TCDF	34	I	1.6	0.041	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	66		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-OCDD	70		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,7,8-TCDF	48		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,7,8-TCDD	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,4,7,8-PeCDF	53		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,4,6,7,8-HxCDF	50		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8,9-HxCDF	49		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8,9-HxCDD	55		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8-PeCDF	53		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8-PeCDD	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,6,7,8-HxCDF	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,6,7,8-HxCDD	57		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,7,8,9-HpCDF	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,7,8-HxCDF	53		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,7,8-HxCDD	55		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,6,7,8-HpCDF	52		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,6,7,8-HpCDD	60		40 - 135				03/28/23 09:37	03/30/23 00:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	61.6		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	38.4		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.5	1.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1,2,2-Tetrachloroethane	ND		3.5	2.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.5	0.95	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1,2-Trichloroethane	ND		3.5	0.81	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1-Dichloroethane	ND		3.5	0.68	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1-Dichloroethene	ND		3.5	1.2	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2,4-Trichlorobenzene	ND		3.5	1.9	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dibromo-3-Chloropropane	ND		7.1	3.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Ethylene Dibromide	ND		3.5	1.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dichlorobenzene	ND		3.5	1.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dichloroethane	ND		3.5	0.67	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dichloropropane	ND		3.5	0.52	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,3-Dichlorobenzene	ND		3.5	0.65	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,4-Dichlorobenzene	ND		3.5	0.78	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
2-Butanone (MEK)	ND		14	2.2	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
2-Hexanone	ND		14	3.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
4-Methyl-2-pentanone (MIBK)	ND		14	3.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Acetone	ND		14	3.5	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Benzene	ND		3.5	0.59	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Dichlorobromomethane	ND		3.5	0.86	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Bromoform	ND		3.5	3.2	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Bromomethane	ND		3.5	2.3	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Carbon disulfide	ND		3.5	1.5	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Carbon tetrachloride	ND		3.5	1.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chlorobenzene	ND		3.5	0.50	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chloroethane	ND		3.5	2.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chloroform	ND		3.5	0.76	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chloromethane	ND		3.5	0.93	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
cis-1,2-Dichloroethene	ND		3.5	0.57	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
cis-1,3-Dichloropropene	ND		3.5	1.8	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Cyclohexane	ND		7.1	2.3	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chlorodibromomethane	ND		3.5	1.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Dichlorodifluoromethane	ND		3.5	0.75	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Ethylbenzene	ND		3.5	0.67	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Isopropylbenzene	ND		3.5	0.54	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methyl acetate	ND		18	2.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methyl tert-butyl ether	ND		3.5	0.52	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methylcyclohexane	ND		7.1	0.93	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methylene Chloride	ND		7.1	5.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Styrene	ND		3.5	0.74	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Tetrachloroethene	ND		3.5	1.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Toluene	ND		3.5	3.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
trans-1,2-Dichloroethene	ND		3.5	0.88	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
trans-1,3-Dichloropropene	ND		3.5	1.5	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Trichloroethene	ND		3.5	2.0	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Trichlorofluoromethane	ND		3.5	1.9	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Vinyl chloride	ND		3.5	1.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Xylenes, Total	ND		7.1	1.3	mg/Kg		03/24/23 22:04	03/25/23 12:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125	03/24/23 22:04	03/25/23 12:44	1
Dibromofluoromethane (Surr)	83		41 - 138	03/24/23 22:04	03/25/23 12:44	1
4-Bromofluorobenzene (Surr)	65		41 - 143	03/24/23 22:04	03/25/23 12:44	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125	03/24/23 22:04	03/25/23 12:44	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dimethylphenol	ND		3.5	0.94	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Chlorophenol	ND		1.2	0.23	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Methylnaphthalene	ND		0.35	0.046	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Methylphenol	ND		4.7	0.73	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Nitroaniline	ND		4.7	0.94	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Nitrophenol	ND		1.2	0.30	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
3-Nitroaniline	ND		4.7	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Chloroaniline	ND		3.5	0.70	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Nitroaniline	ND		4.7	1.4	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Nitrophenol	ND		7.7	2.2	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Acenaphthene	ND		0.35	0.067	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Acenaphthylene	ND		0.35	0.094	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Acetophenone	ND		2.3	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Anthracene	ND		0.35	0.056	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Atrazine	ND		4.7	0.84	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzaldehyde	ND		2.3	0.54	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[a]anthracene	ND		0.35	0.080	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[a]pyrene	ND		0.35	0.22	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[b]fluoranthene	ND		0.35	0.15	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[g,h,i]perylene	ND		0.35	0.17	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[k]fluoranthene	ND		0.35	0.16	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Butyl benzyl phthalate	ND		1.6	0.52	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Caprolactam	ND		7.7	1.8	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Carbazole	ND		1.2	0.45	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Chrysene	ND		0.35	0.035	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg		03/22/23 08:13	03/24/23 15:21	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.2	0.30	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Diethyl phthalate	ND		1.6	0.73	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Dimethyl phthalate	ND		1.6	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Di-n-octyl phthalate	ND		1.6	0.66	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Fluoranthene	ND		0.35	0.10	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Fluorene	ND		0.35	0.064	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachlorobenzene	ND		0.35	0.067	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachlorocyclopentadiene	ND		7.7	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachloroethane	ND		1.2	0.21	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Indeno[1,2,3-cd]pyrene	ND		0.35	0.17	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Isophorone	ND		1.2	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Naphthalene	ND		0.35	0.056	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Nitrobenzene	ND		2.3	0.30	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Pentachlorophenol	ND		3.5	1.4	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Phenanthrene	ND		0.35	0.052	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Phenol	ND		1.2	0.19	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Pyrene	ND		0.35	0.050	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
3 & 4 Methylphenol	ND		9.4	0.68	mg/Kg		03/22/23 08:13	03/24/23 15:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	97		46 - 137	03/22/23 08:13	03/24/23 15:21	1
Phenol-d5 (Surr)	45		26 - 120	03/22/23 08:13	03/24/23 15:21	1
Nitrobenzene-d5 (Surr)	38		25 - 120	03/22/23 08:13	03/24/23 15:21	1
2-Fluorophenol (Surr)	43		20 - 120	03/22/23 08:13	03/24/23 15:21	1
2-Fluorobiphenyl (Surr)	58		34 - 120	03/22/23 08:13	03/24/23 15:21	1
2,4,6-Tribromophenol (Surr)	93		10 - 120	03/22/23 08:13	03/24/23 15:21	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0082	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:11	1
Barium	0.036	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:11	1
Cadmium	0.00034	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:11	1
Chromium	ND		0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:11	1
Lead	0.0066	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:11	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:11	1
Silver	ND		0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:11	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 18:05	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.64	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1,2,2-Tetrachloroethane	ND		2.0	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.55	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1,2-Trichloroethane	ND		2.0	0.47	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1-Dichloroethane	ND		2.0	0.39	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1-Dichloroethene	ND		2.0	0.67	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2,4-Trichlorobenzene	ND		2.0	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dibromo-3-Chloropropane	ND		4.1	1.8	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Ethylene Dibromide	ND		2.0	0.65	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dichlorobenzene	ND		2.0	0.98	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dichloroethane	ND		2.0	0.39	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dichloropropane	ND		2.0	0.30	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,3-Dichlorobenzene	ND		2.0	0.38	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,4-Dichlorobenzene	ND		2.0	0.45	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
2-Butanone (MEK)	ND		8.2	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
2-Hexanone	ND		8.2	2.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Acetone	ND		8.2	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Benzene	ND		2.0	0.34	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Dichlorobromomethane	ND		2.0	0.50	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Bromoform	ND		2.0	1.9	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Bromomethane	ND		2.0	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Carbon disulfide	ND		2.0	0.89	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Carbon tetrachloride	ND		2.0	0.84	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chlorobenzene	ND		2.0	0.29	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chloroethane	ND		2.0	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chloroform	ND		2.0	0.44	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chloromethane	ND		2.0	0.54	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
cis-1,2-Dichloroethene	ND		2.0	0.33	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
cis-1,3-Dichloropropene	ND		2.0	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Cyclohexane	ND		4.1	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chlorodibromomethane	ND		2.0	0.96	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Dichlorodifluoromethane	ND		2.0	0.43	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Ethylbenzene	ND		2.0	0.39	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Isopropylbenzene	ND		2.0	0.31	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methyl acetate	ND		10	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methyl tert-butyl ether	ND		2.0	0.30	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methylcyclohexane	ND		4.1	0.54	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methylene Chloride	ND		4.1	3.1	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Styrene	ND		2.0	0.43	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Tetrachloroethene	ND		2.0	0.80	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Toluene	ND		2.0	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
trans-1,2-Dichloroethene	ND		2.0	0.51	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
trans-1,3-Dichloropropene	ND		2.0	0.86	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Trichloroethene	ND		2.0	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Trichlorofluoromethane	ND		2.0	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Vinyl chloride	ND		2.0	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Xylenes, Total	ND		4.1	0.75	mg/Kg		03/24/23 22:04	03/25/23 13:06	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/24/23 22:04	03/25/23 13:06	1
Dibromofluoromethane (Surr)	80		41 - 138	03/24/23 22:04	03/25/23 13:06	1
4-Bromofluorobenzene (Surr)	63		41 - 143	03/24/23 22:04	03/25/23 13:06	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/24/23 22:04	03/25/23 13:06	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.4	0.47	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
bis (2-chloroisopropyl) ether	ND		2.8	0.28	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4,5-Trichlorophenol	ND		4.2	1.9	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4,6-Trichlorophenol	ND		4.2	1.8	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dichlorophenol	ND		4.2	1.2	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dimethylphenol	ND		4.2	1.1	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dinitrophenol	ND		9.2	3.9	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dinitrotoluene	ND		5.6	1.7	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,6-Dinitrotoluene	ND		5.6	1.6	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Chloronaphthalene	ND		1.4	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Chlorophenol	ND		1.4	0.28	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Methylnaphthalene	ND		0.42	0.054	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Methylphenol	ND		5.6	0.86	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Nitroaniline	ND		5.6	1.1	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Nitrophenol	ND		1.4	0.36	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
3,3'-Dichlorobenzidine	ND		2.8	1.2	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
3-Nitroaniline	ND		5.6	1.4	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4,6-Dinitro-2-methylphenol	ND		9.2	2.2	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Bromophenyl phenyl ether	ND		1.4	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Chloro-3-methylphenol	ND		4.2	1.3	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Chloroaniline	ND		4.2	0.83	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Chlorophenyl phenyl ether	ND		1.4	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Nitroaniline	ND		5.6	1.7	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Nitrophenol	ND		9.2	2.6	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Acenaphthene	ND		0.42	0.079	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Acenaphthylene	ND		0.42	0.11	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Acetophenone	ND		2.8	0.31	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Anthracene	ND		0.42	0.067	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Atrazine	ND		5.6	1.0	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzaldehyde	ND		2.8	0.64	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[a]anthracene	ND		0.42	0.095	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[a]pyrene	ND		0.42	0.26	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[b]fluoranthene	ND		0.42	0.18	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[g,h,i]perylene	ND		0.42	0.20	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[k]fluoranthene	ND		0.42	0.19	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Bis(2-chloroethoxy)methane	ND		2.8	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Bis(2-chloroethyl)ether	ND		2.8	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Bis(2-ethylhexyl) phthalate	ND		1.9	1.4	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Butyl benzyl phthalate	ND		1.9	0.61	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Caprolactam	ND		9.2	2.1	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Carbazole	ND		1.4	0.53	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Chrysene	ND		0.42	0.041	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Dibenz(a,h)anthracene	ND		0.42	0.19	mg/Kg		03/22/23 08:13	03/24/23 14:58	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.4	0.36	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Diethyl phthalate	ND		1.9	0.86	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Dimethyl phthalate	ND		1.9	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Di-n-butyl phthalate	ND		1.9	1.4	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Di-n-octyl phthalate	ND		1.9	0.78	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Fluoranthene	ND		0.42	0.12	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Fluorene	ND		0.42	0.076	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachlorobenzene	ND		0.42	0.079	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachlorobutadiene	ND		1.4	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachlorocyclopentadiene	ND		9.2	1.7	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachloroethane	ND		1.4	0.25	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Indeno[1,2,3-cd]pyrene	ND		0.42	0.20	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Isophorone	ND		1.4	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
N-Nitrosodi-n-propylamine	ND		1.4	0.31	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
N-Nitrosodiphenylamine	ND		1.4	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Naphthalene	0.13	J	0.42	0.067	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Nitrobenzene	ND		2.8	0.36	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Pentachlorophenol	ND		4.2	1.6	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Phenanthrene	ND		0.42	0.062	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Phenol	ND		1.4	0.22	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Pyrene	ND		0.42	0.059	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
3 & 4 Methylphenol	ND		11	0.81	mg/Kg		03/22/23 08:13	03/24/23 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		46 - 137	03/22/23 08:13	03/24/23 14:58	1
Phenol-d5 (Surr)	67		26 - 120	03/22/23 08:13	03/24/23 14:58	1
Nitrobenzene-d5 (Surr)	60		25 - 120	03/22/23 08:13	03/24/23 14:58	1
2-Fluorophenol (Surr)	64		20 - 120	03/22/23 08:13	03/24/23 14:58	1
2-Fluorobiphenyl (Surr)	75		34 - 120	03/22/23 08:13	03/24/23 14:58	1
2,4,6-Tribromophenol (Surr)	86		10 - 120	03/22/23 08:13	03/24/23 14:58	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0048	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:53	1
Barium	0.068	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:53	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:53	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:53	1
Lead	0.0077	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:53	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:53	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:53	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:13	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.2	0.68	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1,2,2-Tetrachloroethane	ND		2.2	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.2	0.58	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1,2-Trichloroethane	ND		2.2	0.49	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1-Dichloroethane	ND		2.2	0.42	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1-Dichloroethene	ND		2.2	0.71	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2,4-Trichlorobenzene	ND		2.2	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dibromo-3-Chloropropane	ND		4.3	1.9	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Ethylene Dibromide	ND		2.2	0.68	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dichlorobenzene	ND		2.2	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dichloroethane	ND		2.2	0.41	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dichloropropane	ND		2.2	0.32	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,3-Dichlorobenzene	ND		2.2	0.40	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,4-Dichlorobenzene	ND		2.2	0.48	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
2-Butanone (MEK)	ND		8.7	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
2-Hexanone	ND		8.7	2.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
4-Methyl-2-pentanone (MIBK)	ND		8.7	2.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Acetone	ND		8.7	2.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Benzene	ND		2.2	0.36	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Dichlorobromomethane	ND		2.2	0.53	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Bromoform	ND		2.2	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Bromomethane	ND		2.2	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Carbon disulfide	ND		2.2	0.94	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Carbon tetrachloride	ND		2.2	0.88	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chlorobenzene	ND		2.2	0.30	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chloroethane	ND		2.2	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chloroform	ND		2.2	0.47	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chloromethane	ND		2.2	0.57	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
cis-1,2-Dichloroethene	ND		2.2	0.35	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
cis-1,3-Dichloropropene	ND		2.2	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Cyclohexane	ND		4.3	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chlorodibromomethane	ND		2.2	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Dichlorodifluoromethane	ND		2.2	0.46	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Ethylbenzene	ND		2.2	0.41	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Isopropylbenzene	ND		2.2	0.33	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methyl acetate	ND		11	1.5	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methyl tert-butyl ether	ND		2.2	0.32	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methylcyclohexane	ND		4.3	0.57	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methylene Chloride	ND		4.3	3.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Styrene	ND		2.2	0.45	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Tetrachloroethene	ND		2.2	0.84	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Toluene	ND		2.2	2.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
trans-1,2-Dichloroethene	ND		2.2	0.54	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
trans-1,3-Dichloropropene	ND		2.2	0.91	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Trichloroethene	ND		2.2	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Trichlorofluoromethane	ND		2.2	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Vinyl chloride	ND		2.2	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Xylenes, Total	ND		4.3	0.79	mg/Kg		03/24/23 22:04	03/25/23 13:27	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	85		56 - 125	03/24/23 22:04	03/25/23 13:27	1
Dibromofluoromethane (Surr)	85		41 - 138	03/24/23 22:04	03/25/23 13:27	1
4-Bromofluorobenzene (Surr)	70		41 - 143	03/24/23 22:04	03/25/23 13:27	1
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	03/24/23 22:04	03/25/23 13:27	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.3	0.44	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
bis (2-chloroisopropyl) ether	ND		2.6	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4,5-Trichlorophenol	ND		3.9	1.8	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4,6-Trichlorophenol	ND		3.9	1.7	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dichlorophenol	ND		3.9	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dimethylphenol	ND		3.9	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dinitrophenol	ND		8.5	3.7	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dinitrotoluene	ND		5.2	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,6-Dinitrotoluene	ND		5.2	1.4	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Chloronaphthalene	ND		1.3	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Chlorophenol	ND		1.3	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Methylnaphthalene	ND		0.39	0.051	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Methylphenol	ND		5.2	0.80	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Nitroaniline	ND		5.2	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Nitrophenol	ND		1.3	0.34	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
3,3'-Dichlorobenzidine	ND		2.6	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
3-Nitroaniline	ND		5.2	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4,6-Dinitro-2-methylphenol	ND		8.5	2.1	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Bromophenyl phenyl ether	ND		1.3	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Chloro-3-methylphenol	ND		3.9	1.2	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Chloroaniline	ND		3.9	0.78	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Chlorophenyl phenyl ether	ND		1.3	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Nitroaniline	ND		5.2	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Nitrophenol	ND		8.5	2.4	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Acenaphthene	ND		0.39	0.074	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Acenaphthylene	ND		0.39	0.10	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Acetophenone	ND		2.6	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Anthracene	ND		0.39	0.062	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Atrazine	ND		5.2	0.93	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzaldehyde	ND		2.6	0.59	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[a]anthracene	ND		0.39	0.088	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[a]pyrene	ND		0.39	0.24	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[b]fluoranthene	ND		0.39	0.17	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[g,h,i]perylene	ND		0.39	0.18	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[k]fluoranthene	ND		0.39	0.18	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Bis(2-chloroethoxy)methane	ND		2.6	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Bis(2-chloroethyl)ether	ND		2.6	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Butyl benzyl phthalate	ND		1.8	0.57	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Caprolactam	ND		8.5	1.9	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Carbazole	ND		1.3	0.49	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Chrysene	ND		0.39	0.039	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Dibenz(a,h)anthracene	ND		0.39	0.18	mg/Kg		03/22/23 08:13	03/24/23 15:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.3	0.34	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Diethyl phthalate	ND		1.8	0.80	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Dimethyl phthalate	ND		1.8	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Di-n-octyl phthalate	ND		1.8	0.72	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Fluoranthene	ND		0.39	0.12	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Fluorene	ND		0.39	0.071	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachlorobenzene	ND		0.39	0.074	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachlorobutadiene	ND		1.3	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachlorocyclopentadiene	ND		8.5	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachloroethane	ND		1.3	0.23	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Indeno[1,2,3-cd]pyrene	ND		0.39	0.19	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Isophorone	ND		1.3	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
N-Nitrosodiphenylamine	ND		1.3	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Naphthalene	ND		0.39	0.062	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Nitrobenzene	ND		2.6	0.34	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Pentachlorophenol	ND		3.9	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Phenanthrene	ND		0.39	0.058	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Phenol	ND		1.3	0.21	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Pyrene	ND		0.39	0.055	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
3 & 4 Methylphenol	ND		10	0.75	mg/Kg		03/22/23 08:13	03/24/23 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	108		46 - 137	03/22/23 08:13	03/24/23 15:44	1
Phenol-d5 (Surr)	53		26 - 120	03/22/23 08:13	03/24/23 15:44	1
Nitrobenzene-d5 (Surr)	46		25 - 120	03/22/23 08:13	03/24/23 15:44	1
2-Fluorophenol (Surr)	51		20 - 120	03/22/23 08:13	03/24/23 15:44	1
2-Fluorobiphenyl (Surr)	62		34 - 120	03/22/23 08:13	03/24/23 15:44	1
2,4,6-Tribromophenol (Surr)	98		10 - 120	03/22/23 08:13	03/24/23 15:44	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0066	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:58	1
Barium	0.020	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:58	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:58	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:58	1
Lead	0.0050	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:58	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:58	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:58	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:15	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		59	18	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1,2,2-Tetrachloroethane	ND		59	35	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		59	16	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1,2-Trichloroethane	ND		59	13	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1-Dichloroethane	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1-Dichloroethene	ND		59	19	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2,4-Trichlorobenzene	ND		59	31	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dibromo-3-Chloropropane	ND		120	52	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Ethylene Dibromide	ND		59	19	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dichlorobenzene	ND		59	28	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dichloroethane	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dichloropropane	ND		59	8.7	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,3-Dichlorobenzene	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,4-Dichlorobenzene	ND		59	13	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
2-Butanone (MEK)	ND		240	37	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
2-Hexanone	ND		240	62	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
4-Methyl-2-pentanone (MIBK)	ND		240	56	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Acetone	ND		240	57	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Benzene	ND		59	9.9	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Dichlorobromomethane	ND		59	14	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Bromoform	ND		59	54	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Bromomethane	ND		59	39	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Carbon disulfide	ND		59	25	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Carbon tetrachloride	ND		59	24	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chlorobenzene	ND		59	8.2	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chloroethane	ND		59	35	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chloroform	ND		59	13	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chloromethane	ND		59	16	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
cis-1,2-Dichloroethene	ND		59	9.4	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
cis-1,3-Dichloropropene	ND		59	29	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Cyclohexane	ND		120	38	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chlorodibromomethane	ND		59	28	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Dichlorodifluoromethane	ND		59	12	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Ethylbenzene	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Isopropylbenzene	ND		59	8.9	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methyl acetate	ND		290	40	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methyl tert-butyl ether	ND		59	8.7	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methylcyclohexane	ND		120	16	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methylene Chloride	ND		120	90	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Styrene	ND		59	12	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Tetrachloroethene	ND		59	23	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Toluene	ND		59	56	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
trans-1,2-Dichloroethene	ND		59	15	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
trans-1,3-Dichloropropene	ND		59	25	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Trichloroethene	ND		59	34	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Trichlorofluoromethane	ND		59	32	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Vinyl chloride	ND		59	29	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Xylenes, Total	ND		120	21	mg/Kg		03/24/23 22:04	03/28/23 08:39	20

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		56 - 125	03/24/23 22:04	03/28/23 08:39	20
Dibromofluoromethane (Surr)	87		41 - 138	03/24/23 22:04	03/28/23 08:39	20
4-Bromofluorobenzene (Surr)	73		41 - 143	03/24/23 22:04	03/28/23 08:39	20
1,2-Dichloroethane-d4 (Surr)	93		58 - 125	03/24/23 22:04	03/28/23 08:39	20

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.3	2.1	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
bis (2-chloroisopropyl) ether	ND		13	1.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4,5-Trichlorophenol	ND		19	8.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4,6-Trichlorophenol	ND		19	8.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dichlorophenol	ND		19	5.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dimethylphenol	ND		19	5.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dinitrophenol	ND		41	18	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dinitrotoluene	ND		25	7.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,6-Dinitrotoluene	ND		25	7.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Chloronaphthalene	ND		6.3	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Chlorophenol	ND		6.3	1.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Methylnaphthalene	ND		1.9	0.25	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Methylphenol	ND		25	3.9	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Nitroaniline	ND		25	5.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Nitrophenol	ND		6.3	1.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
3,3'-Dichlorobenzidine	ND		13	5.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
3-Nitroaniline	ND		25	6.1	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4,6-Dinitro-2-methylphenol	ND		41	10	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Bromophenyl phenyl ether	ND		6.3	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Chloro-3-methylphenol	ND		19	5.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Chloroaniline	ND		19	3.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Chlorophenyl phenyl ether	ND		6.3	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Nitroaniline	ND		25	7.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Nitrophenol	ND		41	12	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Acenaphthene	ND		1.9	0.36	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Acenaphthylene	ND		1.9	0.50	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Acetophenone	ND		13	1.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Anthracene	ND		1.9	0.30	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Atrazine	ND		25	4.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzaldehyde	ND		13	2.9	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[a]anthracene	0.50	J	1.9	0.43	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[a]pyrene	ND		1.9	1.2	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[b]fluoranthene	1.0	J	1.9	0.81	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[g,h,i]perylene	ND		1.9	0.89	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[k]fluoranthene	ND		1.9	0.87	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Bis(2-chloroethoxy)methane	ND		13	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Bis(2-chloroethyl)ether	ND		13	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Bis(2-ethylhexyl) phthalate	ND		8.8	6.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Butyl benzyl phthalate	3.4	J	8.8	2.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Caprolactam	ND		41	9.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Carbazole	ND		6.3	2.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Chrysene	ND		1.9	0.19	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Dibenz(a,h)anthracene	ND		1.9	0.87	mg/Kg		03/22/23 08:13	03/24/23 17:38	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		6.3	1.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Diethyl phthalate	ND		8.8	3.9	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Dimethyl phthalate	ND		8.8	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Di-n-butyl phthalate	ND		8.8	6.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Di-n-octyl phthalate	ND		8.8	3.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Fluoranthene	0.78	J	1.9	0.56	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Fluorene	ND		1.9	0.34	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachlorobenzene	ND		1.9	0.36	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachlorobutadiene	ND		6.3	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachlorocyclopentadiene	ND		41	7.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachloroethane	ND		6.3	1.1	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Indeno[1,2,3-cd]pyrene	ND		1.9	0.92	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Isophorone	ND		6.3	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
N-Nitrosodi-n-propylamine	ND		6.3	1.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
N-Nitrosodiphenylamine	ND		6.3	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Naphthalene	ND		1.9	0.30	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Nitrobenzene	ND		13	1.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Pentachlorophenol	ND		19	7.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Phenanthrene	0.96	J	1.9	0.28	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Phenol	ND		6.3	1.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Pyrene	0.82	J	1.9	0.27	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
3 & 4 Methylphenol	ND		50	3.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137	03/22/23 08:13	03/24/23 17:38	5
Phenol-d5 (Surr)	73		26 - 120	03/22/23 08:13	03/24/23 17:38	5
Nitrobenzene-d5 (Surr)	65		25 - 120	03/22/23 08:13	03/24/23 17:38	5
2-Fluorophenol (Surr)	65		20 - 120	03/22/23 08:13	03/24/23 17:38	5
2-Fluorobiphenyl (Surr)	83		34 - 120	03/22/23 08:13	03/24/23 17:38	5
2,4,6-Tribromophenol (Surr)	88		10 - 120	03/22/23 08:13	03/24/23 17:38	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0075	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 19:02	1
Barium	0.080	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 19:02	1
Cadmium	0.00041	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 19:02	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 19:02	1
Lead	0.0077	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 19:02	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 19:02	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 19:02	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:17	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		9.0	2.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1,2,2-Tetrachloroethane	ND		9.0	5.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		9.0	2.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1,2-Trichloroethane	ND		9.0	2.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1-Dichloroethane	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1-Dichloroethene	ND		9.0	2.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2,4-Trichlorobenzene	ND		9.0	4.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dibromo-3-Chloropropane	ND		18	7.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Ethylene Dibromide	ND		9.0	2.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dichlorobenzene	ND		9.0	4.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dichloroethane	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dichloropropane	ND		9.0	1.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,3-Dichlorobenzene	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,4-Dichlorobenzene	ND		9.0	2.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
2-Butanone (MEK)	ND		36	5.6	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
2-Hexanone	ND		36	9.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
4-Methyl-2-pentanone (MIBK)	ND		36	8.6	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Acetone	ND		36	8.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Benzene	ND		9.0	1.5	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Dichlorobromomethane	ND		9.0	2.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Bromoform	ND		9.0	8.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Bromomethane	ND		9.0	6.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Carbon disulfide	ND		9.0	3.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Carbon tetrachloride	ND		9.0	3.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chlorobenzene	ND		9.0	1.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chloroethane	ND		9.0	5.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chloroform	ND		9.0	1.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chloromethane	ND		9.0	2.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
cis-1,2-Dichloroethene	ND		9.0	1.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
cis-1,3-Dichloropropene	ND		9.0	4.5	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Cyclohexane	ND		18	5.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chlorodibromomethane	ND		9.0	4.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Dichlorodifluoromethane	ND		9.0	1.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Ethylbenzene	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Isopropylbenzene	ND		9.0	1.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methyl acetate	ND		45	6.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methyl tert-butyl ether	ND		9.0	1.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methylcyclohexane	ND		18	2.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methylene Chloride	ND		18	14	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Styrene	ND		9.0	1.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Tetrachloroethene	ND		9.0	3.5	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Toluene	ND		9.0	8.6	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
trans-1,2-Dichloroethene	ND		9.0	2.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
trans-1,3-Dichloropropene	ND		9.0	3.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Trichloroethene	ND		9.0	5.1	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Trichlorofluoromethane	ND		9.0	4.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Vinyl chloride	ND		9.0	4.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Xylenes, Total	ND		18	3.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	75		56 - 125	03/24/23 22:04	03/28/23 09:00	4
Dibromofluoromethane (Surr)	81		41 - 138	03/24/23 22:04	03/28/23 09:00	4
4-Bromofluorobenzene (Surr)	64		41 - 143	03/24/23 22:04	03/28/23 09:00	4
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/24/23 22:04	03/28/23 09:00	4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.0	1.0	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
bis (2-chloroisopropyl) ether	ND		6.1	0.61	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4,5-Trichlorophenol	ND		9.1	4.2	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4,6-Trichlorophenol	ND		9.1	3.9	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dichlorophenol	ND		9.1	2.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dimethylphenol	ND		9.1	2.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dinitrophenol	ND		20	8.6	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dinitrotoluene	ND		12	3.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,6-Dinitrotoluene	ND		12	3.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Chloronaphthalene	ND		3.0	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Chlorophenol	ND		3.0	0.61	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Methylnaphthalene	ND		0.91	0.12	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Methylphenol	ND		12	1.9	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Nitroaniline	ND		12	2.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Nitrophenol	ND		3.0	0.79	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
3,3'-Dichlorobenzidine	ND		6.1	2.6	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
3-Nitroaniline	ND		12	3.0	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4,6-Dinitro-2-methylphenol	ND		20	4.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Bromophenyl phenyl ether	ND		3.0	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Chloro-3-methylphenol	ND		9.1	2.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Chloroaniline	ND		9.1	1.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Chlorophenyl phenyl ether	ND		3.0	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Nitroaniline	ND		12	3.6	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Nitrophenol	ND		20	5.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Acenaphthene	0.23	J	0.91	0.17	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Acenaphthylene	ND		0.91	0.24	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Acetophenone	ND		6.1	0.67	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Anthracene	ND		0.91	0.15	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Atrazine	ND		12	2.2	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzaldehyde	ND		6.1	1.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[a]anthracene	0.34	J	0.91	0.21	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[a]pyrene	ND		0.91	0.57	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[b]fluoranthene	ND		0.91	0.39	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[g,h,i]perylene	ND		0.91	0.43	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[k]fluoranthene	ND		0.91	0.42	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Bis(2-chloroethoxy)methane	ND		6.1	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Bis(2-chloroethyl)ether	ND		6.1	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Bis(2-ethylhexyl) phthalate	4.1	J	4.2	3.1	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Butyl benzyl phthalate	ND		4.2	1.3	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Caprolactam	ND		20	4.5	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Carbazole	ND		3.0	1.2	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Chrysene	0.37	J	0.91	0.090	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Dibenz(a,h)anthracene	ND		0.91	0.42	mg/Kg		03/22/23 08:13	03/24/23 18:01	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		3.0	0.79	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Diethyl phthalate	ND		4.2	1.9	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Dimethyl phthalate	ND		4.2	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Di-n-butyl phthalate	ND		4.2	3.1	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Di-n-octyl phthalate	ND		4.2	1.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Fluoranthene	1.2		0.91	0.27	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Fluorene	0.20	J	0.91	0.17	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachlorobenzene	ND		0.91	0.17	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachlorobutadiene	ND		3.0	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachlorocyclopentadiene	ND		20	3.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachloroethane	ND		3.0	0.55	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Indeno[1,2,3-cd]pyrene	ND		0.91	0.45	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Isophorone	ND		3.0	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
N-Nitrosodi-n-propylamine	ND		3.0	0.67	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
N-Nitrosodiphenylamine	ND		3.0	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Naphthalene	ND		0.91	0.15	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Nitrobenzene	ND		6.1	0.79	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Pentachlorophenol	ND		9.1	3.5	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Phenanthrene	0.90	J	0.91	0.14	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Phenol	ND		3.0	0.48	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Pyrene	1.2		0.91	0.13	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
3 & 4 Methylphenol	ND		24	1.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	101		46 - 137				03/22/23 08:13	03/24/23 18:01	4
Phenol-d5 (Surr)	67		26 - 120				03/22/23 08:13	03/24/23 18:01	4
Nitrobenzene-d5 (Surr)	54		25 - 120				03/22/23 08:13	03/24/23 18:01	4
2-Fluorophenol (Surr)	61		20 - 120				03/22/23 08:13	03/24/23 18:01	4
2-Fluorobiphenyl (Surr)	80		34 - 120				03/22/23 08:13	03/24/23 18:01	4
2,4,6-Tribromophenol (Surr)	65		10 - 120				03/22/23 08:13	03/24/23 18:01	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0071	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 19:15	1
Barium	0.066	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 19:15	1
Cadmium	0.00038	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 19:15	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 19:15	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 19:15	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 19:15	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 19:15	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:19	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 12:54	1

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	82	84	77	86
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	73 *3	95 *3	77 *3	122 *3
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	122	106	127	117
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	119	102	119	118
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	82	76	80	83
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	128 S1+	108	138	116
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	86	86	69	87
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	80	83	73	92
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	121	105	126	116
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	80	89	73	94
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	84	84	70	94
240-182202-13	WC-SB1188-SOIL + DEBRIS	122	112	127	128 S1+
240-182202-14	WC-AMU112-SOIL + DEBRIS	90	86	59	98
240-182202-15	WC-SB2655-SOIL + DEBRIS	107	83	53	89
240-182202-16	WC-SB2455-SOIL + DEBRIS	107	95	54	107
240-182202-18	WC-SB2418-ABSORBENTS	79	83	65	84
240-182202-19	WC-SB1833-ABSORBENTS	80	80	63	87
240-182202-20	WC-SB2446-ABSORBENTS	85	85	70	90
240-182202-21	WC-SB1450-ABSORBENTS	88	87	73	93
240-182202-22	WC-SB1905-ABSORBENTS	75	81	64	87
240-182202-22 MS	WC-SB1905-ABSORBENTS	81	83	76	80
240-182202-22 MSD	WC-SB1905-ABSORBENTS	83	80	77	81
LCS 240-566108/2-A	Lab Control Sample	81	83	77	82
LCS 240-566133/6	Lab Control Sample	91	88	86	88
LCS 240-566249/3	Lab Control Sample	113	105	113	110
LCS 240-566719/2-A	Lab Control Sample	82	79	75	79
MB 240-566108/1-A	Method Blank	81	77	69	86
MB 240-566125/2-A	Method Blank	80	80	68	87
MB 240-566125/3-A	Method Blank	114	105	116	116
MB 240-566133/7	Method Blank	79	78	71	82
MB 240-566719/1-A	Method Blank	80	80	62	84

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-566367/10	Lab Control Sample	91	92	101	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	95	98	108	100
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	87	86	92	92
240-182202-17	WC-COMP-SOIL + DEBRIS	97	96	108	102
LB 240-566129/1-A MB	Method Blank	89	93	100	98

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	87	61	40	45	61	48
240-182202-1 MS	WC-S. TRACK-DEEP-01 (8-10')	88	64	53	62	73	52
240-182202-1 MSD	WC-S. TRACK-DEEP-01 (8-10')	85	58	42	45	63	55
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	93	53	39	44	57	55
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	83	47	33	38	50	42
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	89	69	51	54	80	61
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	107	65	48	54	77	98
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	94	59	46	53	64	79
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	94	50	42	48	54	87
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	95	51	42	49	48	68
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	101	78	66	77	80	96
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	94	52	41	48	56	90
240-182202-13	WC-SB1188-SOIL + DEBRIS	89	62	40	55	66	102
240-182202-14	WC-AMU112-SOIL + DEBRIS	67	67	52	65	61	83
240-182202-15	WC-SB2655-SOIL + DEBRIS	82	68	54	64	72	86
240-182202-16	WC-SB2455-SOIL + DEBRIS	92	51	42	47	57	96
240-182202-18	WC-SB2418-ABSORBENTS	97	45	38	43	58	93
240-182202-19	WC-SB1833-ABSORBENTS	99	67	60	64	75	86
240-182202-20	WC-SB2446-ABSORBENTS	108	53	46	51	62	98
240-182202-21	WC-SB1450-ABSORBENTS	106	73	65	65	83	88
240-182202-22	WC-SB1905-ABSORBENTS	101	67	54	61	80	65
LCS 240-566295/2-A	Lab Control Sample	124	59	55	60	63	112
MB 240-566295/1-A	Method Blank	103	36	33	33	40	33

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)

PHL = Phenol-d5 (Surr)

NBZ = Nitrobenzene-d5 (Surr)

2FP = 2-Fluorophenol (Surr)

FBP = 2-Fluorobiphenyl (Surr)

TBP = 2,4,6-Tribromophenol (Surr)

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-566221/9-A	Lab Control Sample	112	68	84	76	94	123 S1+
MB 240-566221/8-A	Method Blank	121	65	81	73	93	116

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	118	61	76	70	91	114
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	115	52	66	57	84	112
240-182202-17	WC-COMP-SOIL + DEBRIS	118	62	80	72	95	110

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-566222/6-A	Lab Control Sample	69	67	65	71
MB 240-566222/5-A	Method Blank	71	69	69	73

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	80	79	63	67
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	84	75	65	67
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	76	69	66	64

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-182202-17	WC-COMP-SOIL + DEBRIS	74	71	66	68

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TCX1 (10-149)	TCX2 (10-149)	DCBP1 (10-174)	DCBP2 (10-174)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	88	88	86	82
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	88		88	
240-182202-17	WC-COMP-SOIL + DEBRIS	86		74	
LCS 240-566161/2-A	Lab Control Sample	98		83	
MB 240-566161/1-A	Method Blank	86		75	

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
LCS 410-356959/3-A	Lab Control Sample	58	64
LCSD 410-356959/4-A	Lab Control Sample Dup	60	67
MB 410-356959/2-A	Method Blank	52	57

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	53	61
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	57	65
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	53	59
240-182202-17	WC-COMP-SOIL + DEBRIS	51	57

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-566108/1-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566108

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Acetone	ND		1.0	0.24	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Benzene	ND		0.25	0.042	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Bromoform	ND		0.25	0.23	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chloroform	ND		0.25	0.054	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Styrene	ND		0.25	0.052	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Toluene	ND		0.25	0.24	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/20/23 14:08	03/21/23 15:06	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566108/1-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566108

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	81		56 - 125	03/20/23 14:08	03/21/23 15:06	1
Dibromofluoromethane (Surr)	77		41 - 138	03/20/23 14:08	03/21/23 15:06	1
4-Bromofluorobenzene (Surr)	69		41 - 143	03/20/23 14:08	03/21/23 15:06	1
1,2-Dichloroethane-d4 (Surr)	86		58 - 125	03/20/23 14:08	03/21/23 15:06	1

Lab Sample ID: LCS 240-566108/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.22		mg/Kg		98	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.29		mg/Kg		104	64 - 148
1,1,2-Trichloroethane	1.25	1.28		mg/Kg		102	79 - 120
1,1-Dichloroethane	1.25	1.18		mg/Kg		94	74 - 121
1,1-Dichloroethene	1.25	1.19		mg/Kg		95	68 - 141
1,2,4-Trichlorobenzene	1.25	0.988		mg/Kg		79	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.852		mg/Kg		68	52 - 133
Ethylene Dibromide	1.25	1.22		mg/Kg		98	80 - 121
1,2-Dichlorobenzene	1.25	1.18		mg/Kg		95	73 - 120
1,2-Dichloroethane	1.25	1.29		mg/Kg		103	71 - 123
1,2-Dichloropropane	1.25	1.22		mg/Kg		97	76 - 126
1,3-Dichlorobenzene	1.25	1.09		mg/Kg		87	73 - 120
1,4-Dichlorobenzene	1.25	1.10		mg/Kg		88	74 - 120
2-Butanone (MEK)	2.50	2.92		mg/Kg		117	63 - 142
2-Hexanone	2.50	2.51		mg/Kg		100	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.26		mg/Kg		90	62 - 142
Acetone	2.50	3.35		mg/Kg		134	58 - 160
Benzene	1.25	1.23		mg/Kg		98	76 - 121
Dichlorobromomethane	1.25	1.07		mg/Kg		86	71 - 138
Bromoform	1.25	0.913		mg/Kg		73	57 - 140
Bromomethane	1.25	0.810		mg/Kg		65	10 - 171
Carbon disulfide	1.25	0.935		mg/Kg		75	43 - 152
Carbon tetrachloride	1.25	1.20		mg/Kg		96	64 - 144
Chlorobenzene	1.25	1.18		mg/Kg		94	80 - 120
Chloroethane	1.25	1.02		mg/Kg		82	11 - 164
Chloroform	1.25	1.31		mg/Kg		105	78 - 120
Chloromethane	1.25	0.800		mg/Kg		64	41 - 142
cis-1,2-Dichloroethene	1.25	1.23		mg/Kg		99	78 - 124
cis-1,3-Dichloropropene	1.25	0.936		mg/Kg		75	70 - 133
Cyclohexane	1.25	1.17		mg/Kg		94	65 - 137
Chlorodibromomethane	1.25	0.999		mg/Kg		80	68 - 131
Dichlorodifluoromethane	1.25	0.795		mg/Kg		64	21 - 150
Ethylbenzene	1.25	1.16		mg/Kg		93	80 - 120
Isopropylbenzene	1.25	1.22		mg/Kg		98	80 - 130
Methyl acetate	2.50	2.65		mg/Kg		106	60 - 133
Methyl tert-butyl ether	1.25	1.17		mg/Kg		94	70 - 130
Methylcyclohexane	1.25	1.11		mg/Kg		89	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566108/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	1.25	1.09		mg/Kg		87	71 - 124
Styrene	1.25	1.25		mg/Kg		100	75 - 140
Tetrachloroethene	1.25	1.15		mg/Kg		92	76 - 127
Toluene	1.25	1.23		mg/Kg		98	80 - 120
trans-1,2-Dichloroethene	1.25	1.23		mg/Kg		98	76 - 130
trans-1,3-Dichloropropene	1.25	0.912		mg/Kg		73	61 - 121
Trichloroethene	1.25	1.14		mg/Kg		91	74 - 130
Trichlorofluoromethane	1.25	1.06		mg/Kg		85	50 - 154
Vinyl chloride	1.25	0.984		mg/Kg		79	49 - 146
Xylenes, Total	2.50	2.42		mg/Kg		97	80 - 122
m-Xylene & p-Xylene	1.25	1.16		mg/Kg		93	80 - 122
o-Xylene	1.25	1.26		mg/Kg		101	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	81		56 - 125
Dibromofluoromethane (Surr)	83		41 - 138
4-Bromofluorobenzene (Surr)	77		41 - 143
1,2-Dichloroethane-d4 (Surr)	82		58 - 125

Lab Sample ID: MB 240-566125/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Acetone	ND		0.025	0.021	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/20/23 17:03	03/21/23 10:27	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566125/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/20/23 17:03	03/21/23 10:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/20/23 17:03	03/21/23 10:27	1
Dibromofluoromethane (Surr)	80		41 - 138	03/20/23 17:03	03/21/23 10:27	1
4-Bromofluorobenzene (Surr)	68		41 - 143	03/20/23 17:03	03/21/23 10:27	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/20/23 17:03	03/21/23 10:27	1

Lab Sample ID: MB 240-566125/3-A
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0030	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1-Dichloroethane	ND		0.0050	0.00096	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1-Dichloroethene	ND		0.0050	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0044	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Ethylene Dibromide	ND		0.0050	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichlorobenzene	ND		0.0050	0.0024	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloroethane	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloropropane	ND		0.0050	0.00074	mg/Kg		03/20/23 17:03	03/21/23 19:25	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566125/3-A
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,3-Dichlorobenzene	ND		0.0050	0.00092	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,4-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Butanone (MEK)	ND		0.020	0.0031	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Hexanone	ND		0.020	0.0053	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0048	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Acetone	0.00954	J	0.020	0.0049	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Benzene	ND		0.0050	0.00084	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Dichlorobromomethane	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Bromoform	ND		0.0050	0.0046	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Bromomethane	ND		0.0050	0.0033	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Carbon disulfide	ND		0.0050	0.0022	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Carbon tetrachloride	ND		0.0050	0.0020	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chlorobenzene	ND		0.0050	0.00070	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloroethane	ND		0.0050	0.0030	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloroform	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloromethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
cis-1,2-Dichloroethene	ND		0.0050	0.00080	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
cis-1,3-Dichloropropene	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Cyclohexane	ND		0.010	0.0033	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chlorodibromomethane	ND		0.0050	0.0023	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Dichlorodifluoromethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Ethylbenzene	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Isopropylbenzene	ND		0.0050	0.00076	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl tert-butyl ether	ND		0.0050	0.00074	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methylcyclohexane	ND		0.010	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methylene Chloride	ND		0.010	0.0077	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Styrene	ND		0.0050	0.0010	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Tetrachloroethene	ND		0.0050	0.0019	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Toluene	ND		0.0050	0.0048	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
trans-1,2-Dichloroethene	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
trans-1,3-Dichloropropene	ND		0.0050	0.0021	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Trichloroethene	ND		0.0050	0.0029	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Vinyl chloride	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Xylenes, Total	ND		0.010	0.0018	mg/Kg		03/20/23 17:03	03/21/23 19:25	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	114		56 - 125	03/20/23 17:03	03/21/23 19:25	1
Dibromofluoromethane (Surr)	105		41 - 138	03/20/23 17:03	03/21/23 19:25	1
4-Bromofluorobenzene (Surr)	116		41 - 143	03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/20/23 17:03	03/21/23 19:25	1

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566133/7
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg			03/21/23 05:49	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg			03/21/23 05:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg			03/21/23 05:49	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg			03/21/23 05:49	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg			03/21/23 05:49	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg			03/21/23 05:49	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg			03/21/23 05:49	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg			03/21/23 05:49	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg			03/21/23 05:49	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg			03/21/23 05:49	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg			03/21/23 05:49	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg			03/21/23 05:49	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg			03/21/23 05:49	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg			03/21/23 05:49	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg			03/21/23 05:49	1
2-Hexanone	ND		0.020	0.0041	mg/Kg			03/21/23 05:49	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg			03/21/23 05:49	1
Acetone	ND		0.025	0.021	mg/Kg			03/21/23 05:49	1
Benzene	ND		0.0050	0.00070	mg/Kg			03/21/23 05:49	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg			03/21/23 05:49	1
Bromoform	ND		0.0050	0.0024	mg/Kg			03/21/23 05:49	1
Bromomethane	ND		0.0050	0.0042	mg/Kg			03/21/23 05:49	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg			03/21/23 05:49	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg			03/21/23 05:49	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg			03/21/23 05:49	1
Chloroethane	ND		0.0050	0.0027	mg/Kg			03/21/23 05:49	1
Chloroform	ND		0.0050	0.00079	mg/Kg			03/21/23 05:49	1
Chloromethane	ND		0.0050	0.0023	mg/Kg			03/21/23 05:49	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg			03/21/23 05:49	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg			03/21/23 05:49	1
Cyclohexane	ND		0.010	0.0014	mg/Kg			03/21/23 05:49	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg			03/21/23 05:49	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg			03/21/23 05:49	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg			03/21/23 05:49	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg			03/21/23 05:49	1
Methyl acetate	ND		0.025	0.0034	mg/Kg			03/21/23 05:49	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg			03/21/23 05:49	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg			03/21/23 05:49	1
Methylene Chloride	ND		0.025	0.012	mg/Kg			03/21/23 05:49	1
Styrene	ND		0.0050	0.0012	mg/Kg			03/21/23 05:49	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg			03/21/23 05:49	1
Toluene	ND		0.0050	0.00077	mg/Kg			03/21/23 05:49	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg			03/21/23 05:49	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg			03/21/23 05:49	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg			03/21/23 05:49	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg			03/21/23 05:49	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg			03/21/23 05:49	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg			03/21/23 05:49	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566133/7
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	79		56 - 125		03/21/23 05:49	1
Dibromofluoromethane (Surr)	78		41 - 138		03/21/23 05:49	1
4-Bromofluorobenzene (Surr)	71		41 - 143		03/21/23 05:49	1
1,2-Dichloroethane-d4 (Surr)	82		58 - 125		03/21/23 05:49	1

Lab Sample ID: LCS 240-566133/6
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	0.0250	0.0308		mg/Kg		123	74 - 136
1,1,1,2-Tetrachloroethane	0.0250	0.0292		mg/Kg		117	66 - 129
1,1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0343		mg/Kg		137	64 - 148
1,1,2-Trichloroethane	0.0250	0.0305	*+	mg/Kg		122	79 - 120
1,1-Dichloroethane	0.0250	0.0294		mg/Kg		118	74 - 121
1,1-Dichloroethene	0.0250	0.0313		mg/Kg		125	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0255		mg/Kg		102	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0229		mg/Kg		91	52 - 133
Ethylene Dibromide	0.0250	0.0296		mg/Kg		118	80 - 121
1,2-Dichlorobenzene	0.0250	0.0285		mg/Kg		114	73 - 120
1,2-Dichloroethane	0.0250	0.0295		mg/Kg		118	71 - 123
1,2-Dichloropropane	0.0250	0.0292		mg/Kg		117	76 - 126
1,3-Dichlorobenzene	0.0250	0.0286		mg/Kg		114	73 - 120
1,4-Dichlorobenzene	0.0250	0.0281		mg/Kg		113	74 - 120
2-Butanone (MEK)	0.0500	0.0655		mg/Kg		131	63 - 142
2-Hexanone	0.0500	0.0572		mg/Kg		114	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0550		mg/Kg		110	62 - 142
Acetone	0.0500	0.0801		mg/Kg		160	58 - 160
Benzene	0.0250	0.0298		mg/Kg		119	76 - 121
Dichlorobromomethane	0.0250	0.0294		mg/Kg		118	71 - 138
Bromoform	0.0250	0.0255		mg/Kg		102	57 - 140
Bromomethane	0.0250	0.0280		mg/Kg		112	10 - 171
Carbon disulfide	0.0250	0.0288		mg/Kg		115	43 - 152
Carbon tetrachloride	0.0250	0.0312		mg/Kg		125	64 - 144
Chlorobenzene	0.0250	0.0285		mg/Kg		114	80 - 120
Chloroethane	0.0250	0.0250		mg/Kg		100	11 - 164
Chloroform	0.0250	0.0298		mg/Kg		119	78 - 120
Chloromethane	0.0250	0.0205		mg/Kg		82	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0285		mg/Kg		114	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0265		mg/Kg		106	70 - 133
Cyclohexane	0.0250	0.0329		mg/Kg		132	65 - 137
Chlorodibromomethane	0.0250	0.0276		mg/Kg		111	68 - 131
Dichlorodifluoromethane	0.0250	0.0200		mg/Kg		80	21 - 150
Ethylbenzene	0.0250	0.0297		mg/Kg		119	80 - 120
Isopropylbenzene	0.0250	0.0311		mg/Kg		124	80 - 130
Methyl acetate	0.0500	0.0522		mg/Kg		104	60 - 133
Methyl tert-butyl ether	0.0250	0.0268		mg/Kg		107	70 - 130
Methylcyclohexane	0.0250	0.0314		mg/Kg		126	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566133/6
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	0.0250	0.0239	J	mg/Kg		96	71 - 124
Styrene	0.0250	0.0318		mg/Kg		127	75 - 140
Tetrachloroethene	0.0250	0.0305		mg/Kg		122	76 - 127
Toluene	0.0250	0.0304	*+	mg/Kg		122	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0311		mg/Kg		124	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0258		mg/Kg		103	61 - 121
Trichloroethene	0.0250	0.0296		mg/Kg		119	74 - 130
Trichlorofluoromethane	0.0250	0.0292		mg/Kg		117	50 - 154
Vinyl chloride	0.0250	0.0273		mg/Kg		109	49 - 146
Xylenes, Total	0.0500	0.0613	*+	mg/Kg		123	80 - 122
m-Xylene & p-Xylene	0.0250	0.0302		mg/Kg		121	80 - 122
o-Xylene	0.0250	0.0311		mg/Kg		124	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	91		56 - 125
Dibromofluoromethane (Surr)	88		41 - 138
4-Bromofluorobenzene (Surr)	86		41 - 143
1,2-Dichloroethane-d4 (Surr)	88		58 - 125

Lab Sample ID: LCS 240-566249/3
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0250	0.0278		mg/Kg		111	74 - 136
1,1,1,2-Tetrachloroethane	0.0250	0.0277		mg/Kg		111	66 - 129
1,1,1,2-Trichloro-1,1,2-trifluoroethane	0.0250	0.0241		mg/Kg		96	64 - 148
1,1,2-Trichloroethane	0.0250	0.0271		mg/Kg		109	79 - 120
1,1-Dichloroethane	0.0250	0.0243		mg/Kg		97	74 - 121
1,1-Dichloroethene	0.0250	0.0263		mg/Kg		105	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0251		mg/Kg		101	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0246		mg/Kg		98	52 - 133
Ethylene Dibromide	0.0250	0.0261		mg/Kg		105	80 - 121
1,2-Dichlorobenzene	0.0250	0.0261		mg/Kg		104	73 - 120
1,2-Dichloroethane	0.0250	0.0259		mg/Kg		104	71 - 123
1,2-Dichloropropane	0.0250	0.0243		mg/Kg		97	76 - 126
1,3-Dichlorobenzene	0.0250	0.0262		mg/Kg		105	73 - 120
1,4-Dichlorobenzene	0.0250	0.0264		mg/Kg		106	74 - 120
2-Butanone (MEK)	0.0500	0.0524		mg/Kg		105	63 - 142
2-Hexanone	0.0500	0.0552		mg/Kg		110	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0537		mg/Kg		107	62 - 142
Acetone	0.0500	0.0703		mg/Kg		141	58 - 160
Benzene	0.0250	0.0256		mg/Kg		102	76 - 121
Dichlorobromomethane	0.0250	0.0252		mg/Kg		101	71 - 138
Bromoform	0.0250	0.0232		mg/Kg		93	57 - 140
Bromomethane	0.0250	0.0252		mg/Kg		101	10 - 171
Carbon disulfide	0.0250	0.0248		mg/Kg		99	43 - 152
Carbon tetrachloride	0.0250	0.0278		mg/Kg		111	64 - 144

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566249/3
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzene	0.0250	0.0258		mg/Kg		103	80 - 120
Chloroethane	0.0250	0.0223		mg/Kg		89	11 - 164
Chloroform	0.0250	0.0268		mg/Kg		107	78 - 120
Chloromethane	0.0250	0.0216		mg/Kg		86	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0258		mg/Kg		103	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0246		mg/Kg		99	70 - 133
Cyclohexane	0.0250	0.0243		mg/Kg		97	65 - 137
Chlorodibromomethane	0.0250	0.0252		mg/Kg		101	68 - 131
Dichlorodifluoromethane	0.0250	0.0278		mg/Kg		111	21 - 150
Ethylbenzene	0.0250	0.0264		mg/Kg		105	80 - 120
Isopropylbenzene	0.0250	0.0271		mg/Kg		108	80 - 130
Methyl acetate	0.0500	0.0451		mg/Kg		90	60 - 133
Methyl tert-butyl ether	0.0250	0.0249		mg/Kg		99	70 - 130
Methylcyclohexane	0.0250	0.0248		mg/Kg		99	70 - 138
Methylene Chloride	0.0250	0.0262		mg/Kg		105	71 - 124
Styrene	0.0250	0.0267		mg/Kg		107	75 - 140
Tetrachloroethene	0.0250	0.0267		mg/Kg		107	76 - 127
Toluene	0.0250	0.0269		mg/Kg		108	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0248		mg/Kg		99	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0269		mg/Kg		108	61 - 121
Trichloroethene	0.0250	0.0247		mg/Kg		99	74 - 130
Trichlorofluoromethane	0.0250	0.0263		mg/Kg		105	50 - 154
Vinyl chloride	0.0250	0.0230		mg/Kg		92	49 - 146
Xylenes, Total	0.0500	0.0522		mg/Kg		104	80 - 122
m-Xylene & p-Xylene	0.0250	0.0262		mg/Kg		105	80 - 122
o-Xylene	0.0250	0.0260		mg/Kg		104	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	113		56 - 125
Dibromofluoromethane (Surr)	105		41 - 138
4-Bromofluorobenzene (Surr)	113		41 - 143
1,2-Dichloroethane-d4 (Surr)	110		58 - 125

Lab Sample ID: LCS 240-566367/10
Matrix: Solid
Analysis Batch: 566367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	0.935		mg/L		94	74 - 127
1,2-Dichloroethane	1.00	1.01		mg/L		101	72 - 120
2-Butanone (MEK)	2.00	2.22		mg/L		111	68 - 130
Benzene	1.00	0.975		mg/L		98	80 - 121
Carbon tetrachloride	1.00	0.895		mg/L		89	69 - 120
Chlorobenzene	1.00	0.937		mg/L		94	80 - 120
Chloroform	1.00	0.969		mg/L		97	75 - 120
Tetrachloroethene	1.00	0.910		mg/L		91	74 - 120
Trichloroethene	1.00	0.892		mg/L		89	75 - 120
Vinyl chloride	1.00	0.801		mg/L		80	53 - 147

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566367/10
Matrix: Solid
Analysis Batch: 566367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	92		71 - 121
4-Bromofluorobenzene (Surr)	101		80 - 120
1,2-Dichloroethane-d4 (Surr)	97		76 - 120

Lab Sample ID: MB 240-566719/1-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566719

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Acetone	ND		1.0	0.24	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Benzene	ND		0.25	0.042	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Bromoform	ND		0.25	0.23	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chloroform	ND		0.25	0.054	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/24/23 22:04	03/25/23 12:01	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566719/1-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566719

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Styrene	ND		0.25	0.052	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Toluene	ND		0.25	0.24	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/24/23 22:04	03/25/23 12:01	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	80		56 - 125	03/24/23 22:04	03/25/23 12:01	1
Dibromofluoromethane (Surr)	80		41 - 138	03/24/23 22:04	03/25/23 12:01	1
4-Bromofluorobenzene (Surr)	62		41 - 143	03/24/23 22:04	03/25/23 12:01	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125	03/24/23 22:04	03/25/23 12:01	1

Lab Sample ID: LCS 240-566719/2-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.20		mg/Kg		96	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.28		mg/Kg		102	64 - 148
1,1,2-Trichloroethane	1.25	1.33		mg/Kg		106	79 - 120
1,1-Dichloroethane	1.25	1.08		mg/Kg		86	74 - 121
1,1-Dichloroethene	1.25	1.11		mg/Kg		89	68 - 141
1,2,4-Trichlorobenzene	1.25	0.903		mg/Kg		72	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.803		mg/Kg		64	52 - 133
Ethylene Dibromide	1.25	1.21		mg/Kg		96	80 - 121
1,2-Dichlorobenzene	1.25	1.15		mg/Kg		92	73 - 120
1,2-Dichloroethane	1.25	1.25		mg/Kg		100	71 - 123
1,2-Dichloropropane	1.25	1.15		mg/Kg		92	76 - 126
1,3-Dichlorobenzene	1.25	1.10		mg/Kg		88	73 - 120
1,4-Dichlorobenzene	1.25	1.11		mg/Kg		89	74 - 120
2-Butanone (MEK)	2.50	2.65		mg/Kg		106	63 - 142
2-Hexanone	2.50	2.11		mg/Kg		85	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.04		mg/Kg		82	62 - 142
Acetone	2.50	2.79		mg/Kg		111	58 - 160
Benzene	1.25	1.21		mg/Kg		97	76 - 121
Dichlorobromomethane	1.25	1.10		mg/Kg		88	71 - 138
Bromoform	1.25	0.994		mg/Kg		80	57 - 140
Bromomethane	1.25	0.699		mg/Kg		56	10 - 171
Carbon disulfide	1.25	0.815		mg/Kg		65	43 - 152
Carbon tetrachloride	1.25	1.21		mg/Kg		97	64 - 144
Chlorobenzene	1.25	1.20		mg/Kg		96	80 - 120
Chloroethane	1.25	0.859		mg/Kg		69	11 - 164

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566719/2-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloroform	1.25	1.24		mg/Kg		100	78 - 120
Chloromethane	1.25	0.596		mg/Kg		48	41 - 142
cis-1,2-Dichloroethene	1.25	1.18		mg/Kg		94	78 - 124
cis-1,3-Dichloropropene	1.25	0.947		mg/Kg		76	70 - 133
Cyclohexane	1.25	1.06		mg/Kg		85	65 - 137
Chlorodibromomethane	1.25	1.02		mg/Kg		82	68 - 131
Dichlorodifluoromethane	1.25	0.636		mg/Kg		51	21 - 150
Ethylbenzene	1.25	1.22		mg/Kg		97	80 - 120
Isopropylbenzene	1.25	1.21		mg/Kg		97	80 - 130
Methyl acetate	2.50	2.31		mg/Kg		93	60 - 133
Methyl tert-butyl ether	1.25	1.10		mg/Kg		88	70 - 130
Methylcyclohexane	1.25	1.14		mg/Kg		91	70 - 138
Methylene Chloride	1.25	0.924		mg/Kg		74	71 - 124
Styrene	1.25	1.29		mg/Kg		103	75 - 140
Tetrachloroethene	1.25	1.25		mg/Kg		100	76 - 127
Toluene	1.25	1.24		mg/Kg		100	80 - 120
trans-1,2-Dichloroethene	1.25	1.14		mg/Kg		92	76 - 130
trans-1,3-Dichloropropene	1.25	0.946		mg/Kg		76	61 - 121
Trichloroethene	1.25	1.21		mg/Kg		97	74 - 130
Trichlorofluoromethane	1.25	0.961		mg/Kg		77	50 - 154
Vinyl chloride	1.25	0.769		mg/Kg		62	49 - 146
Xylenes, Total	2.50	2.52		mg/Kg		101	80 - 122
m-Xylene & p-Xylene	1.25	1.22		mg/Kg		98	80 - 122
o-Xylene	1.25	1.30		mg/Kg		104	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	82		56 - 125
Dibromofluoromethane (Surr)	79		41 - 138
4-Bromofluorobenzene (Surr)	75		41 - 143
1,2-Dichloroethane-d4 (Surr)	79		58 - 125

Lab Sample ID: 240-182202-22 MS
Matrix: Solid
Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS
Prep Type: Total/NA
Prep Batch: 566719

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		44.9	46.6		mg/Kg		104	46 - 144
1,1,2,2-Tetrachloroethane	ND		44.9	42.1		mg/Kg		94	26 - 159
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		44.9	47.9		mg/Kg		107	35 - 164
1,1,2-Trichloroethane	ND		44.9	46.2		mg/Kg		103	26 - 149
1,1-Dichloroethane	ND		44.9	41.1		mg/Kg		92	46 - 135
1,1-Dichloroethene	ND		44.9	43.0		mg/Kg		96	44 - 160
1,2,4-Trichlorobenzene	ND		44.9	37.8		mg/Kg		84	10 - 120
1,2-Dibromo-3-Chloropropane	ND		44.9	27.5		mg/Kg		61	12 - 144
Ethylene Dibromide	ND		44.9	43.7		mg/Kg		97	31 - 142
1,2-Dichlorobenzene	ND		44.9	43.6		mg/Kg		97	10 - 126
1,2-Dichloroethane	ND		44.9	44.6		mg/Kg		99	40 - 132
1,2-Dichloropropane	ND		44.9	40.6		mg/Kg		90	45 - 133

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-182202-22 MS

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS

Prep Type: Total/NA

Prep Batch: 566719

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
1,3-Dichlorobenzene	ND		44.9	43.6		mg/Kg		97	10 - 131
1,4-Dichlorobenzene	ND		44.9	42.0		mg/Kg		94	10 - 129
2-Butanone (MEK)	ND		89.8	87.1		mg/Kg		97	30 - 157
2-Hexanone	ND		89.8	74.6		mg/Kg		83	20 - 166
4-Methyl-2-pentanone (MIBK)	ND		89.8	69.3		mg/Kg		77	31 - 159
Acetone	ND		89.8	99.1		mg/Kg		110	35 - 167
Benzene	ND		44.9	44.5		mg/Kg		99	39 - 134
Dichlorobromomethane	ND		44.9	42.9		mg/Kg		96	32 - 146
Bromoform	ND		44.9	36.5		mg/Kg		81	12 - 144
Bromomethane	ND		44.9	40.7		mg/Kg		91	10 - 161
Carbon disulfide	ND		44.9	36.9		mg/Kg		82	24 - 153
Carbon tetrachloride	ND		44.9	46.9		mg/Kg		105	37 - 145
Chlorobenzene	ND		44.9	44.3		mg/Kg		99	18 - 134
Chloroethane	ND		44.9	35.0		mg/Kg		78	14 - 159
Chloroform	ND		44.9	45.6		mg/Kg		102	43 - 134
Chloromethane	ND		44.9	24.5		mg/Kg		55	32 - 151
cis-1,2-Dichloroethene	ND		44.9	44.1		mg/Kg		98	48 - 132
cis-1,3-Dichloropropene	ND		44.9	35.8		mg/Kg		80	23 - 139
Cyclohexane	ND		44.9	39.4		mg/Kg		88	31 - 147
Chlorodibromomethane	ND		44.9	39.8		mg/Kg		89	25 - 143
Dichlorodifluoromethane	ND		44.9	31.7		mg/Kg		70	16 - 157
Ethylbenzene	ND		44.9	45.3		mg/Kg		101	17 - 137
Isopropylbenzene	ND		44.9	46.0		mg/Kg		102	10 - 146
Methyl acetate	ND		89.8	76.9		mg/Kg		86	13 - 164
Methyl tert-butyl ether	ND		44.9	38.9		mg/Kg		87	55 - 134
Methylcyclohexane	ND		44.9	41.9		mg/Kg		93	20 - 153
Methylene Chloride	ND		44.9	36.6		mg/Kg		81	38 - 145
Styrene	ND		44.9	47.3		mg/Kg		105	10 - 149
Tetrachloroethene	ND		44.9	47.1		mg/Kg		105	19 - 147
Toluene	ND		44.9	45.3		mg/Kg		101	30 - 137
trans-1,2-Dichloroethene	ND		44.9	44.0		mg/Kg		98	41 - 145
trans-1,3-Dichloropropene	ND		44.9	34.6		mg/Kg		77	19 - 130
Trichloroethene	ND		44.9	44.2		mg/Kg		98	21 - 158
Trichlorofluoromethane	ND		44.9	42.6		mg/Kg		95	36 - 161
Vinyl chloride	ND		44.9	34.0		mg/Kg		76	32 - 163
Xylenes, Total	ND		89.8	93.9		mg/Kg		105	17 - 138
m-Xylene & p-Xylene	ND		44.9	45.6		mg/Kg		102	10 - 141
o-Xylene	ND		44.9	48.3		mg/Kg		108	18 - 139

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	81		56 - 125
Dibromofluoromethane (Surr)	83		41 - 138
4-Bromofluorobenzene (Surr)	76		41 - 143
1,2-Dichloroethane-d4 (Surr)	80		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-182202-22 MSD

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS

Prep Type: Total/NA

Prep Batch: 566719

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1,1-Trichloroethane	ND		44.9	38.0		mg/Kg		85	46 - 144	20	37
1,1,2,2-Tetrachloroethane	ND		44.9	38.9		mg/Kg		87	26 - 159	8	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		44.9	40.8		mg/Kg		91	35 - 164	16	37
1,1,2-Trichloroethane	ND		44.9	40.5		mg/Kg		90	26 - 149	13	40
1,1-Dichloroethane	ND		44.9	37.2		mg/Kg		83	46 - 135	10	36
1,1-Dichloroethene	ND		44.9	39.7		mg/Kg		88	44 - 160	8	37
1,2,4-Trichlorobenzene	ND		44.9	31.5		mg/Kg		70	10 - 120	18	40
1,2-Dibromo-3-Chloropropane	ND		44.9	21.5		mg/Kg		48	12 - 144	24	40
Ethylene Dibromide	ND		44.9	38.3		mg/Kg		85	31 - 142	13	40
1,2-Dichlorobenzene	ND		44.9	33.9		mg/Kg		75	10 - 126	25	40
1,2-Dichloroethane	ND		44.9	39.5		mg/Kg		88	40 - 132	12	35
1,2-Dichloropropane	ND		44.9	37.6		mg/Kg		84	45 - 133	8	37
1,3-Dichlorobenzene	ND		44.9	36.8		mg/Kg		82	10 - 131	17	40
1,4-Dichlorobenzene	ND		44.9	36.1		mg/Kg		80	10 - 129	15	40
2-Butanone (MEK)	ND		89.8	91.3		mg/Kg		102	30 - 157	5	40
2-Hexanone	ND		89.8	79.5		mg/Kg		89	20 - 166	6	40
4-Methyl-2-pentanone (MIBK)	ND		89.8	71.8		mg/Kg		80	31 - 159	3	40
Acetone	ND		89.8	110		mg/Kg		123	35 - 167	11	40
Benzene	ND		44.9	38.5		mg/Kg		86	39 - 134	14	40
Dichlorobromomethane	ND		44.9	35.7		mg/Kg		80	32 - 146	18	39
Bromoform	ND		44.9	30.9		mg/Kg		69	12 - 144	16	40
Bromomethane	ND		44.9	40.4		mg/Kg		90	10 - 161	1	40
Carbon disulfide	ND		44.9	33.9		mg/Kg		76	24 - 153	8	40
Carbon tetrachloride	ND		44.9	37.6		mg/Kg		84	37 - 145	22	38
Chlorobenzene	ND		44.9	36.9		mg/Kg		82	18 - 134	18	40
Chloroethane	ND		44.9	34.3		mg/Kg		76	14 - 159	2	40
Chloroform	ND		44.9	40.3		mg/Kg		90	43 - 134	12	36
Chloromethane	ND		44.9	27.5		mg/Kg		61	32 - 151	12	38
cis-1,2-Dichloroethene	ND		44.9	37.9		mg/Kg		84	48 - 132	15	37
cis-1,3-Dichloropropene	ND		44.9	30.6		mg/Kg		68	23 - 139	16	39
Cyclohexane	ND		44.9	35.9		mg/Kg		80	31 - 147	10	39
Chlorodibromomethane	ND		44.9	32.7		mg/Kg		73	25 - 143	20	40
Dichlorodifluoromethane	ND		44.9	27.5		mg/Kg		61	16 - 157	14	40
Ethylbenzene	ND		44.9	37.0		mg/Kg		82	17 - 137	20	40
Isopropylbenzene	ND		44.9	39.3		mg/Kg		87	10 - 146	16	40
Methyl acetate	ND		89.8	85.4		mg/Kg		95	13 - 164	11	40
Methyl tert-butyl ether	ND		44.9	37.0		mg/Kg		82	55 - 134	5	37
Methylcyclohexane	ND		44.9	33.9		mg/Kg		75	20 - 153	21	40
Methylene Chloride	ND		44.9	32.9		mg/Kg		73	38 - 145	11	40
Styrene	ND		44.9	40.3		mg/Kg		90	10 - 149	16	40
Tetrachloroethene	ND		44.9	37.0		mg/Kg		82	19 - 147	24	40
Toluene	ND		44.9	38.7		mg/Kg		86	30 - 137	16	40
trans-1,2-Dichloroethene	ND		44.9	37.7		mg/Kg		84	41 - 145	15	37
trans-1,3-Dichloropropene	ND		44.9	31.0		mg/Kg		69	19 - 130	11	40
Trichloroethene	ND		44.9	37.1		mg/Kg		83	21 - 158	18	40
Trichlorofluoromethane	ND		44.9	39.5		mg/Kg		88	36 - 161	7	40
Vinyl chloride	ND		44.9	34.8		mg/Kg		77	32 - 163	2	38
Xylenes, Total	ND		89.8	77.9		mg/Kg		87	17 - 138	19	40

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-182202-22 MSD

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS

Prep Type: Total/NA

Prep Batch: 566719

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	ND		44.9	37.3		mg/Kg		83	10 - 141	20	40
o-Xylene	ND		44.9	40.6		mg/Kg		90	18 - 139	17	40
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Toluene-d8 (Surr)	83		56 - 125								
Dibromofluoromethane (Surr)	80		41 - 138								
4-Bromofluorobenzene (Surr)	77		41 - 143								
1,2-Dichloroethane-d4 (Surr)	81		58 - 125								

Lab Sample ID: LB 240-566129/1-A MB

Matrix: Solid

Analysis Batch: 566367

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 15:29	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 15:29	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 15:29	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 15:29	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 15:29	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 15:29	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 15:29	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 15:29	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 15:29	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 15:29	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		80 - 120					03/22/23 15:29	1
Dibromofluoromethane (Surr)	93		71 - 121					03/22/23 15:29	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/22/23 15:29	1
1,2-Dichloroethane-d4 (Surr)	98		76 - 120					03/22/23 15:29	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-566221/8-A

Matrix: Solid

Analysis Batch: 566449

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566221

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 10:08	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 10:08	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 10:08	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 10:08	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 10:08	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 10:08	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 10:08	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 10:08	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 10:08	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 10:08	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566221/8-A
Matrix: Solid
Analysis Batch: 566449

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566221

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 10:08	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 10:08	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
Terphenyl-d14 (Surr)	121		46 - 137				03/21/23 12:03	03/23/23 10:08	1
Phenol-d5 (Surr)	65		26 - 120				03/21/23 12:03	03/23/23 10:08	1
Nitrobenzene-d5 (Surr)	81		24 - 120				03/21/23 12:03	03/23/23 10:08	1
2-Fluorophenol (Surr)	73		19 - 120				03/21/23 12:03	03/23/23 10:08	1
2-Fluorobiphenyl (Surr)	93		33 - 120				03/21/23 12:03	03/23/23 10:08	1
2,4,6-Tribromophenol (Surr)	116		10 - 120				03/21/23 12:03	03/23/23 10:08	1

Lab Sample ID: LCS 240-566221/9-A
Matrix: Solid
Analysis Batch: 566449

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566221

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	Limits	
		Result	Qualifier						
1,4-Dichlorobenzene	0.0800	0.0599		mg/L		75		40 - 120	
2,4,5-Trichlorophenol	0.0800	0.0768		mg/L		96		52 - 123	
2,4,6-Trichlorophenol	0.0800	0.0796		mg/L		100		51 - 120	
2,4-Dinitrotoluene	0.0800	0.0759		mg/L		95		58 - 125	
Pyridine	0.160	0.0696		mg/L		44		10 - 120	
2-Methylphenol	0.0800	0.0606		mg/L		76		45 - 120	
Hexachlorobenzene	0.0800	0.0810		mg/L		101		55 - 120	
Hexachlorobutadiene	0.0800	0.0662		mg/L		83		41 - 120	
Hexachloroethane	0.0800	0.0601		mg/L		75		39 - 120	
Nitrobenzene	0.0800	0.0634		mg/L		79		47 - 120	
Pentachlorophenol	0.160	0.129		mg/L		81		19 - 132	
3 & 4 Methylphenol	0.0800	0.0615		mg/L		77		40 - 120	
Surrogate	LCS	LCS	Limits			D	%Rec	%Rec	Limits
	%Recovery	Qualifier							
Terphenyl-d14 (Surr)	112		46 - 137						
Phenol-d5 (Surr)	68		26 - 120						
Nitrobenzene-d5 (Surr)	84		24 - 120						
2-Fluorophenol (Surr)	76		19 - 120						
2-Fluorobiphenyl (Surr)	94		33 - 120						
2,4,6-Tribromophenol (Surr)	123	S1+	10 - 120						

Lab Sample ID: MB 240-566295/1-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566295

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/22/23 08:13	03/24/23 08:51	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566295/1-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566295

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Atrazine	ND		0.20	0.036	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Carbazole	ND		0.050	0.019	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/22/23 08:13	03/24/23 08:51	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566295/1-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566295

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	ND		0.050	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Phenol	ND		0.050	0.0080	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/22/23 08:13	03/24/23 08:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	103		46 - 137	03/22/23 08:13	03/24/23 08:51	1
Phenol-d5 (Surr)	36		26 - 120	03/22/23 08:13	03/24/23 08:51	1
Nitrobenzene-d5 (Surr)	33		25 - 120	03/22/23 08:13	03/24/23 08:51	1
2-Fluorophenol (Surr)	33		20 - 120	03/22/23 08:13	03/24/23 08:51	1
2-Fluorobiphenyl (Surr)	40		34 - 120	03/22/23 08:13	03/24/23 08:51	1
2,4,6-Tribromophenol (Surr)	33		10 - 120	03/22/23 08:13	03/24/23 08:51	1

Lab Sample ID: LCS 240-566295/2-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566295

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1'-Biphenyl	0.667	0.371		mg/Kg		56	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.327		mg/Kg		49	38 - 120
2,4,5-Trichlorophenol	0.667	0.502		mg/Kg		75	50 - 120
2,4,6-Trichlorophenol	0.667	0.476		mg/Kg		71	50 - 120
2,4-Dichlorophenol	0.667	0.398		mg/Kg		60	50 - 120
2,4-Dimethylphenol	0.667	0.392		mg/Kg		59	24 - 120
2,4-Dinitrophenol	1.33	1.09		mg/Kg		82	19 - 132
2,4-Dinitrotoluene	0.667	0.679		mg/Kg		102	64 - 120
2,6-Dinitrotoluene	0.667	0.603		mg/Kg		90	62 - 120
2-Chloronaphthalene	0.667	0.377		mg/Kg		57	51 - 120
2-Chlorophenol	0.667	0.373		mg/Kg		56	47 - 120
2-Methylnaphthalene	0.667	0.359		mg/Kg		54	38 - 120
2-Methylphenol	0.667	0.347		mg/Kg		52	45 - 120
2-Nitroaniline	0.667	0.523		mg/Kg		79	57 - 120
2-Nitrophenol	0.667	0.424		mg/Kg		64	51 - 120
3,3'-Dichlorobenzidine	1.33	1.46		mg/Kg		110	27 - 199
3-Nitroaniline	0.667	0.555		mg/Kg		83	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.26		mg/Kg		95	46 - 126
4-Bromophenyl phenyl ether	0.667	0.558		mg/Kg		84	65 - 120
4-Chloro-3-methylphenol	0.667	0.458		mg/Kg		69	51 - 120
4-Chloroaniline	0.667	0.350		mg/Kg		52	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.470		mg/Kg		70	59 - 120
4-Nitroaniline	0.667	0.650		mg/Kg		97	48 - 128
4-Nitrophenol	1.33	1.27		mg/Kg		96	43 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-566295/2-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566295

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	0.667	0.394		mg/Kg		59	52 - 120
Acenaphthylene	0.667	0.391		mg/Kg		59	52 - 120
Acetophenone	0.667	0.363		mg/Kg		54	47 - 120
Anthracene	0.667	0.599		mg/Kg		90	64 - 120
Atrazine	1.33	1.35		mg/Kg		102	71 - 125
Benzaldehyde	1.33	0.648		mg/Kg		49	42 - 120
Benzo[a]anthracene	0.667	0.726		mg/Kg		109	70 - 120
Benzo[a]pyrene	0.667	0.608		mg/Kg		91	63 - 125
Benzo[b]fluoranthene	0.667	0.567		mg/Kg		85	64 - 121
Benzo[g,h,i]perylene	0.667	0.662		mg/Kg		99	62 - 120
Benzo[k]fluoranthene	0.667	0.615		mg/Kg		92	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.349		mg/Kg		52	50 - 120
Bis(2-chloroethyl)ether	0.667	0.289		mg/Kg		43	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.664		mg/Kg		100	63 - 133
Butyl benzyl phthalate	0.667	0.679		mg/Kg		102	66 - 127
Caprolactam	1.33	1.18		mg/Kg		89	67 - 120
Carbazole	0.667	0.676		mg/Kg		101	61 - 129
Chrysene	0.667	0.683		mg/Kg		102	67 - 120
Dibenz(a,h)anthracene	0.667	0.630		mg/Kg		95	62 - 120
Dibenzofuran	0.667	0.426		mg/Kg		64	55 - 120
Diethyl phthalate	0.667	0.613		mg/Kg		92	61 - 120
Dimethyl phthalate	0.667	0.571		mg/Kg		86	64 - 120
Di-n-butyl phthalate	0.667	0.650		mg/Kg		97	70 - 129
Di-n-octyl phthalate	0.667	0.609		mg/Kg		91	64 - 129
Fluoranthene	0.667	0.699		mg/Kg		105	71 - 124
Fluorene	0.667	0.470		mg/Kg		70	58 - 120
Hexachlorobenzene	0.667	0.618		mg/Kg		93	59 - 120
Hexachlorobutadiene	0.667	0.359		mg/Kg		54	45 - 120
Hexachlorocyclopentadiene	0.667	0.239	J	mg/Kg		36	10 - 120
Hexachloroethane	0.667	0.308		mg/Kg		46	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.669		mg/Kg		100	65 - 122
Isophorone	0.667	0.348		mg/Kg		52	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.352		mg/Kg		53	48 - 120
N-Nitrosodiphenylamine	0.667	0.542		mg/Kg		81	64 - 120
Naphthalene	0.667	0.338		mg/Kg		51	34 - 120
Nitrobenzene	0.667	0.355		mg/Kg		53	48 - 120
Pentachlorophenol	1.33	0.815		mg/Kg		61	10 - 120
Phenanthrene	0.667	0.566		mg/Kg		85	60 - 120
Phenol	0.667	0.349		mg/Kg		52	48 - 120
Pyrene	0.667	0.721		mg/Kg		108	67 - 120
3 & 4 Methylphenol	0.667	0.365	J	mg/Kg		55	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	124		46 - 137
Phenol-d5 (Surr)	59		26 - 120
Nitrobenzene-d5 (Surr)	55		25 - 120
2-Fluorophenol (Surr)	60		20 - 120
2-Fluorobiphenyl (Surr)	63		34 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-566295/2-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566295

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	112		10 - 120

Lab Sample ID: 240-182202-1 MS
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')
Prep Type: Total/NA
Prep Batch: 566295

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
1,1'-Biphenyl	ND		0.800	ND		mg/Kg	⊛	NC	29 - 120
bis (2-chloroisopropyl) ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	10 - 120
2,4,5-Trichlorophenol	ND		0.800	ND		mg/Kg	⊛	NC	35 - 120
2,4,6-Trichlorophenol	ND		0.800	ND		mg/Kg	⊛	NC	18 - 120
2,4-Dichlorophenol	ND		0.800	ND		mg/Kg	⊛	NC	21 - 120
2,4-Dimethylphenol	ND		0.800	ND		mg/Kg	⊛	NC	10 - 120
2,4-Dinitrophenol	ND		1.60	ND		mg/Kg	⊛	NC	10 - 126
2,4-Dinitrotoluene	ND		0.800	ND		mg/Kg	⊛	NC	46 - 120
2,6-Dinitrotoluene	ND		0.800	ND		mg/Kg	⊛	NC	44 - 120
2-Chloronaphthalene	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	33 - 120
2-Chlorophenol	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	19 - 120
2-Methylnaphthalene	0.32	J	0.800	0.476	J	mg/Kg	⊛	19	13 - 122
2-Methylphenol	ND		0.800	ND		mg/Kg	⊛	NC	12 - 120
2-Nitroaniline	ND		0.800	ND		mg/Kg	⊛	NC	36 - 122
2-Nitrophenol	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	28 - 120
3,3'-Dichlorobenzidine	ND		1.60	2.94	J	mg/Kg	⊛	NC	10 - 179
3-Nitroaniline	ND		0.800	ND		mg/Kg	⊛	NC	10 - 123
4,6-Dinitro-2-methylphenol	ND		1.60	ND		mg/Kg	⊛	NC	11 - 120
4-Bromophenyl phenyl ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	49 - 120
4-Chloro-3-methylphenol	ND		0.800	ND		mg/Kg	⊛	NC	35 - 120
4-Chloroaniline	ND		0.800	ND		mg/Kg	⊛	NC	10 - 120
4-Chlorophenyl phenyl ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	45 - 120
4-Nitroaniline	ND		0.800	ND		mg/Kg	⊛	NC	13 - 129
4-Nitrophenol	ND		1.60	ND		mg/Kg	⊛	NC	28 - 123
Acenaphthene	ND		0.800	0.537	J	mg/Kg	⊛	67	33 - 120
Acenaphthylene	ND		0.800	0.472	J	mg/Kg	⊛	59	39 - 120
Acetophenone	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	11 - 120
Anthracene	ND		0.800	0.522	J	mg/Kg	⊛	65	30 - 127
Atrazine	ND		1.60	ND		mg/Kg	⊛	NC	52 - 126
Benzaldehyde	ND	F1	1.60	ND	F1	mg/Kg	⊛	0	13 - 120
Benzo[a]anthracene	0.18	J	0.800	0.580	J	mg/Kg	⊛	50	24 - 137
Benzo[a]pyrene	ND		0.800	0.585	J	mg/Kg	⊛	73	28 - 136
Benzo[b]fluoranthene	0.38	J	0.800	0.649	J	mg/Kg	⊛	33	21 - 142
Benzo[g,h,i]perylene	ND		0.800	0.658	J	mg/Kg	⊛	82	10 - 144
Benzo[k]fluoranthene	ND		0.800	0.604	J	mg/Kg	⊛	75	36 - 135
Bis(2-chloroethoxy)methane	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	25 - 120
Bis(2-chloroethyl)ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	16 - 120
Bis(2-ethylhexyl) phthalate	ND		0.800	ND		mg/Kg	⊛	NC	37 - 143
Butyl benzyl phthalate	ND		0.800	1.36	J	mg/Kg	⊛	NC	49 - 130
Caprolactam	ND		1.60	ND		mg/Kg	⊛	NC	37 - 127
Carbazole	ND		0.800	ND		mg/Kg	⊛	NC	33 - 132

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182202-1 MS

Matrix: Solid

Analysis Batch: 566576

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Prep Type: Total/NA

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Chrysene	0.16	J	0.800	0.586	J	mg/Kg	⊛	53	28 - 129	
Dibenz(a,h)anthracene	ND		0.800	0.631	J	mg/Kg	⊛	79	10 - 132	
Dibenzofuran	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	33 - 120	
Diethyl phthalate	ND		0.800	ND		mg/Kg	⊛	NC	48 - 120	
Dimethyl phthalate	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	45 - 120	
Di-n-butyl phthalate	ND		0.800	ND		mg/Kg	⊛	NC	40 - 137	
Di-n-octyl phthalate	ND		0.800	1.95	J	mg/Kg	⊛	NC	34 - 152	
Fluoranthene	0.21	J	0.800	0.564	J	mg/Kg	⊛	70	31 - 140	
Fluorene	ND		0.800	0.558	J	mg/Kg	⊛	70	43 - 120	
Hexachlorobenzene	ND		0.800	0.608	J	mg/Kg	⊛	76	44 - 120	
Hexachlorobutadiene	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	13 - 120	
Hexachlorocyclopentadiene	ND		0.800	ND		mg/Kg	⊛	NC	10 - 120	
Hexachloroethane	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	10 - 120	
Indeno[1,2,3-cd]pyrene	ND		0.800	0.716	J	mg/Kg	⊛	89	10 - 139	
Isophorone	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	27 - 120	
N-Nitrosodi-n-propylamine	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	23 - 120	
N-Nitrosodiphenylamine	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	30 - 128	
Naphthalene	0.26	J	0.800	0.451	J	mg/Kg	⊛	24	10 - 120	
Nitrobenzene	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	19 - 120	
Pentachlorophenol	ND		1.60	ND		mg/Kg	⊛	NC	10 - 120	
Phenanthrene	0.51	J F1	0.800	0.633	J F1	mg/Kg	⊛	15	36 - 120	
Phenol	ND		0.800	0.459	J	mg/Kg	⊛	57	10 - 120	
Pyrene	0.22	J	0.800	0.602	J	mg/Kg	⊛	48	31 - 134	
3 & 4 Methylphenol	ND		0.800	ND		mg/Kg	⊛	NC	10 - 122	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	88		46 - 137
Phenol-d5 (Surr)	64		26 - 120
Nitrobenzene-d5 (Surr)	53		25 - 120
2-Fluorophenol (Surr)	62		20 - 120
2-Fluorobiphenyl (Surr)	73		34 - 120
2,4,6-Tribromophenol (Surr)	52		10 - 120

Lab Sample ID: 240-182202-1 MSD

Matrix: Solid

Analysis Batch: 566576

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Prep Type: Total/NA

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier						
1,1'-Biphenyl	ND		0.791	ND		mg/Kg	⊛	NC	29 - 120	NC	45
bis (2-chloroisopropyl) ether	ND	F1	0.791	ND	F1	mg/Kg	⊛	0	10 - 120	NC	45
2,4,5-Trichlorophenol	ND		0.791	ND		mg/Kg	⊛	NC	35 - 120	NC	39
2,4,6-Trichlorophenol	ND		0.791	ND		mg/Kg	⊛	NC	18 - 120	NC	45
2,4-Dichlorophenol	ND		0.791	ND		mg/Kg	⊛	NC	21 - 120	NC	44
2,4-Dimethylphenol	ND		0.791	ND		mg/Kg	⊛	NC	10 - 120	NC	45
2,4-Dinitrophenol	ND		1.58	ND		mg/Kg	⊛	NC	10 - 126	NC	45
2,4-Dinitrotoluene	ND		0.791	ND		mg/Kg	⊛	NC	46 - 120	NC	45
2,6-Dinitrotoluene	ND		0.791	ND		mg/Kg	⊛	NC	44 - 120	NC	45
2-Chloronaphthalene	ND	F1	0.791	ND	F1	mg/Kg	⊛	0	33 - 120	NC	45

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182202-1 MSD

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566576

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
2-Chlorophenol	ND	F1	0.791	ND	F1	mg/Kg	*	0	19 - 120	NC	45
2-Methylnaphthalene	0.32	J	0.791	0.509	J	mg/Kg	*	23	13 - 122	7	45
2-Methylphenol	ND		0.791	ND		mg/Kg	*	NC	12 - 120	NC	45
2-Nitroaniline	ND		0.791	ND		mg/Kg	*	NC	36 - 122	NC	42
2-Nitrophenol	ND	F1	0.791	ND	F1	mg/Kg	*	0	28 - 120	NC	45
3,3'-Dichlorobenzidine	ND		1.58	2.78	J	mg/Kg	*	NC	10 - 179	6	45
3-Nitroaniline	ND		0.791	ND		mg/Kg	*	NC	10 - 123	NC	45
4,6-Dinitro-2-methylphenol	ND		1.58	ND		mg/Kg	*	NC	11 - 120	NC	40
4-Bromophenyl phenyl ether	ND	F1	0.791	ND	F1	mg/Kg	*	0	49 - 120	NC	42
4-Chloro-3-methylphenol	ND		0.791	ND		mg/Kg	*	NC	35 - 120	NC	42
4-Chloroaniline	ND		0.791	ND		mg/Kg	*	NC	10 - 120	NC	45
4-Chlorophenyl phenyl ether	ND	F1	0.791	ND	F1	mg/Kg	*	0	45 - 120	NC	44
4-Nitroaniline	ND		0.791	ND		mg/Kg	*	NC	13 - 129	NC	38
4-Nitrophenol	ND		1.58	ND		mg/Kg	*	NC	28 - 123	NC	45
Acenaphthene	ND		0.791	0.524	J	mg/Kg	*	66	33 - 120	2	45
Acenaphthylene	ND		0.791	0.459	J	mg/Kg	*	58	39 - 120	3	45
Acetophenone	ND	F1	0.791	ND	F1	mg/Kg	*	0	11 - 120	NC	45
Anthracene	ND		0.791	0.546	J	mg/Kg	*	69	30 - 127	4	45
Atrazine	ND		1.58	ND		mg/Kg	*	NC	52 - 126	NC	34
Benzaldehyde	ND	F1	1.58	ND	F1	mg/Kg	*	0	13 - 120	NC	45
Benzo[a]anthracene	0.18	J	0.791	0.626	J	mg/Kg	*	56	24 - 137	8	42
Benzo[a]pyrene	ND		0.791	0.582	J	mg/Kg	*	74	28 - 136	0	41
Benzo[b]fluoranthene	0.38	J	0.791	0.669	J	mg/Kg	*	36	21 - 142	3	42
Benzo[g,h,i]perylene	ND		0.791	0.630	J	mg/Kg	*	80	10 - 144	4	40
Benzo[k]fluoranthene	ND		0.791	0.607	J	mg/Kg	*	77	36 - 135	1	44
Bis(2-chloroethoxy)methane	ND	F1	0.791	ND	F1	mg/Kg	*	0	25 - 120	NC	45
Bis(2-chloroethyl)ether	ND	F1	0.791	ND	F1	mg/Kg	*	0	16 - 120	NC	45
Bis(2-ethylhexyl) phthalate	ND		0.791	ND		mg/Kg	*	NC	37 - 143	NC	38
Butyl benzyl phthalate	ND		0.791	1.32	J	mg/Kg	*	NC	49 - 130	3	41
Caprolactam	ND		1.58	ND		mg/Kg	*	NC	37 - 127	NC	45
Carbazole	ND		0.791	ND		mg/Kg	*	NC	33 - 132	NC	45
Chrysene	0.16	J	0.791	0.648	J	mg/Kg	*	61	28 - 129	10	42
Dibenz(a,h)anthracene	ND		0.791	0.625	J	mg/Kg	*	79	10 - 132	1	37
Dibenzofuran	ND	F1	0.791	0.629	J	mg/Kg	*	80	33 - 120	NC	43
Diethyl phthalate	ND		0.791	ND		mg/Kg	*	NC	48 - 120	NC	38
Dimethyl phthalate	ND	F1	0.791	ND	F1	mg/Kg	*	0	45 - 120	NC	43
Di-n-butyl phthalate	ND		0.791	ND		mg/Kg	*	NC	40 - 137	NC	42
Di-n-octyl phthalate	ND		0.791	1.90	J	mg/Kg	*	NC	34 - 152	3	39
Fluoranthene	0.21	J	0.791	0.583	J	mg/Kg	*	74	31 - 140	3	45
Fluorene	ND		0.791	0.552	J	mg/Kg	*	70	43 - 120	1	39
Hexachlorobenzene	ND		0.791	0.591	J	mg/Kg	*	75	44 - 120	3	39
Hexachlorobutadiene	ND	F1	0.791	ND	F1	mg/Kg	*	0	13 - 120	NC	45
Hexachlorocyclopentadiene	ND		0.791	ND		mg/Kg	*	NC	10 - 120	NC	45
Hexachloroethane	ND	F1	0.791	ND	F1	mg/Kg	*	0	10 - 120	NC	45
Indeno[1,2,3-cd]pyrene	ND		0.791	0.725		mg/Kg	*	92	10 - 139	1	41
Isophorone	ND	F1	0.791	ND	F1	mg/Kg	*	0	27 - 120	NC	45
N-Nitrosodi-n-propylamine	ND	F1	0.791	ND	F1	mg/Kg	*	0	23 - 120	NC	45
N-Nitrosodiphenylamine	ND	F1	0.791	ND	F1	mg/Kg	*	0	30 - 128	NC	44
Naphthalene	0.26	J	0.791	0.454	J	mg/Kg	*	25	10 - 120	1	45

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182202-1 MSD

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566576

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Nitrobenzene	ND	F1	0.791	ND	F1	mg/Kg	⊛	0	19 - 120	NC	45
Pentachlorophenol	ND		1.58	ND		mg/Kg	⊛	NC	10 - 120	NC	45
Phenanthrene	0.51	J F1	0.791	0.748	F1	mg/Kg	⊛	30	36 - 120	17	41
Phenol	ND		0.791	0.408	J	mg/Kg	⊛	52	10 - 120	12	45
Pyrene	0.22	J	0.791	0.658	J	mg/Kg	⊛	56	31 - 134	9	43
3 & 4 Methylphenol	ND		0.791	ND		mg/Kg	⊛	NC	10 - 122	NC	45
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
Terphenyl-d14 (Surr)	85		46 - 137								
Phenol-d5 (Surr)	58		26 - 120								
Nitrobenzene-d5 (Surr)	42		25 - 120								
2-Fluorophenol (Surr)	45		20 - 120								
2-Fluorobiphenyl (Surr)	63		34 - 120								
2,4,6-Tribromophenol (Surr)	55		10 - 120								

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-566222/5-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566344

Prep Batch: 566222

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 13:36	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 13:36	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 13:36	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 13:36	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 13:36	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 13:36	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 13:36	1
MB MB									
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
DCB Decachlorobiphenyl	71		10 - 145	03/21/23 12:08	03/22/23 13:36	1			
DCB Decachlorobiphenyl	69		10 - 145	03/21/23 12:08	03/22/23 13:36	1			
Tetrachloro-m-xylene	69		10 - 123	03/21/23 12:08	03/22/23 13:36	1			
Tetrachloro-m-xylene	73		10 - 123	03/21/23 12:08	03/22/23 13:36	1			

Lab Sample ID: LCS 240-566222/6-A

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566344

Prep Batch: 566222

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Added	Result				
Endrin	0.00100	0.000894		mg/L		89	36 - 120
Heptachlor	0.00100	0.000851		mg/L		85	29 - 120
Heptachlor epoxide	0.00100	0.000846		mg/L		85	36 - 120
gamma-BHC (Lindane)	0.00100	0.000847		mg/L		85	23 - 120
Methoxychlor	0.00100	0.00105		mg/L		105	23 - 140

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 240-566222/6-A
Matrix: Solid
Analysis Batch: 566344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566222

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	69		10 - 145
DCB Decachlorobiphenyl	67		10 - 145
Tetrachloro-m-xylene	65		10 - 123
Tetrachloro-m-xylene	71		10 - 123

Lab Sample ID: 240-182202-11 MS
Matrix: Solid
Analysis Batch: 566344

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)
Prep Type: TCLP
Prep Batch: 566222

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Endrin	ND		0.00100	0.000958		mg/L		96	58 - 120
Heptachlor	ND		0.00100	0.000862		mg/L		86	42 - 120
Heptachlor epoxide	ND		0.00100	0.000876		mg/L		88	54 - 120
gamma-BHC (Lindane)	ND		0.00100	0.000858		mg/L		86	32 - 120
Methoxychlor	ND		0.00100	0.00124		mg/L		124	11 - 159

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	84		10 - 145
DCB Decachlorobiphenyl	75		10 - 145
Tetrachloro-m-xylene	65		10 - 123
Tetrachloro-m-xylene	67		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-566161/1-A
Matrix: Solid
Analysis Batch: 566139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566161

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1221	ND		50	30	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1232	ND		50	21	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1242	ND		50	19	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1248	ND		50	17	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1254	ND		50	21	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1260	ND		50	21	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1262	ND		50	22	ug/Kg		03/21/23 08:36	03/21/23 17:31	1
Aroclor-1268	ND		50	16	ug/Kg		03/21/23 08:36	03/21/23 17:31	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	86		10 - 149	03/21/23 08:36	03/21/23 17:31	1
DCB Decachlorobiphenyl	75		10 - 174	03/21/23 08:36	03/21/23 17:31	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-566161/2-A
Matrix: Solid
Analysis Batch: 566139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	765		ug/Kg		76	28 - 140
Aroclor-1260	1000	762		ug/Kg		76	39 - 153
		LCS %Recovery	LCS Qualifier	Limits			
<i>Surrogate</i>							
Tetrachloro-m-xylene		98		10 - 149			
DCB Decachlorobiphenyl		83		10 - 174			

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-356959/2-A
Matrix: Solid
Analysis Batch: 356976

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 356959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 06:19	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 06:19	1
		MB %Recovery	MB Qualifier	Limits		Prepared		Analyzed	Dil Fac
<i>Surrogate</i>									
2,4-Dichlorophenylacetic acid (Surr)		52		26 - 136			03/23/23 21:15	03/24/23 06:19	1
2,4-Dichlorophenylacetic acid (Surr)		57		26 - 136			03/23/23 21:15	03/24/23 06:19	1

Lab Sample ID: LCS 410-356959/3-A
Matrix: Solid
Analysis Batch: 356976

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silvex (2,4,5-TP)	0.00500	0.00355	J	mg/L		71	58 - 148
2,4-D	0.0502	0.0342	J	mg/L		68	42 - 147
		LCS %Recovery	LCS Qualifier	Limits			
<i>Surrogate</i>							
2,4-Dichlorophenylacetic acid (Surr)		58		26 - 136			
2,4-Dichlorophenylacetic acid (Surr)		64		26 - 136			

Lab Sample ID: LCSD 410-356959/4-A
Matrix: Solid
Analysis Batch: 356976

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 356959

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silvex (2,4,5-TP)	0.00500	0.00365	J	mg/L		73	58 - 148	3	30
2,4-D	0.0502	0.0355	J	mg/L		71	42 - 147	4	30
		LCSD %Recovery	LCSD Qualifier	Limits		RPD		Limit	
<i>Surrogate</i>									
2,4-Dichlorophenylacetic acid (Surr)		60		26 - 136					
2,4-Dichlorophenylacetic acid (Surr)		67		26 - 136					

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: 240-182202-11 MS

Matrix: Solid

Analysis Batch: 356976

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Prep Type: TCLP

Prep Batch: 356959

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Silvex (2,4,5-TP)	ND		0.00500	0.00345	J	mg/L		69	58 - 148
2,4-D	ND		0.0502	0.0346	J	mg/L		69	42 - 147
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136						
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136						

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-358137/1-A

Matrix: Solid

Analysis Batch: 358629

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 358137

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3,4,6,7,8-HpCDD	0.258	J I	5.0	0.014	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,6,7,8-HpCDF	0.0936	J	5.0	0.0053	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,7,8-HxCDD	0.0678	J I	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,7,8-HxCDF	0.0721	J	5.0	0.0098	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,7,8,9-HpCDF	0.0748	J	5.0	0.0073	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,6,7,8-HxCDD	0.0928	J	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,6,7,8-HxCDF	0.0470	J I	5.0	0.0093	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8-PeCDD	0.121	J I	5.0	0.0048	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8-PeCDF	0.0800	J I	5.0	0.0040	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8,9-HxCDD	0.0491	J I	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8,9-HxCDF	0.103	J I	5.0	0.011	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,4,6,7,8-HxCDF	0.0624	J	5.0	0.0087	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,4,7,8-PeCDF	0.0666	J	5.0	0.0029	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,7,8-TCDD	0.0322	J I	1.0	0.0056	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,7,8-TCDF	ND		1.0	0.0043	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
OCDD	0.959	J I	10	0.015	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
OCDF	0.206	J I	10	0.0041	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HxCDD	0.340	J I	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HxCDF	0.285	J I	5.0	0.0098	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HpCDD	0.258	J I	5.0	0.014	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HpCDF	0.335	J I	5.0	0.0063	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total PeCDD	0.202	J I	5.0	0.0048	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total PeCDF	0.312	J I	5.0	0.0034	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total TCDD	0.0968	J I	1.0	0.0056	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total TCDF	ND		1.0	0.0043	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
MB MB									
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
13C-OCDF	109		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-OCDD	113		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,7,8-TCDF	84		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,7,8-TCDD	91		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,4,7,8-PeCDF	88		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,4,6,7,8-HxCDF	91		40 - 135			03/28/23 09:37	03/30/23 04:29	1	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 410-358137/1-A
Matrix: Solid
Analysis Batch: 358629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 358137

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8,9-HxCDF	90		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,7,8,9-HxCDD	97		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,7,8-PeCDF	86		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,7,8-PeCDD	88		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,6,7,8-HxCDF	98		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,6,7,8-HxCDD	96		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,7,8,9-HpCDF	93		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,7,8-HxCDF	92		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,7,8-HxCDD	93		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,6,7,8-HpCDF	93		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,6,7,8-HpCDD	100		40 - 135	03/28/23 09:37	03/30/23 04:29	1

Lab Sample ID: LCS 410-358137/2-A
Matrix: Solid
Analysis Batch: 358629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 358137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
1,2,3,4,6,7,8-HpCDD	100	101		ng/Kg		101	77 - 127
1,2,3,4,6,7,8-HpCDF	100	99.3		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDD	100	104		ng/Kg		104	77 - 127
1,2,3,4,7,8-HxCDF	100	101		ng/Kg		101	77 - 129
1,2,3,4,7,8,9-HpCDF	100	102		ng/Kg		102	77 - 127
1,2,3,6,7,8-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,6,7,8-HxCDF	100	101		ng/Kg		101	77 - 129
1,2,3,7,8-PeCDD	100	109		ng/Kg		109	77 - 127
1,2,3,7,8-PeCDF	100	105		ng/Kg		105	75 - 129
1,2,3,7,8,9-HxCDD	100	105		ng/Kg		105	76 - 127
1,2,3,7,8,9-HxCDF	100	102		ng/Kg		102	76 - 126
2,3,4,6,7,8-HxCDF	100	102		ng/Kg		102	78 - 128
2,3,4,7,8-PeCDF	100	103		ng/Kg		103	75 - 131
2,3,7,8-TCDD	20.0	20.3		ng/Kg		101	68 - 142
2,3,7,8-TCDF	20.0	19.8		ng/Kg		99	70 - 133
OCDD	200	207		ng/Kg		104	77 - 125
OCDF	200	203		ng/Kg		102	75 - 128

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-OCDF	129		40 - 135
13C-OCDD	133		40 - 135
13C-2,3,7,8-TCDF	88		40 - 135
13C-2,3,7,8-TCDD	93		40 - 135
13C-2,3,4,7,8-PeCDF	100		40 - 135
13C-2,3,4,6,7,8-HxCDF	93		40 - 135
13C-1,2,3,7,8,9-HxCDF	91		40 - 135
13C-1,2,3,7,8,9-HxCDD	98		40 - 135
13C-1,2,3,7,8-PeCDF	96		40 - 135
13C-1,2,3,7,8-PeCDD	98		40 - 135
13C-1,2,3,6,7,8-HxCDF	98		40 - 135
13C-1,2,3,6,7,8-HxCDD	102		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	103		40 - 135

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-358137/2-A
Matrix: Solid
Analysis Batch: 358629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 358137

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	94		40 - 135
13C-1,2,3,4,7,8-HxCDD	98		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	92		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	103		40 - 135

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-566210/2-A
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566210

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:02	1
Barium	ND		0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:02	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:02	1
Chromium	ND		0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:02	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:02	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:02	1
Silver	0.00116	J	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:02	1

Lab Sample ID: LCS 240-566210/3-A
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566210

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Arsenic	2.00	2.11		mg/L		106		50 - 150
Barium	2.00	1.93		mg/L		96		50 - 150
Cadmium	1.00	0.983		mg/L		98		50 - 150
Chromium	1.00	1.02		mg/L		102		50 - 150
Lead	1.00	0.940		mg/L		94		50 - 150
Selenium	2.00	2.18		mg/L		109		50 - 150
Silver	0.100	0.107		mg/L		107		50 - 150

Lab Sample ID: LB 240-566126/1-B
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 566210

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	0.00499	J	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 16:58	1
Barium	0.00246	J	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 16:58	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 16:58	1
Chromium	ND		0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 16:58	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 16:58	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 16:58	1
Silver	ND		0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 16:58	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-182202-18 MS
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: WC-SB2418-ABSORBENTS
Prep Type: TCLP
Prep Batch: 566210

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.0082	J B	5.00	5.13		mg/L		102	75 - 125
Barium	0.036	J B	50.0	46.9		mg/L		94	75 - 125
Cadmium	0.00034	J	1.00	0.952		mg/L		95	75 - 125
Chromium	ND		5.00	5.20	^+	mg/L		104	75 - 125
Lead	0.0066	J	5.00	4.82		mg/L		96	75 - 125
Selenium	ND		1.00	1.07		mg/L		107	75 - 125
Silver	ND		1.00	1.05	^+	mg/L		105	75 - 125

Lab Sample ID: 240-182202-18 MSD
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: WC-SB2418-ABSORBENTS
Prep Type: TCLP
Prep Batch: 566210

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0082	J B	5.00	5.20		mg/L		104	75 - 125	1	20
Barium	0.036	J B	50.0	47.3		mg/L		95	75 - 125	1	20
Cadmium	0.00034	J	1.00	0.955		mg/L		95	75 - 125	0	20
Chromium	ND		5.00	5.20	^+	mg/L		104	75 - 125	0	20
Lead	0.0066	J	5.00	4.85		mg/L		97	75 - 125	1	20
Selenium	ND		1.00	1.04		mg/L		104	75 - 125	2	20
Silver	ND		1.00	1.06	^+	mg/L		106	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-566212/2-A
Matrix: Solid
Analysis Batch: 566547

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566212

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:22	1

Lab Sample ID: LCS 240-566212/3-A
Matrix: Solid
Analysis Batch: 566547

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566212

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00429		mg/L		86	80 - 120

Lab Sample ID: LB 240-566126/1-C
Matrix: Solid
Analysis Batch: 566547

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 566212

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:20	1

Lab Sample ID: 240-182202-18 MS
Matrix: Solid
Analysis Batch: 566547

Client Sample ID: WC-SB2418-ABSORBENTS
Prep Type: TCLP
Prep Batch: 566212

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.00500	0.00433		mg/L		87	80 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 240-182202-18 MSD
Matrix: Solid
Analysis Batch: 566547

Client Sample ID: WC-SB2418-ABSORBENTS
Prep Type: TCLP
Prep Batch: 566212

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00441		mg/L		88	80 - 120	2	20

Method: Moisture - Percent Moisture

Lab Sample ID: 240-182202-12 DU
Matrix: Solid
Analysis Batch: 566074

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	79.7		78.3		%		2	20
Percent Moisture	20.3		21.7		%		7	20

Lab Sample ID: 240-182202-1 DU
Matrix: Solid
Analysis Batch: 566207

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	84.0		85.2		%		1	20
Percent Moisture	16.0		14.8		%		8	20

Lab Sample ID: 240-182202-10 DU
Matrix: Solid
Analysis Batch: 566207

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	79.4		79.6		%		0.2	20
Percent Moisture	20.6		20.4		%		0.8	20

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS VOA

Composite Batch: 566084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	Composite	

Prep Batch: 566108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	5035	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	5035	
MB 240-566108/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-566108/2-A	Lab Control Sample	Total/NA	Solid	5035	

Prep Batch: 566125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	5035	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	5035	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	5035	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	5035	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	5035	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	5035	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	5035	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	5035	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	5035	
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	5035	
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	5035	
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	5035	
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	5035	
MB 240-566125/2-A	Method Blank	Total/NA	Solid	5035	
MB 240-566125/3-A	Method Blank	Total/NA	Solid	5035	

Leach Batch: 566129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	566084
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	566084
LB 240-566129/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 566133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8260D	566125
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	8260D	566125
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	8260D	566125
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	8260D	566125
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	8260D	566125
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	8260D	566125
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
MB 240-566108/1-A	Method Blank	Total/NA	Solid	8260D	566108
MB 240-566125/2-A	Method Blank	Total/NA	Solid	8260D	566125
MB 240-566133/7	Method Blank	Total/NA	Solid	8260D	
LCS 240-566108/2-A	Lab Control Sample	Total/NA	Solid	8260D	566108

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS VOA (Continued)

Analysis Batch: 566133 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-566133/6	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 566249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	8260D	566125
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	8260D	566108
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	8260D	566125
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	8260D	566125
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
MB 240-566125/3-A	Method Blank	Total/NA	Solid	8260D	566125
LCS 240-566249/3	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 566260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	8260D	566108

Analysis Batch: 566367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8260D	566129
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8260D	566129
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8260D	566129
LB 240-566129/1-A MB	Method Blank	TCLP	Solid	8260D	566129
LCS 240-566367/10	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 566719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	5035	
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	5035	
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	5035	
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	5035	
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	5035	
MB 240-566719/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-566719/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-182202-22 MS	WC-SB1905-ABSORBENTS	Total/NA	Solid	5035	
240-182202-22 MSD	WC-SB1905-ABSORBENTS	Total/NA	Solid	5035	

Analysis Batch: 566725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	8260D	566719
MB 240-566719/1-A	Method Blank	Total/NA	Solid	8260D	566719
LCS 240-566719/2-A	Lab Control Sample	Total/NA	Solid	8260D	566719

Analysis Batch: 566934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-22 MS	WC-SB1905-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-22 MSD	WC-SB1905-ABSORBENTS	Total/NA	Solid	8260D	566719

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS Semi VOA

Composite Batch: 566084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	Composite	

Leach Batch: 566127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	566084
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	566084

Prep Batch: 566221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	3510C	566127
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	3510C	566127
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	3510C	566127
MB 240-566221/8-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-566221/9-A	Lab Control Sample	Total/NA	Solid	3510C	

Prep Batch: 566295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	3540C	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	3540C	
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	3540C	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	3540C	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	3540C	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	3540C	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	3540C	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	3540C	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	3540C	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	3540C	
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	3540C	
MB 240-566295/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-566295/2-A	Lab Control Sample	Total/NA	Solid	3540C	
240-182202-1 MS	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	3540C	
240-182202-1 MSD	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	3540C	

Analysis Batch: 566449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8270E	566221
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8270E	566221
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8270E	566221
MB 240-566221/8-A	Method Blank	Total/NA	Solid	8270E	566221
LCS 240-566221/9-A	Lab Control Sample	Total/NA	Solid	8270E	566221

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS Semi VOA

Analysis Batch: 566576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8270E	566295
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	8270E	566295
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	8270E	566295
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	8270E	566295
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	8270E	566295
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	8270E	566295
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	8270E	566295
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	8270E	566295
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	8270E	566295
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	8270E	566295
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	8270E	566295
MB 240-566295/1-A	Method Blank	Total/NA	Solid	8270E	566295
LCS 240-566295/2-A	Lab Control Sample	Total/NA	Solid	8270E	566295
240-182202-1 MS	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8270E	566295
240-182202-1 MSD	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8270E	566295

GC Semi VOA

Leach Batch: 356514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	

Prep Batch: 356959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356514
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8151A	356514
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8151A	356514
MB 410-356959/2-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-356959/3-A	Lab Control Sample	Total/NA	Solid	8151A	
LCSD 410-356959/4-A	Lab Control Sample Dup	Total/NA	Solid	8151A	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356514

Analysis Batch: 356976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356959
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8151A	356959
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8151A	356959
MB 410-356959/2-A	Method Blank	Total/NA	Solid	8151A	356959
LCS 410-356959/3-A	Lab Control Sample	Total/NA	Solid	8151A	356959
LCSD 410-356959/4-A	Lab Control Sample Dup	Total/NA	Solid	8151A	356959

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC Semi VOA (Continued)

Analysis Batch: 356976 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356959

Composite Batch: 566080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	Composite	

Composite Batch: 566084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	Composite	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	

Leach Batch: 566127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	566084
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	566084
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084

Analysis Batch: 566139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	8082A	566161
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	8082A	566161
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	8082A	566161
MB 240-566161/1-A	Method Blank	Total/NA	Solid	8082A	566161
LCS 240-566161/2-A	Lab Control Sample	Total/NA	Solid	8082A	566161

Prep Batch: 566161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	3546	566080
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	3546	566080
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	3546	566080
MB 240-566161/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-566161/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 566222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	3510C	566127
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	3510C	566127
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	3510C	566127
MB 240-566222/5-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-566222/6-A	Lab Control Sample	Total/NA	Solid	3510C	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	3510C	566127

Analysis Batch: 566344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8081B	566222
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8081B	566222

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC Semi VOA (Continued)

Analysis Batch: 566344 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8081B	566222
MB 240-566222/5-A	Method Blank	Total/NA	Solid	8081B	566222
LCS 240-566222/6-A	Lab Control Sample	Total/NA	Solid	8081B	566222
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8081B	566222

Specialty Organics

Prep Batch: 358137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	HRMS-Soxtherm	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	HRMS-Soxtherm	
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	HRMS-Soxtherm	
MB 410-358137/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-358137/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 358629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	8290A	358137
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	8290A	358137
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	8290A	358137
MB 410-358137/1-A	Method Blank	Total/NA	Solid	8290A	358137
LCS 410-358137/2-A	Lab Control Sample	Total/NA	Solid	8290A	358137

Metals

Leach Batch: 566126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	1311	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	1311	
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	1311	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	1311	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	1311	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	1311	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	1311	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	1311	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	1311	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	1311	
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	1311	
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	1311	
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	1311	
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	1311	
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	1311	
LB 240-566126/1-B	Method Blank	TCLP	Solid	1311	
LB 240-566126/1-C	Method Blank	TCLP	Solid	1311	
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	1311	
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	1311	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Metals

Prep Batch: 566210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	3010A	566126
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	3010A	566126
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	3010A	566126
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	3010A	566126
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	3010A	566126
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	3010A	566126
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	3010A	566126
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	3010A	566126
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	3010A	566126
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	3010A	566126
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	3010A	566126
LB 240-566126/1-B	Method Blank	TCLP	Solid	3010A	566126
MB 240-566210/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-566210/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	3010A	566126

Prep Batch: 566212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	7470A	566126
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	7470A	566126
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	7470A	566126
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	7470A	566126
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	7470A	566126
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	7470A	566126
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	7470A	566126
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	7470A	566126
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	7470A	566126
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	7470A	566126
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	7470A	566126
LB 240-566126/1-C	Method Blank	TCLP	Solid	7470A	566126
MB 240-566212/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-566212/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566126

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Metals

Analysis Batch: 566447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	6010D	566210
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	6010D	566210
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	6010D	566210
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	6010D	566210
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	6010D	566210
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	6010D	566210
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	6010D	566210
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	6010D	566210
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	6010D	566210
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	6010D	566210
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	6010D	566210
LB 240-566126/1-B	Method Blank	TCLP	Solid	6010D	566210
MB 240-566210/2-A	Method Blank	Total/NA	Solid	6010D	566210
LCS 240-566210/3-A	Lab Control Sample	Total/NA	Solid	6010D	566210
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	6010D	566210

Analysis Batch: 566547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	7470A	566212
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	7470A	566212
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	7470A	566212
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	7470A	566212
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	7470A	566212
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	7470A	566212
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	7470A	566212
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	7470A	566212
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	7470A	566212
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	7470A	566212
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	7470A	566212
LB 240-566126/1-C	Method Blank	TCLP	Solid	7470A	566212
MB 240-566212/2-A	Method Blank	Total/NA	Solid	7470A	566212
LCS 240-566212/3-A	Lab Control Sample	Total/NA	Solid	7470A	566212
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566212

Eurofins Canton

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

General Chemistry

Analysis Batch: 566074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	Moisture	566080
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Moisture	566080
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	Moisture	566080
240-182202-12 DU	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Moisture	566080

Composite Batch: 566080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	Composite	
240-182202-12 DU	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Composite	

Analysis Batch: 566207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	Moisture	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	Moisture	
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	Moisture	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	Moisture	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	Moisture	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	Moisture	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	Moisture	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	Moisture	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	Moisture	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	Moisture	
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-1 DU	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	Moisture	
240-182202-10 DU	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	Moisture	

Organic Prep

Analysis Batch: 566094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	Part Size Red	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:41
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:34
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 10:48
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		40	566576	MRU	EET CAN	03/24/23 11:10

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:45
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:36
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 21:06
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 14:23
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		10	566576	MRU	EET CAN	03/24/23 13:04

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:50
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:38
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566108	LAM	EET CAN	03/20/23 14:08
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 23:37
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		20	566576	MRU	EET CAN	03/24/23 12:41

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:55
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:41
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566108	LAM	EET CAN	03/20/23 14:08
Total/NA	Analysis	8260D		10	566260	TJL2	EET CAN	03/22/23 05:06
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		50	566576	MRU	EET CAN	03/24/23 12:19

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:59
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:48
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 21:31
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		4	566576	MRU	EET CAN	03/24/23 13:27

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:04
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:50
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 11:09
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 14:13

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:08
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:52
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 11:30
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 16:07

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:21
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:54
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 21:57
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 14:35

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:25
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:56
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 12:13
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 13:50

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:30
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:58
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 14:00
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 16:30

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566129	DRJ	EET CAN	03/20/23 17:20 - 03/21/23 09:25 ¹
TCLP	Analysis	8260D		1	566367	AJS	EET CAN	03/22/23 16:16
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566221	SDE	EET CAN	03/21/23 12:03
TCLP	Analysis	8270E		1	566449	MRU	EET CAN	03/23/23 15:15
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566222	SDE	EET CAN	03/21/23 12:08
TCLP	Analysis	8081B		1	566344	BPM	EET CAN	03/22/23 14:07
TCLP	Leach	1311			356514	UNWS	ELLE	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	8151A			356959	K2IL	ELLE	03/23/23 21:15
TCLP	Analysis	8151A		1	356976	UAMZ	ELLE	03/24/23 08:39
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54
Total/NA	Prep	3546			566161	BMB	EET CAN	03/21/23 08:36
Total/NA	Analysis	8082A		1	566139	LSH	EET CAN	03/21/23 16:42
Total/NA	Prep	HRMS-Soxtherm			358137	UJSZ	ELLE	03/28/23 09:37
Total/NA	Analysis	8290A		1	358629	DZ6A	ELLE	03/29/23 22:49

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566129	DRJ	EET CAN	03/20/23 17:20 - 03/21/23 09:25 ¹
TCLP	Analysis	8260D		1	566367	AJS	EET CAN	03/22/23 16:39
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566221	SDE	EET CAN	03/21/23 12:03
TCLP	Analysis	8270E		1	566449	MRU	EET CAN	03/23/23 15:38
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566222	SDE	EET CAN	03/21/23 12:08
TCLP	Analysis	8081B		1	566344	BPM	EET CAN	03/22/23 14:39

Eurofins Canton

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			356514	UNWS	ELLE	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	8151A			356959	K2IL	ELLE	03/23/23 21:15
TCLP	Analysis	8151A		1	356976	UAMZ	ELLE	03/24/23 09:07
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54
Total/NA	Prep	3546			566161	BMB	EET CAN	03/21/23 08:36
Total/NA	Analysis	8082A		1	566139	LSH	EET CAN	03/21/23 16:59
Total/NA	Prep	HRMS-Soxtherm			358137	UJSZ	ELLE	03/28/23 09:37
Total/NA	Analysis	8290A		1	358629	DZ6A	ELLE	03/29/23 23:38

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:35
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:00
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 22:22
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 18:24

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:39
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:02
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 12:56
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 16:52

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:44
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:04
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 13:17
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 17:15

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:48
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:06
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 13:38
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 18:47

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566129	DRJ	EET CAN	03/20/23 17:20 - 03/21/23 09:25 ¹
TCLP	Analysis	8260D		1	566367	AJS	EET CAN	03/22/23 17:02
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566221	SDE	EET CAN	03/21/23 12:03
TCLP	Analysis	8270E		1	566449	MRU	EET CAN	03/23/23 16:00
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566222	SDE	EET CAN	03/21/23 12:08
TCLP	Analysis	8081B		1	566344	BPM	EET CAN	03/22/23 14:54
TCLP	Leach	1311			356514	UNWS	ELLE	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	8151A			356959	K2IL	ELLE	03/23/23 21:15
TCLP	Analysis	8151A		1	356976	UAMZ	ELLE	03/24/23 09:35
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54
Total/NA	Prep	3546			566161	BMB	EET CAN	03/21/23 08:36
Total/NA	Analysis	8082A		1	566139	LSH	EET CAN	03/21/23 17:15
Total/NA	Prep	HRMS-Soxtherm			358137	UJSZ	ELLE	03/28/23 09:37
Total/NA	Analysis	8290A		1	358629	DZ6A	ELLE	03/30/23 00:26

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		1	566725	TJL2	EET CAN	03/25/23 12:44
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 15:21
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:11
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 18:05
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		1	566725	TJL2	EET CAN	03/25/23 13:06
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 14:58
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:53
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:13
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		1	566725	TJL2	EET CAN	03/25/23 13:27
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 15:44
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:58
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:15
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		20	566934	TJL2	EET CAN	03/28/23 08:39
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		5	566576	MRU	EET CAN	03/24/23 17:38
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 19:02
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:17
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		4	566934	TJL2	EET CAN	03/28/23 09:00
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		4	566576	MRU	EET CAN	03/24/23 18:01
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 19:15
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:19
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 12:54

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-28-24
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

Chain of Custody Record

644942



Environment Testing America

TAL-9210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>Megan Artrip</u>		Site Contact:		Date: <u>3/15/23</u>		COC No: <u>2</u> of <u>2</u> COCs	
Company Name: <u>Arcadis</u>		Tel/Email: <u>NSO Artrip@arcadis.com</u>		Lab Contact:		Carrier:		Sampler:	
City/State/Zip: <u>Blairstown NJ 07005</u>		Analysis Turnaround Time		Perform MS / MSD (Y / N)		For Lab Use Only:		Walk-in Client:	
Phone: <u>304-396-9424</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Filtered Sample (Y/N)		Lab Sampling:		Job / SDG No.:	
Fax:		TAT if different from Below		Sample Type (C-Comp, G-Grab)		Total VOC			
Project Name: <u>NS E. Palushine OH Dr. Treatment</u>		2 weeks <u>RUSH</u>		Sample Time		Total SVOC			
Site: <u>E. Palushine OH</u>		1 week		Matrix		Total PCBs			
P.O.#:		2 days		# of Cont.		Total PCBs			
		1 day				Total SVOC			
Sample Identification		Sample Date		Sample Time		Total PCBs			
WC-S.Track-deep-01 (8-10')	3/15/23	9:01	G	S	9	X	TCP SVOC		
WC-S.Track-deep-02 (6-8')	3/15/23	9:10	G	S	9	X	TCP SVOC		
WC-S.Track-deep-03 (8-10')	3/15/23	9:39	G	S	9	X	TCP SVOC		
WC-S.Track-deep-04 (6-8')	3/15/23	9:40	G	S	9	X	TCP SVOC		
WC-S.Track-deep-05 (4-6')	3/16/23	11:08	G	S	9	X	TCP SVOC		
WC-S.Track-deep-06 (4-6')	3/18/23	11:15	G	S	9	X	TCP SVOC		
WC-S.Track-deep-07 (4-6')	3/19/23	11:33	G	S	9	X	TCP SVOC		
WC-S.Track-deep-08 (2-4')	3/19/23	11:40	G	S	9	X	TCP SVOC		
WC-S.Track-deep-09 (2-4')	3/19/23	11:51	G	S	9	X	TCP SVOC		
WC-S.Track-deep-10 (4-6')	3/19/23	12:00	G	S	9	X	TCP SVOC		
WC-S.Track-deep-COMP01-05	3/15/23	-	C	S	-				
WC-S.Track-deep-COMP (06-10)	3/15/23	-	C	S	-				



LAB TO GENERATE 5-pt COMPOSITE
LAB TO GENERATE 5-pt COMPOSITE

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. WDY3

Special Instructions/QC Requirements & Comments:

Custody Seal No.:	Yes	No	Custody Seal No.:	Company:	Received by:	Date/Time:	Obs'd:	Corr'd:	Therm ID No.:
	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Arcadis	<u>Michele Clayton</u>	<u>3/15/23 1000</u>			
	<input type="checkbox"/>	<input type="checkbox"/>		Company:	<u>ETNC</u>	<u>3/18/23 1842</u>			
	<input type="checkbox"/>	<input type="checkbox"/>		Company:	<u>ETNC</u>	<u>3-18-23 1842</u>			



Chain of Custody Record

644941



Environment Testing
America

Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: JASON ARTRIP		Site Contact:		Date: 3-13-23		COC No: 1 of 1		
Company Name: Arcadis		Tel/Email: Jason.Artrip@arcadis.com		Lab Contact:		Carrier:		COCs		
Address: 111-D Sanders Lane		Analysis Turnaround Time		Performs MS/MSD (Y/N)		Total VOC		For Lab Use Only:		
City/State/Zip: Bluefield VA 24605		CALENDAR DAYS		Filtered Sample (Y/N)		Total Metals		Walk-in Client:		
Phone: 304-3916-9424		WORKING DAYS		Matrix		Total PCBs		Lab Sampling:		
Fax:		TAT if different from Below		# of Cont.		Total SVOC		Job / SDG No.:		
Project Name: N/S East Palestine OH decont		2 weeks		Sample Type (C=Comp, G=Grab)		TCP SVOC				
Site: East Palestine OH		1 week		Sample Time		TCP PCBs				
PO # 24030745		2 days		Sample Date		TCP Pesticides/Herbs				
		1 day		Sample Date		Dioxins/Furans				
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:			
WC-SB1188- Soil + Debris		3/10/23	1335	G	S	9	X	X	X	LAB TO GENERATE 5-DIGIT COMPOSITE FROM SAMPLES 1-4 AND WC-SB1597-SOIL + DEBRIS COLLECTED 3/17 (REPORT 182146)
WC-APMU117- Soil + Debris		3/10/23	1405	G	S	9	X	X	X	
WC-SB2655- Soil + Debris		3/10/23	1435	G	S	9	X	X	X	
WC-SB2455- Soil + Debris		3/10/23	1420	G	S	9	X	X	X	
WC-Comp-Soil + Debris		3/18/23	-	C	S	X	X	X	X	
WC-SB2418- Absorbents		3/10/23	1445	G	SW	2	X	X	X	
WC-SB1833- Absorbents		3/10/23	1500	G	W	2	X	X	X	
WC-SB2446- Absorbents		3/10/23	1510	G	W	2	X	X	X	
WC-SB1450- Absorbents		3/10/23	1525	G	W	2	X	X	X	
WC-SB1405- Absorbents		3/10/23	1535	G	W	2	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. 14043

Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Therm ID No.:	
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michelle Clayton	Arcadis	3/10/23 1700	Jason Artrip	eurofins	3/18/23 17:22
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jason Umbach	EBTNC	3/18/23 1842	Jason Artrip	EBTNC	3-18-23 1842
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:



Eurofins - Canton Sample Receipt Form/Narrative Login # : _____
Barberton Facility

Client Arcaadis Site Name NSRR-ER Cooler unpacked by: Jane
Cooler Received on 3-18-23 Opened on 3-20-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____


Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

Eurofins Cooler # EC Foam Box Client Cooler Box _____ Other _____
Packing material used: Bubble Wrap Foam Plastic Bag ~~None~~ Other the
COOLANT: Wet Ice Blue Ice Dry Ice Water None 3-20-23

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity lea Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No NA
15. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No NA
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login #: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form							
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>2.7</u>	<u>2.5</u>	<u>(Wet Ice)</u> Blue Ice Dry Ice Water None	
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>3.9</u>	<u>3.7</u>	<u>(Wet Ice)</u> Blue Ice Dry Ice Water None	
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>4.5</u>	<u>4.3</u>	<u>(Wet Ice)</u> Blue Ice Dry Ice Water None	
<u>(EC)</u> Client	Box	Other	IR GUN #: <u>13</u>	<u>4.5</u>	<u>4.3</u>	<u>(Wet Ice)</u> Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	
EC Client	Box	Other	IR GUN #: _____			Wet Ice Blue Ice Dry Ice Water None	

See Temperature Excursion Form

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



eurofins | Environment Testing

Client Information (Sub Contract Lab)				Sampler: DelMonico, Michael	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-165212.1	
Client Contact: Shipping/Receiving				Phone:	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Ohio	Page: Page 1 of 1	
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):			Job #: 240-182202-1	
Address: 2425 New Holland Pike,		Due Date Requested: 3/27/2023		Analysis Requested				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify) Other:
City: Lancaster		TAT Requested (days):						
State, Zip: PA, 17601		PO #:						
Phone: 717-656-2300(Tel)		WO #:						
Email:				Project #: 24030745				Total Number of containers Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8290A/HRMS_Soxtim_P 8290 17 + Totals 8151A/1311_T TCLP Analyte List
Project Name: NSEP - Privileged & Confidential				SSOW#:				
Site:								
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	MATRIX (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:		Special Instructions/Note:
WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11)		3/18/23	Eastern		Solid	X	X	1
WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12)		3/18/23	Eastern		Solid	X	X	1
WC-COMP-SOIL + DEBRIS (240-182202-17)		3/18/23	Eastern		Solid	X	X	1
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.								
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:		
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:
Relinquished by: <i>Sachelle Harlow</i>				Date/Time: 3/20/23 1435		Company: <i>ETC</i>		Received by: <i>[Signature]</i>
Relinquished by: <i>[Signature]</i>				Date/Time:		Company:		Received by: <i>[Signature]</i>
Relinquished by: <i>[Signature]</i>				Date/Time:		Company:		Received by: <i>[Signature]</i>
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 0.5				
<input type="checkbox"/> Yes <input type="checkbox"/> No								



nb

Eurofins Canton

180 S. Van Buren Avenue
Barberton, OH 44203
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:		Lab PM: DelMonico, Michael		Carrier Tracking No(s):		COC No: 240-165255.1					
Client Contact: Shipping/Receiving		Phone:		E-Mail: Michael.DelMonico@et.eurofinsus.com		State of Origin: Ohio		Page: Page 1 of 1					
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):				Job #: 240-182202-1					
Address: 2425 New Holland Pike,		Due Date Requested: 3/27/2023		Analysis Requested				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)					
City: Lancaster		TAT Requested (days):											
State, Zip: PA, 17601		PO #:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 8290A/HRMS_Soxtim_P 8290 17 + Totals 8151A/1311_T TCLP Analyte List 8151A/8151A_AP TCLP Analyte List		Total Number of containers		Other:					
Phone: 717-656-2300(Tel)		WO #:											
Email:		Project #: 24030745		Project Name: NS East Palestine		SSOW#:		Site:					
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=water, S=solid, O=wastw/oll, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8290A/HRMS_Soxtim_P 8290 17 + Totals	8151A/1311_T TCLP Analyte List	8151A/8151A_AP TCLP Analyte List	Total Number of containers	Special Instructions/Note:	
WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11)		3/18/23	Eastern	Solid		X	X	X				1	
WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12)		3/18/23	Eastern	Solid		X	X	X				1	
WC-COMP-SOIL + DEBRIS (240-182202-17)		3/18/23	Eastern	Solid		X	X	X				1	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>													
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:							
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:						
Relinquished by: <i>Michelle Hancock</i>			Date/Time: <i>3/22/23 1315</i>		Company: <i>BETN</i>		Received by:		Date/Time:		Company:		
Relinquished by: _____			Date/Time:		Company:		Received by: _____		Date/Time:		Company:		
Relinquished by: _____			Date/Time:		Company:		Received by: <i>m v</i>		Date/Time: <i>3/22/23 0914</i>		Company: <i>ELET</i>		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <i>2.4</i>							

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-182202-1

Login Number: 182202

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 03/21/23 10:52 AM

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	100	104	72	77	75	74	75	78
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	91	95	66	72	73	71	69	73
240-182202-17	WC-COMP-SOIL + DEBRIS	66	70	48	54	53	50	49	55
LCS 410-358137/2-A	Lab Control Sample	129	133	88	93	100	93	91	98
MB 410-358137/1-A	Method Blank	109	113	84	91	88	91	90	97

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	73	72	78	78	81	75	75	75
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	72	72	72	75	75	70	71	71
240-182202-17	WC-COMP-SOIL + DEBRIS	53	54	54	57	54	53	55	52
LCS 410-358137/2-A	Lab Control Sample	96	98	98	102	103	94	98	92
MB 410-358137/1-A	Method Blank	86	88	98	96	93	92	93	93

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HpCDD (40-135)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	85
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	78
240-182202-17	WC-COMP-SOIL + DEBRIS	60
LCS 410-358137/2-A	Lab Control Sample	103
MB 410-358137/1-A	Method Blank	100

Surrogate Legend

- OCDF = 13C-OCDF
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- TCDD = 13C-2,3,7,8-TCDD
- PeCF = 13C-2,3,4,7,8-PeCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

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ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 3/31/2023 7:30:10 AM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182202-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

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Authorization



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*3	ISTD response or retention time outside acceptable limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit

Eurofins Canton

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Job ID: 240-182202-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182202-1

Comments

No additional comments.

Receipt

The samples were received on 3/18/2023 6:42 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.5° C, 3.7° C, 4.3° C and 4.3° C.

All soil samples collected in TerraCore kits were frozen within 48hours of collection.

GC/MS VOA

Method 5035: The following samples were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results: WC-S. TRACK-DEEP-01 (8-10') (240-182202-1), WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-S. TRACK-DEEP-07 (4-6') (240-182202-7), WC-S. TRACK-DEEP-08 (2-4') (240-182202-8), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-S. TRACK-DEEP-10 (4-6') (240-182202-10), WC-SB1188-SOIL + DEBRIS (240-182202-13), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15) and WC-SB2455-SOIL + DEBRIS (240-182202-16).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566249 recovered above the upper control limit for Dichlorodifluoromethane. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

Method 8260D: Surrogate recovery for the following samples was outside control limits: WC-S. TRACK-DEEP-05 (4-6') (240-182202-5) and WC-SB1188-SOIL + DEBRIS (240-182202-13). Re-extraction and/or re-analysis was performed and surrogate recovery was outside control limits.

Method 8260D: The MS/MSD for Prep Batch 240-566108 is not reported because the parent sample is reported as a low level soil sample.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566133 recovered above the upper control limit for: 1,1,2-Trichloro-1,2,2-trifluoroethane and Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The laboratory control sample (LCS) for preparation batch 240-566125 and analytical batch 240-566133 recovered outside control limits for the following analytes: 1,1,2-Trichloroethane, Toluene and Xylenes, Total. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: Internal standard responses were outside of acceptance limits for the following sample: WC-S. TRACK-DEEP-02 (6-8') (240-182202-2). The sample shows evidence of matrix interference.

Method 8260D: Internal standard (ISTD) response for the following samples were outside control limits: WC-SB2655-SOIL + DEBRIS (240-182202-15) and WC-SB2455-SOIL + DEBRIS (240-182202-16). The samples were re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 8260D: A MS/MSD was prepared for batch 240-566108, but was analyzed in a different analytical batch: WC-S. TRACK-DEEP-04 (6-8') (240-182202-4).

Method 5035: These samples were taken off a shelf in the sample receiving refrigerator, if these plastic bags were opened in another part of the lab they could have been contaminated: WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19), WC-SB2446-ABSORBENTS (240-182202-20), WC-SB1450-ABSORBENTS (240-182202-21), WC-SB1905-ABSORBENTS (240-182202-22), (240-182202-B-22 MS) and (240-182202-B-22 MSD).

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-566725 was outside the method criteria for the

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Job ID: 240-182202-1 (Continued)

Laboratory: Eurofins Canton (Continued)

following analytes: Methyl tert-butyl ether and Chloromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes are considered estimated.

Method 8260D: A MS/MSD was prepared for batch 240-566719, but it was analyzed in a different analytical batch: WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19) and WC-SB2446-ABSORBENTS (240-182202-20).

Method 8260D: The following samples were diluted due to the nature of the sample matrix: WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19) and WC-SB2446-ABSORBENTS (240-182202-20). Elevated reporting limits (RLs) are provided.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566934 recovered above the upper control limit for: Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The laboratory control sample (LCS) associated with samples WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11), WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12), WC-COMP-SOIL + DEBRIS (240-182202-17) and (240-182136-D-1-F) had an acid surrogate recovery above acceptance criteria. Because the associated samples were ND for all analytes no corrective action was necessary. The results have been flagged accordingly and reported.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-566576 recovered above the upper control limit for 2-Nitrophenol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-S. TRACK-DEEP-01 (8-10') (240-182202-1), WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-S. TRACK-DEEP-07 (4-6') (240-182202-7), WC-S. TRACK-DEEP-08 (2-4') (240-182202-8), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-S. TRACK-DEEP-10 (4-6') (240-182202-10), WC-SB1188-SOIL + DEBRIS (240-182202-13), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15), WC-SB2455-SOIL + DEBRIS (240-182202-16), WC-SB2418-ABSORBENTS (240-182202-18), WC-SB1833-ABSORBENTS (240-182202-19), WC-SB2446-ABSORBENTS (240-182202-20), WC-SB1450-ABSORBENTS (240-182202-21) and WC-SB1905-ABSORBENTS (240-182202-22).

Method 8270E: The following samples were diluted due to the nature of the sample matrix: WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-SB1450-ABSORBENTS (240-182202-21) and WC-SB1905-ABSORBENTS (240-182202-22). Elevated reporting limits (RLs) are provided.

Method 8270E: The following samples were diluted to bring the concentration of target analytes within the calibration range: WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15), (240-182202-F-1-B MS) and (240-182202-F-1-C MSD). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11), WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12) and WC-COMP-SOIL + DEBRIS (240-182202-17).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Job ID: 240-182202-1 (Continued)

Laboratory: Eurofins Canton (Continued)

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method 6010D: The continuing calibration verification (CCV) associated with batch 240-566447 recovered above the upper control limit for silver and chromium. The samples associated with this CCV were below the reporting limit for the affected analytes; therefore, the data have been reported. The associated samples are impacted: WC-S. TRACK-DEEP-01 (8-10') (240-182202-1), WC-S. TRACK-DEEP-02 (6-8') (240-182202-2), WC-S. TRACK-DEEP-03 (8-10') (240-182202-3), WC-S. TRACK-DEEP-04 (6-8') (240-182202-4), WC-S. TRACK-DEEP-05 (4-6') (240-182202-5), WC-S. TRACK-DEEP-06 (4-6') (240-182202-6), WC-S. TRACK-DEEP-07 (4-6') (240-182202-7), WC-S. TRACK-DEEP-08 (2-4') (240-182202-8), WC-S. TRACK-DEEP-09 (2-4') (240-182202-9), WC-S. TRACK-DEEP-10 (4-6') (240-182202-10), WC-SB1188-SOIL + DEBRIS (240-182202-13), WC-AMU112-SOIL + DEBRIS (240-182202-14), WC-SB2655-SOIL + DEBRIS (240-182202-15), WC-SB2455-SOIL + DEBRIS (240-182202-16), WC-SB1833-ABSORBENTS (240-182202-19), WC-SB2446-ABSORBENTS (240-182202-20), WC-SB1450-ABSORBENTS (240-182202-21) and WC-SB1905-ABSORBENTS (240-182202-22).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
Part Size Red	Particle Size Reduction Preparation	None	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Solid	03/18/23 09:01	03/18/23 18:42
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Solid	03/18/23 09:10	03/18/23 18:42
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Solid	03/18/23 09:39	03/18/23 18:42
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Solid	03/18/23 09:40	03/18/23 18:42
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Solid	03/18/23 11:08	03/18/23 18:42
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Solid	03/18/23 11:15	03/18/23 18:42
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Solid	03/18/23 11:33	03/18/23 18:42
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Solid	03/18/23 11:40	03/18/23 18:42
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Solid	03/18/23 11:51	03/18/23 18:42
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Solid	03/18/23 12:00	03/18/23 18:42
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Solid	03/18/23 00:00	03/18/23 18:42
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Solid	03/18/23 00:00	03/18/23 18:42
240-182202-13	WC-SB1188-SOIL + DEBRIS	Solid	03/18/23 13:35	03/18/23 18:42
240-182202-14	WC-AMU112-SOIL + DEBRIS	Solid	03/18/23 14:05	03/18/23 18:42
240-182202-15	WC-SB2655-SOIL + DEBRIS	Solid	03/18/23 14:35	03/18/23 18:42
240-182202-16	WC-SB2455-SOIL + DEBRIS	Solid	03/18/23 14:20	03/18/23 18:42
240-182202-17	WC-COMP-SOIL + DEBRIS	Solid	03/18/23 00:00	03/18/23 18:42
240-182202-18	WC-SB2418-ABSORBENTS	Solid	03/18/23 14:45	03/18/23 18:42
240-182202-19	WC-SB1833-ABSORBENTS	Solid	03/18/23 15:00	03/18/23 18:42
240-182202-20	WC-SB2446-ABSORBENTS	Solid	03/18/23 15:10	03/18/23 18:42
240-182202-21	WC-SB1450-ABSORBENTS	Solid	03/18/23 15:25	03/18/23 18:42
240-182202-22	WC-SB1905-ABSORBENTS	Solid	03/18/23 15:35	03/18/23 18:42

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.32	J	0.72	0.094	mg/Kg	40	✳	8270E	Total/NA
Benzo[a]anthracene	0.18	J	0.72	0.16	mg/Kg	40	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.38	J	0.72	0.31	mg/Kg	40	✳	8270E	Total/NA
Chrysene	0.16	J	0.72	0.072	mg/Kg	40	✳	8270E	Total/NA
Fluoranthene	0.21	J	0.72	0.21	mg/Kg	40	✳	8270E	Total/NA
Naphthalene	0.26	J	0.72	0.12	mg/Kg	40	✳	8270E	Total/NA
Phenanthrene	0.51	J F1	0.72	0.11	mg/Kg	40	✳	8270E	Total/NA
Pyrene	0.22	J	0.72	0.10	mg/Kg	40	✳	8270E	Total/NA
Arsenic	0.037	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.13	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0034	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0070	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0070	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0027	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0022	J	0.0045	0.0016	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.11	J	0.18	0.023	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	0.066	J	0.18	0.040	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.12	J	0.18	0.077	mg/Kg	10	✳	8270E	Total/NA
Chrysene	0.072	J	0.18	0.018	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	0.12	J	0.18	0.053	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.094	J	0.18	0.087	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	0.076	J	0.18	0.029	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	0.20		0.18	0.026	mg/Kg	10	✳	8270E	Total/NA
Pyrene	0.12	J	0.18	0.025	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.013	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.28	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0024	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0043	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.27	J	1.0	0.25	mg/Kg	1	✳	8260D	Total/NA
Benzo[a]anthracene	0.099	J	0.35	0.080	mg/Kg	20	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.21	J	0.35	0.15	mg/Kg	20	✳	8270E	Total/NA
Chrysene	0.089	J	0.35	0.035	mg/Kg	20	✳	8270E	Total/NA
Fluoranthene	0.15	J	0.35	0.10	mg/Kg	20	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.17	J	0.35	0.17	mg/Kg	20	✳	8270E	Total/NA
Phenanthrene	0.18	J	0.35	0.052	mg/Kg	20	✳	8270E	Total/NA
Pyrene	0.14	J	0.35	0.050	mg/Kg	20	✳	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.13	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0032	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	8.2		3.2	1.6	mg/Kg	10	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8') (Continued)

Lab Sample ID: 240-182202-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.26	J	0.90	0.12	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]anthracene	1.2		0.90	0.21	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]pyrene	1.4		0.90	0.56	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.8		0.90	0.39	mg/Kg	50	✳	8270E	Total/NA
Benzo[g,h,i]perylene	1.1		0.90	0.43	mg/Kg	50	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.81	J	0.90	0.42	mg/Kg	50	✳	8270E	Total/NA
Chrysene	1.3		0.90	0.090	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	1.8		0.90	0.27	mg/Kg	50	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.0		0.90	0.44	mg/Kg	50	✳	8270E	Total/NA
Naphthalene	0.20	J	0.90	0.15	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	0.69	J	0.90	0.13	mg/Kg	50	✳	8270E	Total/NA
Pyrene	1.9		0.90	0.13	mg/Kg	50	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.0	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00096	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0040	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Mercury	0.00013	J	0.0020	0.00013	mg/L	1		7470A	TCLP

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0065	J	0.022	0.0039	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.047	B	0.028	0.023	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.014		0.0055	0.0020	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.13		0.075	0.0098	mg/Kg	4	✳	8270E	Total/NA
Anthracene	0.017	J	0.075	0.012	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	0.073	J	0.075	0.017	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.070	J	0.075	0.047	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.096		0.075	0.032	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.061	J	0.075	0.035	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.063	J	0.075	0.035	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.096		0.075	0.0074	mg/Kg	4	✳	8270E	Total/NA
Dibenzofuran	0.068	J	0.25	0.065	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.13		0.075	0.022	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.064	J	0.075	0.037	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.073	J	0.075	0.012	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	0.16		0.075	0.011	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.13		0.075	0.011	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.016	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00088	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0060	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0052	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0013	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0091	J	0.021	0.0038	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.047		0.026	0.022	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.039		0.038	0.0050	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.013	J	0.038	0.0062	mg/Kg	2	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6') (Continued)

Lab Sample ID: 240-182202-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.028	J	0.038	0.0087	mg/Kg	2	☼	8270E	Total/NA
Benzo[a]pyrene	0.024	J	0.038	0.024	mg/Kg	2	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.044		0.038	0.017	mg/Kg	2	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.024	J	0.038	0.018	mg/Kg	2	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.021	J	0.038	0.018	mg/Kg	2	☼	8270E	Total/NA
Chrysene	0.030	J	0.038	0.0038	mg/Kg	2	☼	8270E	Total/NA
Fluoranthene	0.060		0.038	0.011	mg/Kg	2	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.025	J	0.038	0.019	mg/Kg	2	☼	8270E	Total/NA
Naphthalene	0.025	J	0.038	0.0062	mg/Kg	2	☼	8270E	Total/NA
Phenanthrene	0.063		0.038	0.0057	mg/Kg	2	☼	8270E	Total/NA
Pyrene	0.057		0.038	0.0055	mg/Kg	2	☼	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00097	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0045	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0061	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.019	J	0.024	0.0042	mg/Kg	1	☼	8260D	Total/NA
Acetone	0.087		0.030	0.025	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.0072	J	0.019	0.0031	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.022		0.019	0.0044	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.020		0.019	0.012	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.032		0.019	0.0084	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.022		0.019	0.0092	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.014	J	0.019	0.0090	mg/Kg	1	☼	8270E	Total/NA
Chrysene	0.024		0.019	0.0019	mg/Kg	1	☼	8270E	Total/NA
Dibenz(a,h)anthracene	0.010	J	0.019	0.0090	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.022	J	0.065	0.017	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.040		0.019	0.0058	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.0058	J	0.019	0.0036	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.017	J	0.019	0.0095	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.024		0.019	0.0031	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.055		0.019	0.0029	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.043		0.019	0.0028	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	1.1	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0054	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0057	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0029	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.047	B	0.026	0.022	mg/Kg	1	☼	8260D	Total/NA
Arsenic	0.017	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.88	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0015	J	0.050	0.00020	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4') (Continued)

Lab Sample ID: 240-182202-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0063	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0043	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0021	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0051	J	0.020	0.0036	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.028		0.025	0.021	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.0027	J	0.0050	0.0018	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.069		0.038	0.0049	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.010	J	0.038	0.0072	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.012	J	0.038	0.0061	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.035	J	0.038	0.0086	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.030	J	0.038	0.023	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.047		0.038	0.016	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.028	J	0.038	0.018	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.026	J	0.038	0.017	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.070		0.038	0.0037	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.018	J	0.038	0.017	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	0.060		0.038	0.011	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.0092	J	0.038	0.0069	mg/Kg	2	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.028	J	0.038	0.018	mg/Kg	2	✳	8270E	Total/NA
Naphthalene	0.040		0.038	0.0061	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	0.091		0.038	0.0056	mg/Kg	2	✳	8270E	Total/NA
Pyrene	0.062		0.038	0.0054	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.015	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.83	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0011	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0052	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0040	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0015	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.012	J	0.024	0.0043	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.069		0.030	0.026	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.0089		0.0061	0.0022	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	1	✳	8270E	Total/NA
Acenaphthene	0.0057	J	0.019	0.0036	mg/Kg	1	✳	8270E	Total/NA
Anthracene	0.0086	J	0.019	0.0031	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]anthracene	0.032		0.019	0.0043	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]pyrene	0.028		0.019	0.012	mg/Kg	1	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.044		0.019	0.0082	mg/Kg	1	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.024		0.019	0.0090	mg/Kg	1	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.018	J	0.019	0.0088	mg/Kg	1	✳	8270E	Total/NA
Chrysene	0.032		0.019	0.0019	mg/Kg	1	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.011	J	0.019	0.0088	mg/Kg	1	✳	8270E	Total/NA
Dibenzofuran	0.024	J	0.063	0.016	mg/Kg	1	✳	8270E	Total/NA
Fluoranthene	0.054		0.019	0.0056	mg/Kg	1	✳	8270E	Total/NA
Fluorene	0.0061	J	0.019	0.0035	mg/Kg	1	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6') (Continued)

Lab Sample ID: 240-182202-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	0.021		0.019	0.0093	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.024		0.019	0.0031	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.067		0.019	0.0028	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.055		0.019	0.0027	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.014	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.99	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0012	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0088	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0041	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0029	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	27	B	6.2	0.066	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	10	B	6.2	0.021	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDD	0.36	J B	6.2	0.021	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDF	1.9	J B	6.2	0.040	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	1.3	J B	6.2	0.026	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDD	1.2	J B	6.2	0.020	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDF	1.6	J B	6.2	0.040	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDD	0.58	J I B	6.2	0.012	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDF	0.72	J B	6.2	0.024	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDD	0.88	J B	6.2	0.020	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDF	0.42	J B	6.2	0.044	ng/Kg	1	☼	8290A	Total/NA
2,3,4,6,7,8-HxCDF	1.2	J B	6.2	0.039	ng/Kg	1	☼	8290A	Total/NA
2,3,4,7,8-PeCDF	1.6	J B	6.2	0.019	ng/Kg	1	☼	8290A	Total/NA
2,3,7,8-TCDD	0.44	J B	1.2	0.0093	ng/Kg	1	☼	8290A	Total/NA
2,3,7,8-TCDF	0.43	J I	1.2	0.022	ng/Kg	1	☼	8290A	Total/NA
OCDD	450	B	12	0.075	ng/Kg	1	☼	8290A	Total/NA
OCDF	22	B	12	0.034	ng/Kg	1	☼	8290A	Total/NA
Total HxCDD	12	B	6.2	0.020	ng/Kg	1	☼	8290A	Total/NA
Total HxCDF	19	B	6.2	0.041	ng/Kg	1	☼	8290A	Total/NA
Total HpCDD	27	B	6.2	0.066	ng/Kg	1	☼	8290A	Total/NA
Total HpCDF	25	B	6.2	0.023	ng/Kg	1	☼	8290A	Total/NA
Total PeCDD	5.4	J I B	6.2	0.012	ng/Kg	1	☼	8290A	Total/NA
Total PeCDF	12	I B	6.2	0.021	ng/Kg	1	☼	8290A	Total/NA
Total TCDD	3.5	I B	1.2	0.0093	ng/Kg	1	☼	8290A	Total/NA
Total TCDF	6.2	I	1.2	0.022	ng/Kg	1	☼	8290A	Total/NA

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	6.5	B	6.0	0.060	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	0.84	J I B	6.0	0.0084	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDD	0.15	J I B	6.0	0.0066	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDF	0.21	J B	6.0	0.010	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	0.13	J I B	6.0	0.011	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDD	0.18	J I B	6.0	0.0071	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDF	0.16	J B	6.0	0.010	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDF	0.12	J B	6.0	0.0068	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDD	0.26	J B	6.0	0.0067	ng/Kg	1	☼	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)
(Continued)

Lab Sample ID: 240-182202-12

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
2,3,4,6,7,8-HxCDF	0.18	J B	6.0	0.0096	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	0.18	J B	6.0	0.0053	ng/Kg	1	✳	8290A	Total/NA
OCDD	250	B	12	0.065	ng/Kg	1	✳	8290A	Total/NA
OCDF	1.7	J B	12	0.013	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	3.9	J I B	6.0	0.0068	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	1.4	J I B	6.0	0.011	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	6.5	B	6.0	0.060	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	0.97	J I B	6.0	0.0097	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	0.76	J I B	6.0	0.0044	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	1.6	J I B	6.0	0.0060	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	0.20	J I B	1.2	0.013	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	0.49	J I	1.2	0.0061	ng/Kg	1	✳	8290A	Total/NA

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.0048		0.0042	0.0015	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.049	J	0.082	0.028	mg/Kg	1	✳	8270E	Total/NA
2-Methylnaphthalene	0.49		0.025	0.0032	mg/Kg	1	✳	8270E	Total/NA
Acenaphthene	0.035		0.025	0.0047	mg/Kg	1	✳	8270E	Total/NA
Acenaphthylene	0.035		0.025	0.0066	mg/Kg	1	✳	8270E	Total/NA
Anthracene	0.083		0.025	0.0040	mg/Kg	1	✳	8270E	Total/NA
Benzaldehyde	0.065	J	0.16	0.038	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]anthracene	0.41		0.025	0.0056	mg/Kg	1	✳	8270E	Total/NA
Benzo[a]pyrene	0.50		0.025	0.015	mg/Kg	1	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.80		0.025	0.011	mg/Kg	1	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.20		0.025	0.012	mg/Kg	1	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.28		0.025	0.011	mg/Kg	1	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.14		0.12	0.084	mg/Kg	1	✳	8270E	Total/NA
Carbazole	0.063	J	0.082	0.031	mg/Kg	1	✳	8270E	Total/NA
Chrysene	0.62		0.025	0.0025	mg/Kg	1	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.066		0.025	0.011	mg/Kg	1	✳	8270E	Total/NA
Dibenzofuran	0.19		0.082	0.021	mg/Kg	1	✳	8270E	Total/NA
Fluoranthene	0.90		0.025	0.0073	mg/Kg	1	✳	8270E	Total/NA
Fluorene	0.047		0.025	0.0045	mg/Kg	1	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.19		0.025	0.012	mg/Kg	1	✳	8270E	Total/NA
Naphthalene	0.28		0.025	0.0040	mg/Kg	1	✳	8270E	Total/NA
Phenanthrene	0.54		0.025	0.0037	mg/Kg	1	✳	8270E	Total/NA
Phenol	0.014	J	0.082	0.013	mg/Kg	1	✳	8270E	Total/NA
Pyrene	0.85		0.025	0.0035	mg/Kg	1	✳	8270E	Total/NA
Arsenic	0.016	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.43	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0031	J	0.050	0.00020	mg/L	1		6010D	TCLP
Chromium	0.0042	J ^+	0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.020	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0018	J B ^+	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,1'-Biphenyl	0.14		0.12	0.041	mg/Kg	2	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS (Continued)

Lab Sample ID: 240-182202-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.95		0.036	0.0047	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.39		0.036	0.0069	mg/Kg	2	✳	8270E	Total/NA
Acenaphthylene	0.26		0.036	0.0097	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.40		0.036	0.0058	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.90		0.036	0.0083	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.92		0.036	0.023	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	1.4		0.036	0.016	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.36		0.036	0.017	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.48		0.036	0.017	mg/Kg	2	✳	8270E	Total/NA
Carbazole	0.21		0.12	0.046	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.85		0.036	0.0036	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.11		0.036	0.017	mg/Kg	2	✳	8270E	Total/NA
Dibenzofuran	0.65		0.12	0.031	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	1.8		0.036	0.011	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.47		0.036	0.0066	mg/Kg	2	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.32		0.036	0.018	mg/Kg	2	✳	8270E	Total/NA
Naphthalene	1.2		0.036	0.0058	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	1.7		0.036	0.0054	mg/Kg	2	✳	8270E	Total/NA
Pyrene	1.9		0.036	0.0052	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.011	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.67	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0022	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.024	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.013		0.013	0.0024	mg/Kg	1	✳	8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	0.012	J	0.013	0.0025	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.072		0.017	0.014	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.0016	J	0.0033	0.00046	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.0012	J	0.0066	0.00081	mg/Kg	1	✳	8260D	Total/NA
Toluene	0.00095	J **	0.0033	0.00051	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.0017	J **	0.0066	0.0011	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.17		0.035	0.0046	mg/Kg	2	✳	8270E	Total/NA
Acenaphthene	0.13		0.035	0.0067	mg/Kg	2	✳	8270E	Total/NA
Acenaphthylene	0.015	J	0.035	0.0093	mg/Kg	2	✳	8270E	Total/NA
Anthracene	0.28		0.035	0.0056	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.68		0.035	0.0079	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]pyrene	0.64		0.035	0.022	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.93		0.035	0.015	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.26		0.035	0.017	mg/Kg	2	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.39		0.035	0.016	mg/Kg	2	✳	8270E	Total/NA
Bis(2-ethylhexyl) phthalate	0.16		0.16	0.12	mg/Kg	2	✳	8270E	Total/NA
Butyl benzyl phthalate	0.089	J	0.16	0.051	mg/Kg	2	✳	8270E	Total/NA
Carbazole	0.25		0.12	0.044	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.85		0.035	0.0035	mg/Kg	2	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.083		0.035	0.016	mg/Kg	2	✳	8270E	Total/NA
Dibenzofuran	0.13		0.12	0.030	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	2.1		0.035	0.010	mg/Kg	2	✳	8270E	Total/NA
Fluorene	0.19		0.035	0.0064	mg/Kg	2	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS (Continued)

Lab Sample ID: 240-182202-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	0.25		0.035	0.017	mg/Kg	2	☼	8270E	Total/NA
Naphthalene	0.12		0.035	0.0056	mg/Kg	2	☼	8270E	Total/NA
Phenanthrene	1.5		0.035	0.0052	mg/Kg	2	☼	8270E	Total/NA
Pyrene	1.7		0.035	0.0050	mg/Kg	2	☼	8270E	Total/NA
Arsenic	0.010	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.62	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0010	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	0.0047	J *+	0.0083	0.0013	mg/Kg	1	☼	8260D	Total/NA
2-Methylnaphthalene	0.13		0.017	0.0023	mg/Kg	1	☼	8270E	Total/NA
Acenaphthene	0.010	J	0.017	0.0033	mg/Kg	1	☼	8270E	Total/NA
Acenaphthylene	0.0065	J	0.017	0.0047	mg/Kg	1	☼	8270E	Total/NA
Anthracene	0.018		0.017	0.0028	mg/Kg	1	☼	8270E	Total/NA
Benzaldehyde	0.042	J	0.12	0.027	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]anthracene	0.095		0.017	0.0040	mg/Kg	1	☼	8270E	Total/NA
Benzo[a]pyrene	0.096		0.017	0.011	mg/Kg	1	☼	8270E	Total/NA
Benzo[b]fluoranthene	0.15		0.017	0.0075	mg/Kg	1	☼	8270E	Total/NA
Benzo[g,h,i]perylene	0.035		0.017	0.0082	mg/Kg	1	☼	8270E	Total/NA
Benzo[k]fluoranthene	0.048		0.017	0.0080	mg/Kg	1	☼	8270E	Total/NA
Chrysene	0.12		0.017	0.0017	mg/Kg	1	☼	8270E	Total/NA
Dibenzofuran	0.062		0.058	0.015	mg/Kg	1	☼	8270E	Total/NA
Fluoranthene	0.21		0.017	0.0052	mg/Kg	1	☼	8270E	Total/NA
Fluorene	0.0097	J	0.017	0.0032	mg/Kg	1	☼	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.033		0.017	0.0085	mg/Kg	1	☼	8270E	Total/NA
Naphthalene	0.071		0.017	0.0028	mg/Kg	1	☼	8270E	Total/NA
Phenanthrene	0.19		0.017	0.0026	mg/Kg	1	☼	8270E	Total/NA
Pyrene	0.19		0.017	0.0025	mg/Kg	1	☼	8270E	Total/NA
Arsenic	0.0071	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.69	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0042	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	180	B	7.9	0.12	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	62	B	7.9	0.14	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDD	4.4	J B	7.9	0.057	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8-HxCDF	4.2	J B	7.9	0.14	ng/Kg	1	☼	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	2.8	J B	7.9	0.18	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDD	9.4	B	7.9	0.059	ng/Kg	1	☼	8290A	Total/NA
1,2,3,6,7,8-HxCDF	3.9	J B	7.9	0.14	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDD	5.1	J B	7.9	0.039	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8-PeCDF	1.4	J B	7.9	0.051	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDD	20	B	7.9	0.060	ng/Kg	1	☼	8290A	Total/NA
1,2,3,7,8,9-HxCDF	0.79	J B	7.9	0.16	ng/Kg	1	☼	8290A	Total/NA
2,3,4,6,7,8-HxCDF	5.2	J B	7.9	0.13	ng/Kg	1	☼	8290A	Total/NA
2,3,4,7,8-PeCDF	6.4	J B	7.9	0.040	ng/Kg	1	☼	8290A	Total/NA
2,3,7,8-TCDD	1.2	J B	1.6	0.019	ng/Kg	1	☼	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS (Continued)

Lab Sample ID: 240-182202-17

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
2,3,7,8-TCDF	1.2	J	1.6	0.041	ng/Kg	1	✳	8290A	Total/NA
OCDD	1600	B	16	0.14	ng/Kg	1	✳	8290A	Total/NA
OCDF	80	B	16	0.087	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	130	B	7.9	0.059	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	91	B	7.9	0.14	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	180	B	7.9	0.12	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	130	B	7.9	0.16	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	42	I B	7.9	0.039	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	39	I B	7.9	0.046	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	11	I B	1.6	0.019	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	34	I	1.6	0.041	ng/Kg	1	✳	8290A	Total/NA

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0082	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.036	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00034	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0066	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.13	J	0.42	0.067	mg/Kg	1		8270E	Total/NA
Arsenic	0.0048	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.068	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Lead	0.0077	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0066	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.020	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Lead	0.0050	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.50	J	1.9	0.43	mg/Kg	5		8270E	Total/NA
Benzo[b]fluoranthene	1.0	J	1.9	0.81	mg/Kg	5		8270E	Total/NA
Butyl benzyl phthalate	3.4	J	8.8	2.8	mg/Kg	5		8270E	Total/NA
Fluoranthene	0.78	J	1.9	0.56	mg/Kg	5		8270E	Total/NA
Phenanthrene	0.96	J	1.9	0.28	mg/Kg	5		8270E	Total/NA
Pyrene	0.82	J	1.9	0.27	mg/Kg	5		8270E	Total/NA
Arsenic	0.0075	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.080	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00041	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0077	J	0.050	0.0028	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.23	J	0.91	0.17	mg/Kg	4		8270E	Total/NA
Benzo[a]anthracene	0.34	J	0.91	0.21	mg/Kg	4		8270E	Total/NA
Bis(2-ethylhexyl) phthalate	4.1	J	4.2	3.1	mg/Kg	4		8270E	Total/NA
Chrysene	0.37	J	0.91	0.090	mg/Kg	4		8270E	Total/NA
Fluoranthene	1.2		0.91	0.27	mg/Kg	4		8270E	Total/NA
Fluorene	0.20	J	0.91	0.17	mg/Kg	4		8270E	Total/NA
Phenanthrene	0.90	J	0.91	0.14	mg/Kg	4		8270E	Total/NA
Pyrene	1.2		0.91	0.13	mg/Kg	4		8270E	Total/NA
Arsenic	0.0071	J B	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.066	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00038	J	0.050	0.00020	mg/L	1		6010D	TCLP
PSR sample generated	Done				NONE	1		Part Size Red	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0049	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1,2,2-Tetrachloroethane	ND		0.0049	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0049	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1,2-Trichloroethane	ND	+	0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1-Dichloroethane	ND		0.0049	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,1-Dichloroethene	ND		0.0049	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2,4-Trichlorobenzene	ND		0.0049	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dibromo-3-Chloropropane	ND		0.0098	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Ethylene Dibromide	ND		0.0049	0.00075	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichlorobenzene	ND		0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichloroethane	ND		0.0049	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichloropropane	ND		0.0049	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,3-Dichlorobenzene	ND		0.0049	0.00080	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
1,4-Dichlorobenzene	ND		0.0049	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
2-Butanone (MEK)	ND		0.020	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
2-Hexanone	ND		0.020	0.0040	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Acetone	ND		0.024	0.021	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Benzene	ND		0.0049	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Dichlorobromomethane	ND		0.0049	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Bromoform	ND		0.0049	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Bromomethane	ND		0.0049	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Carbon disulfide	ND		0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Carbon tetrachloride	ND		0.0049	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chlorobenzene	ND		0.0049	0.00090	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chloroethane	ND		0.0049	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chloroform	ND		0.0049	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chloromethane	ND		0.0049	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
cis-1,2-Dichloroethene	ND		0.0049	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
cis-1,3-Dichloropropene	ND		0.0049	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Cyclohexane	ND		0.0098	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Chlorodibromomethane	ND		0.0049	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Dichlorodifluoromethane	ND		0.0049	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Ethylbenzene	ND		0.0049	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Isopropylbenzene	ND		0.0049	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methyl acetate	ND		0.024	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methyl tert-butyl ether	ND		0.0049	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methylcyclohexane	ND		0.0098	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Methylene Chloride	ND		0.024	0.012	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Styrene	ND		0.0049	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Tetrachloroethene	ND		0.0049	0.00071	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Toluene	ND	+	0.0049	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
trans-1,2-Dichloroethene	ND		0.0049	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
trans-1,3-Dichloropropene	ND		0.0049	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Trichloroethene	ND		0.0049	0.00062	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Trichlorofluoromethane	ND		0.0049	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Vinyl chloride	ND		0.0049	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1
Xylenes, Total	ND	+	0.0098	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 10:48	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	82		56 - 125	03/19/23 13:00	03/21/23 10:48	1
Dibromofluoromethane (Surr)	84		41 - 138	03/19/23 13:00	03/21/23 10:48	1
4-Bromofluorobenzene (Surr)	77		41 - 143	03/19/23 13:00	03/21/23 10:48	1
1,2-Dichloroethane-d4 (Surr)	86		58 - 125	03/19/23 13:00	03/21/23 10:48	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.4	0.82	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
bis (2-chloroisopropyl) ether	ND	F1	4.8	0.48	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4,5-Trichlorophenol	ND		7.2	3.3	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4,6-Trichlorophenol	ND		7.2	3.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dichlorophenol	ND		7.2	2.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dimethylphenol	ND		7.2	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dinitrophenol	ND		16	6.8	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,4-Dinitrotoluene	ND		9.6	3.0	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2,6-Dinitrotoluene	ND		9.6	2.7	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Chloronaphthalene	ND	F1	2.4	0.67	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Chlorophenol	ND	F1	2.4	0.48	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Methylnaphthalene	0.32	J	0.72	0.094	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Methylphenol	ND		9.6	1.5	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Nitroaniline	ND		9.6	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
2-Nitrophenol	ND	F1	2.4	0.63	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
3,3'-Dichlorobenzidine	ND		4.8	2.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
3-Nitroaniline	ND		9.6	2.4	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4,6-Dinitro-2-methylphenol	ND		16	3.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Bromophenyl phenyl ether	ND	F1	2.4	0.67	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Chloro-3-methylphenol	ND		7.2	2.2	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Chloroaniline	ND		7.2	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Chlorophenyl phenyl ether	ND	F1	2.4	0.67	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Nitroaniline	ND		9.6	2.9	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
4-Nitrophenol	ND		16	4.5	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Acenaphthene	ND		0.72	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Acenaphthylene	ND		0.72	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Acetophenone	ND	F1	4.8	0.53	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Anthracene	ND		0.72	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Atrazine	ND		9.6	1.7	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzaldehyde	ND	F1	4.8	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[a]anthracene	0.18	J	0.72	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[a]pyrene	ND		0.72	0.45	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[b]fluoranthene	0.38	J	0.72	0.31	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[g,h,i]perylene	ND		0.72	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Benzo[k]fluoranthene	ND		0.72	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Bis(2-chloroethoxy)methane	ND	F1	4.8	0.58	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Bis(2-chloroethyl)ether	ND	F1	4.8	0.58	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Bis(2-ethylhexyl) phthalate	ND		3.4	2.5	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Butyl benzyl phthalate	ND		3.4	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Caprolactam	ND		16	3.6	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Carbazole	ND		2.4	0.91	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Chrysene	0.16	J	0.72	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40
Dibenz(a,h)anthracene	ND		0.72	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 11:10	40

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND	F1	2.4	0.63	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Diethyl phthalate	ND		3.4	1.5	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Dimethyl phthalate	ND	F1	3.4	0.67	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Di-n-butyl phthalate	ND		3.4	2.4	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Di-n-octyl phthalate	ND		3.4	1.3	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Fluoranthene	0.21	J	0.72	0.21	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Fluorene	ND		0.72	0.13	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Hexachlorobenzene	ND		0.72	0.14	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Hexachlorobutadiene	ND	F1	2.4	0.58	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Hexachlorocyclopentadiene	ND		16	3.0	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Hexachloroethane	ND	F1	2.4	0.43	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Indeno[1,2,3-cd]pyrene	ND		0.72	0.35	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Isophorone	ND	F1	2.4	0.58	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
N-Nitrosodi-n-propylamine	ND	F1	2.4	0.53	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
N-Nitrosodiphenylamine	ND	F1	2.4	0.58	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Naphthalene	0.26	J	0.72	0.12	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Nitrobenzene	ND	F1	4.8	0.63	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Pentachlorophenol	ND		7.2	2.8	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Phenanthrene	0.51	J F1	0.72	0.11	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Phenol	ND		2.4	0.39	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
Pyrene	0.22	J	0.72	0.10	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40
3 & 4 Methylphenol	ND		19	1.4	mg/Kg	✳	03/22/23 08:13	03/24/23 11:10	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	87		46 - 137	03/22/23 08:13	03/24/23 11:10	40
Phenol-d5 (Surr)	61		26 - 120	03/22/23 08:13	03/24/23 11:10	40
Nitrobenzene-d5 (Surr)	40		25 - 120	03/22/23 08:13	03/24/23 11:10	40
2-Fluorophenol (Surr)	45		20 - 120	03/22/23 08:13	03/24/23 11:10	40
2-Fluorobiphenyl (Surr)	61		34 - 120	03/22/23 08:13	03/24/23 11:10	40
2,4,6-Tribromophenol (Surr)	48		10 - 120	03/22/23 08:13	03/24/23 11:10	40

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.037	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:41	1
Barium	0.13	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:41	1
Cadmium	0.0034	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:41	1
Chromium	0.0070	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:41	1
Lead	0.0070	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:41	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:41	1
Silver	0.0027	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:41	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	16.0		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0045	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1,2,2-Tetrachloroethane	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0045	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1,2-Trichloroethane	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1-Dichloroethane	ND		0.0045	0.00062	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,1-Dichloroethene	ND		0.0045	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2,4-Trichlorobenzene	ND		0.0045	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dibromo-3-Chloropropane	ND		0.0090	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Ethylene Dibromide	ND		0.0045	0.00069	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichlorobenzene	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichloroethane	ND		0.0045	0.00069	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichloropropane	ND		0.0045	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,3-Dichlorobenzene	ND		0.0045	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
1,4-Dichlorobenzene	ND		0.0045	0.00079	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
2-Butanone (MEK)	ND		0.018	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
2-Hexanone	ND		0.018	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
4-Methyl-2-pentanone (MIBK)	ND		0.018	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Acetone	ND		0.022	0.019	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Benzene	ND		0.0045	0.00063	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Dichlorobromomethane	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Bromoform	ND		0.0045	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Bromomethane	ND		0.0045	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Carbon disulfide	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Carbon tetrachloride	ND		0.0045	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chlorobenzene	ND		0.0045	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chloroethane	ND		0.0045	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chloroform	ND		0.0045	0.00071	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chloromethane	ND		0.0045	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
cis-1,2-Dichloroethene	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
cis-1,3-Dichloropropene	ND		0.0045	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Cyclohexane	ND		0.0090	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Chlorodibromomethane	ND		0.0045	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Dichlorodifluoromethane	ND		0.0045	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Ethylbenzene	ND		0.0045	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Isopropylbenzene	ND		0.0045	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methyl acetate	ND		0.022	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methyl tert-butyl ether	ND		0.0045	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methylcyclohexane	ND		0.0090	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Methylene Chloride	ND		0.022	0.011	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Styrene	ND		0.0045	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Tetrachloroethene	ND		0.0045	0.00066	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Toluene	ND		0.0045	0.00069	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
trans-1,2-Dichloroethene	ND		0.0045	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
trans-1,3-Dichloropropene	ND		0.0045	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Trichloroethene	ND		0.0045	0.00057	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Trichlorofluoromethane	ND		0.0045	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Vinyl chloride	0.0022	J	0.0045	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1
Xylenes, Total	ND		0.0090	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:06	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	73	*3	56 - 125	03/19/23 13:00	03/21/23 14:23	1
Toluene-d8 (Surr)	122		56 - 125	03/19/23 13:00	03/21/23 21:06	1
Dibromofluoromethane (Surr)	95	*3	41 - 138	03/19/23 13:00	03/21/23 14:23	1
Dibromofluoromethane (Surr)	106		41 - 138	03/19/23 13:00	03/21/23 21:06	1
4-Bromofluorobenzene (Surr)	77	*3	41 - 143	03/19/23 13:00	03/21/23 14:23	1
4-Bromofluorobenzene (Surr)	127		41 - 143	03/19/23 13:00	03/21/23 21:06	1
1,2-Dichloroethane-d4 (Surr)	122	*3	58 - 125	03/19/23 13:00	03/21/23 14:23	1
1,2-Dichloroethane-d4 (Surr)	117		58 - 125	03/19/23 13:00	03/21/23 21:06	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.59	0.20	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
bis (2-chloroisopropyl) ether	ND		1.2	0.12	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4,5-Trichlorophenol	ND		1.8	0.82	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4,6-Trichlorophenol	ND		1.8	0.76	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dichlorophenol	ND		1.8	0.52	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dimethylphenol	ND		1.8	0.47	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dinitrophenol	ND		3.9	1.7	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,4-Dinitrotoluene	ND		2.4	0.74	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2,6-Dinitrotoluene	ND		2.4	0.66	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Chloronaphthalene	ND		0.59	0.17	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Chlorophenol	ND		0.59	0.12	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Methylnaphthalene	0.11	J	0.18	0.023	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Methylphenol	ND		2.4	0.37	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Nitroaniline	ND		2.4	0.47	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
2-Nitrophenol	ND		0.59	0.15	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
3,3'-Dichlorobenzidine	ND		1.2	0.51	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
3-Nitroaniline	ND		2.4	0.58	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4,6-Dinitro-2-methylphenol	ND		3.9	0.95	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Bromophenyl phenyl ether	ND		0.59	0.17	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Chloro-3-methylphenol	ND		1.8	0.53	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Chloroaniline	ND		1.8	0.36	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Chlorophenyl phenyl ether	ND		0.59	0.17	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Nitroaniline	ND		2.4	0.71	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
4-Nitrophenol	ND		3.9	1.1	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Acenaphthene	ND		0.18	0.034	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Acenaphthylene	ND		0.18	0.048	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Acetophenone	ND		1.2	0.13	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Anthracene	ND		0.18	0.029	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Atrazine	ND		2.4	0.43	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzaldehyde	ND		1.2	0.27	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[a]anthracene	0.066	J	0.18	0.040	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[a]pyrene	ND		0.18	0.11	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[b]fluoranthene	0.12	J	0.18	0.077	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[g,h,i]perylene	ND		0.18	0.084	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Benzo[k]fluoranthene	ND		0.18	0.082	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Bis(2-chloroethoxy)methane	ND		1.2	0.14	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Bis(2-chloroethyl)ether	ND		1.2	0.14	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Bis(2-ethylhexyl) phthalate	ND		0.83	0.61	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10
Butyl benzyl phthalate	ND		0.83	0.26	mg/Kg	☼	03/22/23 08:13	03/24/23 13:04	10

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		3.9	0.89	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Carbazole	ND		0.59	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Chrysene	0.072	J	0.18	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Dibenz(a,h)anthracene	ND		0.18	0.082	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Dibenzofuran	ND		0.59	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Diethyl phthalate	ND		0.83	0.37	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Dimethyl phthalate	ND		0.83	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Di-n-butyl phthalate	ND		0.83	0.60	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Di-n-octyl phthalate	ND		0.83	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Fluoranthene	0.12	J	0.18	0.053	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Fluorene	ND		0.18	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachlorobenzene	ND		0.18	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachlorobutadiene	ND		0.59	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachlorocyclopentadiene	ND		3.9	0.74	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Hexachloroethane	ND		0.59	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Indeno[1,2,3-cd]pyrene	0.094	J	0.18	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Isophorone	ND		0.59	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
N-Nitrosodi-n-propylamine	ND		0.59	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
N-Nitrosodiphenylamine	ND		0.59	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Naphthalene	0.076	J	0.18	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Nitrobenzene	ND		1.2	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Pentachlorophenol	ND		1.8	0.69	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Phenanthrene	0.20		0.18	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Phenol	ND		0.59	0.095	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
Pyrene	0.12	J	0.18	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10
3 & 4 Methylphenol	ND		4.7	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 13:04	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		46 - 137	03/22/23 08:13	03/24/23 13:04	10
Phenol-d5 (Surr)	53		26 - 120	03/22/23 08:13	03/24/23 13:04	10
Nitrobenzene-d5 (Surr)	39		25 - 120	03/22/23 08:13	03/24/23 13:04	10
2-Fluorophenol (Surr)	44		20 - 120	03/22/23 08:13	03/24/23 13:04	10
2-Fluorobiphenyl (Surr)	57		34 - 120	03/22/23 08:13	03/24/23 13:04	10
2,4,6-Tribromophenol (Surr)	55		10 - 120	03/22/23 08:13	03/24/23 13:04	10

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.013	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:45	1
Barium	0.28	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:45	1
Cadmium	0.0024	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:45	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:45	1
Lead	0.0043	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:45	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:45	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:45	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:36	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	17.0		0.1	0.1	%			03/21/23 11:05	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.26	0.081	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1,2,2-Tetrachloroethane	ND		0.26	0.15	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.26	0.069	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1,2-Trichloroethane	ND		0.26	0.059	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1-Dichloroethane	ND		0.26	0.050	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,1-Dichloroethene	ND		0.26	0.085	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2,4-Trichlorobenzene	ND		0.26	0.14	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dibromo-3-Chloropropane	ND		0.52	0.23	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Ethylene Dibromide	ND		0.26	0.082	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichlorobenzene	ND		0.26	0.12	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichloroethane	ND		0.26	0.049	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichloropropane	ND		0.26	0.038	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,3-Dichlorobenzene	ND		0.26	0.048	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
1,4-Dichlorobenzene	ND		0.26	0.057	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
2-Hexanone	ND		1.0	0.27	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.25	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Acetone	0.27	J	1.0	0.25	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Benzene	ND		0.26	0.043	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Dichlorobromomethane	ND		0.26	0.063	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Bromoform	ND		0.26	0.24	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Bromomethane	ND		0.26	0.17	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Carbon disulfide	ND		0.26	0.11	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Carbon tetrachloride	ND		0.26	0.11	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chlorobenzene	ND		0.26	0.036	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chloroethane	ND		0.26	0.15	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chloroform	ND		0.26	0.056	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chloromethane	ND		0.26	0.068	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
cis-1,2-Dichloroethene	ND		0.26	0.041	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
cis-1,3-Dichloropropene	ND		0.26	0.13	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Cyclohexane	ND		0.52	0.17	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Chlorodibromomethane	ND		0.26	0.12	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Dichlorodifluoromethane	ND		0.26	0.055	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Ethylbenzene	ND		0.26	0.049	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Isopropylbenzene	ND		0.26	0.039	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methyl acetate	ND		1.3	0.17	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methyl tert-butyl ether	ND		0.26	0.038	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methylcyclohexane	ND		0.52	0.068	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Methylene Chloride	ND		0.52	0.40	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Styrene	ND		0.26	0.054	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Tetrachloroethene	ND		0.26	0.10	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Toluene	ND		0.26	0.25	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
trans-1,2-Dichloroethene	ND		0.26	0.064	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
trans-1,3-Dichloropropene	ND		0.26	0.11	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Trichloroethene	ND		0.26	0.15	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Trichlorofluoromethane	ND		0.26	0.14	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Vinyl chloride	ND		0.26	0.13	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1
Xylenes, Total	ND		0.52	0.094	mg/Kg	✳	03/20/23 14:08	03/21/23 23:37	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	119		56 - 125	03/20/23 14:08	03/21/23 23:37	1
Dibromofluoromethane (Surr)	102		41 - 138	03/20/23 14:08	03/21/23 23:37	1
4-Bromofluorobenzene (Surr)	119		41 - 143	03/20/23 14:08	03/21/23 23:37	1
1,2-Dichloroethane-d4 (Surr)	118		58 - 125	03/20/23 14:08	03/21/23 23:37	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dimethylphenol	ND		3.5	0.93	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,4-Dinitrotoluene	ND		4.7	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Chlorophenol	ND		1.2	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Methylnaphthalene	ND		0.35	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Methylphenol	ND		4.7	0.72	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Nitroaniline	ND		4.7	0.93	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
2-Nitrophenol	ND		1.2	0.30	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
3-Nitroaniline	ND		4.7	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Chloroaniline	ND		3.5	0.70	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Nitroaniline	ND		4.7	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
4-Nitrophenol	ND		7.7	2.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Acenaphthene	ND		0.35	0.067	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Acenaphthylene	ND		0.35	0.094	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Acetophenone	ND		2.3	0.26	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Anthracene	ND		0.35	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Atrazine	ND		4.7	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzaldehyde	ND		2.3	0.54	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[a]anthracene	0.099	J	0.35	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[a]pyrene	ND		0.35	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[b]fluoranthene	0.21	J	0.35	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[g,h,i]perylene	ND		0.35	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Benzo[k]fluoranthene	ND		0.35	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Butyl benzyl phthalate	ND		1.6	0.51	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Caprolactam	ND		7.7	1.8	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Carbazole	ND		1.2	0.44	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Chrysene	0.089	J	0.35	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 12:41	20

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.2	0.30	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Diethyl phthalate	ND		1.6	0.72	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Dimethyl phthalate	ND		1.6	0.33	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Di-n-octyl phthalate	ND		1.6	0.65	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Fluoranthene	0.15	J	0.35	0.10	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Fluorene	ND		0.35	0.064	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Hexachlorobenzene	ND		0.35	0.067	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Hexachlorocyclopentadiene	ND		7.7	1.4	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Hexachloroethane	ND		1.2	0.21	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Indeno[1,2,3-cd]pyrene	0.17	J	0.35	0.17	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Isophorone	ND		1.2	0.28	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Naphthalene	ND		0.35	0.056	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Nitrobenzene	ND		2.3	0.30	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Pentachlorophenol	ND		3.5	1.4	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Phenanthrene	0.18	J	0.35	0.052	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Phenol	ND		1.2	0.19	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
Pyrene	0.14	J	0.35	0.050	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20
3 & 4 Methylphenol	ND		9.3	0.68	mg/Kg	✳	03/22/23 08:13	03/24/23 12:41	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	83		46 - 137	03/22/23 08:13	03/24/23 12:41	20
Phenol-d5 (Surr)	47		26 - 120	03/22/23 08:13	03/24/23 12:41	20
Nitrobenzene-d5 (Surr)	33		25 - 120	03/22/23 08:13	03/24/23 12:41	20
2-Fluorophenol (Surr)	38		20 - 120	03/22/23 08:13	03/24/23 12:41	20
2-Fluorobiphenyl (Surr)	50		34 - 120	03/22/23 08:13	03/24/23 12:41	20
2,4,6-Tribromophenol (Surr)	42		10 - 120	03/22/23 08:13	03/24/23 12:41	20

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:50	1
Barium	0.13	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:50	1
Cadmium	0.0032	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:50	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:50	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:50	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:50	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:50	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.7		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	15.3		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.2	0.99	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1,2,2-Tetrachloroethane	ND		3.2	1.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.2	0.85	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1,2-Trichloroethane	ND		3.2	0.73	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1-Dichloroethane	ND		3.2	0.61	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,1-Dichloroethene	ND		3.2	1.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2,4-Trichlorobenzene	ND		3.2	1.7	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dibromo-3-Chloropropane	ND		6.4	2.8	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Ethylene Dibromide	ND		3.2	1.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichlorobenzene	ND		3.2	1.5	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichloroethane	ND		3.2	0.60	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichloropropane	ND		3.2	0.47	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,3-Dichlorobenzene	ND		3.2	0.59	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
1,4-Dichlorobenzene	ND		3.2	0.70	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
2-Butanone (MEK)	ND		13	2.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
2-Hexanone	ND		13	3.3	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
4-Methyl-2-pentanone (MIBK)	ND		13	3.0	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Acetone	ND		13	3.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Benzene	ND		3.2	0.53	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Dichlorobromomethane	ND		3.2	0.77	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Bromoform	ND		3.2	2.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Bromomethane	ND		3.2	2.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Carbon disulfide	ND		3.2	1.4	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Carbon tetrachloride	ND		3.2	1.3	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chlorobenzene	ND		3.2	0.45	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chloroethane	ND		3.2	1.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chloroform	ND		3.2	0.69	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chloromethane	ND		3.2	0.84	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
cis-1,2-Dichloroethene	ND		3.2	0.51	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
cis-1,3-Dichloropropene	ND		3.2	1.6	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Cyclohexane	ND		6.4	2.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Chlorodibromomethane	ND		3.2	1.5	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Dichlorodifluoromethane	ND		3.2	0.67	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Ethylbenzene	ND		3.2	0.60	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Isopropylbenzene	ND		3.2	0.48	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methyl acetate	ND		16	2.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methyl tert-butyl ether	ND		3.2	0.47	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methylcyclohexane	ND		6.4	0.84	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Methylene Chloride	ND		6.4	4.9	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Styrene	ND		3.2	0.66	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Tetrachloroethene	ND		3.2	1.2	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Toluene	ND		3.2	3.1	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
trans-1,2-Dichloroethene	ND		3.2	0.79	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
trans-1,3-Dichloropropene	ND		3.2	1.3	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Trichloroethene	ND		3.2	1.8	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Trichlorofluoromethane	ND		3.2	1.7	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Vinyl chloride	8.2		3.2	1.6	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10
Xylenes, Total	ND		6.4	1.2	mg/Kg	✱	03/20/23 14:08	03/22/23 05:06	10

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	82		56 - 125	03/20/23 14:08	03/22/23 05:06	10
Dibromofluoromethane (Surr)	76		41 - 138	03/20/23 14:08	03/22/23 05:06	10
4-Bromofluorobenzene (Surr)	80		41 - 143	03/20/23 14:08	03/22/23 05:06	10
1,2-Dichloroethane-d4 (Surr)	83		58 - 125	03/20/23 14:08	03/22/23 05:06	10

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.0	1.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
bis (2-chloroisopropyl) ether	ND		6.0	0.60	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4,5-Trichlorophenol	ND		9.0	4.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4,6-Trichlorophenol	ND		9.0	3.9	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dichlorophenol	ND		9.0	2.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dimethylphenol	ND		9.0	2.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dinitrophenol	ND		20	8.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,4-Dinitrotoluene	ND		12	3.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2,6-Dinitrotoluene	ND		12	3.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Chloronaphthalene	ND		3.0	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Chlorophenol	ND		3.0	0.60	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Methylnaphthalene	0.26	J	0.90	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Methylphenol	ND		12	1.9	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Nitroaniline	ND		12	2.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
2-Nitrophenol	ND		3.0	0.78	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
3,3'-Dichlorobenzidine	ND		6.0	2.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
3-Nitroaniline	ND		12	3.0	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4,6-Dinitro-2-methylphenol	ND		20	4.8	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Bromophenyl phenyl ether	ND		3.0	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Chloro-3-methylphenol	ND		9.0	2.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Chloroaniline	ND		9.0	1.8	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Chlorophenyl phenyl ether	ND		3.0	0.84	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Nitroaniline	ND		12	3.6	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
4-Nitrophenol	ND		20	5.7	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Acenaphthene	ND		0.90	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Acenaphthylene	ND		0.90	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Acetophenone	ND		6.0	0.66	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Anthracene	ND		0.90	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Atrazine	ND		12	2.2	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzaldehyde	ND		6.0	1.4	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[a]anthracene	1.2		0.90	0.21	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[a]pyrene	1.4		0.90	0.56	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[b]fluoranthene	1.8		0.90	0.39	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[g,h,i]perylene	1.1		0.90	0.43	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Benzo[k]fluoranthene	0.81	J	0.90	0.42	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Bis(2-chloroethoxy)methane	ND		6.0	0.72	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Bis(2-chloroethyl)ether	ND		6.0	0.72	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Bis(2-ethylhexyl) phthalate	ND		4.2	3.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Butyl benzyl phthalate	ND		4.2	1.3	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Caprolactam	ND		20	4.5	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Carbazole	ND		3.0	1.1	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Chrysene	1.3		0.90	0.090	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50
Dibenz(a,h)anthracene	ND		0.90	0.42	mg/Kg	☆	03/22/23 08:13	03/24/23 12:19	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		3.0	0.78	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Diethyl phthalate	ND		4.2	1.9	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Dimethyl phthalate	ND		4.2	0.84	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Di-n-butyl phthalate	ND		4.2	3.0	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Di-n-octyl phthalate	ND		4.2	1.7	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Fluoranthene	1.8		0.90	0.27	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Fluorene	ND		0.90	0.17	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachlorobenzene	ND		0.90	0.17	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachlorobutadiene	ND		3.0	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachlorocyclopentadiene	ND		20	3.7	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Hexachloroethane	ND		3.0	0.54	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Indeno[1,2,3-cd]pyrene	1.0		0.90	0.44	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Isophorone	ND		3.0	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
N-Nitrosodi-n-propylamine	ND		3.0	0.66	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
N-Nitrosodiphenylamine	ND		3.0	0.72	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Naphthalene	0.20	J	0.90	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Nitrobenzene	ND		6.0	0.78	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Pentachlorophenol	ND		9.0	3.5	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Phenanthrene	0.69	J	0.90	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Phenol	ND		3.0	0.48	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
Pyrene	1.9		0.90	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50
3 & 4 Methylphenol	ND		24	1.7	mg/Kg	✱	03/22/23 08:13	03/24/23 12:19	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137	03/22/23 08:13	03/24/23 12:19	50
Phenol-d5 (Surr)	69		26 - 120	03/22/23 08:13	03/24/23 12:19	50
Nitrobenzene-d5 (Surr)	51		25 - 120	03/22/23 08:13	03/24/23 12:19	50
2-Fluorophenol (Surr)	54		20 - 120	03/22/23 08:13	03/24/23 12:19	50
2-Fluorobiphenyl (Surr)	80		34 - 120	03/22/23 08:13	03/24/23 12:19	50
2,4,6-Tribromophenol (Surr)	61		10 - 120	03/22/23 08:13	03/24/23 12:19	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:55	1
Barium	1.0	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:55	1
Cadmium	0.00096	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:55	1
Chromium	0.0040	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:55	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:55	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:55	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:55	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00013	J	0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.3		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	16.7		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0055	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1,2,2-Tetrachloroethane	ND		0.0055	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0055	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1,2-Trichloroethane	ND		0.0055	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1-Dichloroethane	ND		0.0055	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,1-Dichloroethene	ND		0.0055	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2,4-Trichlorobenzene	ND		0.0055	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dibromo-3-Chloropropane	ND		0.011	0.0040	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Ethylene Dibromide	ND		0.0055	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichlorobenzene	ND		0.0055	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichloroethane	ND		0.0055	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichloropropane	ND		0.0055	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,3-Dichlorobenzene	ND		0.0055	0.00091	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
1,4-Dichlorobenzene	ND		0.0055	0.00098	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
2-Butanone (MEK)	0.0065	J	0.022	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
2-Hexanone	ND		0.022	0.0045	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
4-Methyl-2-pentanone (MIBK)	ND		0.022	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Acetone	0.047	B	0.028	0.023	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Benzene	ND		0.0055	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Dichlorobromomethane	ND		0.0055	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Bromoform	ND		0.0055	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Bromomethane	ND		0.0055	0.0046	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Carbon disulfide	ND		0.0055	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Carbon tetrachloride	ND		0.0055	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chlorobenzene	ND		0.0055	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chloroethane	ND		0.0055	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chloroform	ND		0.0055	0.00087	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chloromethane	ND		0.0055	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
cis-1,2-Dichloroethene	ND		0.0055	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
cis-1,3-Dichloropropene	ND		0.0055	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Cyclohexane	ND		0.011	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Chlorodibromomethane	ND		0.0055	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Dichlorodifluoromethane	ND		0.0055	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Ethylbenzene	ND		0.0055	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Isopropylbenzene	ND		0.0055	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methyl acetate	ND		0.028	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methyl tert-butyl ether	ND		0.0055	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methylcyclohexane	ND		0.011	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Methylene Chloride	ND		0.028	0.013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Styrene	ND		0.0055	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Tetrachloroethene	ND		0.0055	0.00081	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Toluene	ND		0.0055	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
trans-1,2-Dichloroethene	ND		0.0055	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
trans-1,3-Dichloropropene	ND		0.0055	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Trichloroethene	ND		0.0055	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Trichlorofluoromethane	ND		0.0055	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Vinyl chloride	0.014		0.0055	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1
Xylenes, Total	ND		0.011	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 21:31	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	128	S1+	56 - 125	03/19/23 13:00	03/21/23 21:31	1
Dibromofluoromethane (Surr)	108		41 - 138	03/19/23 13:00	03/21/23 21:31	1
4-Bromofluorobenzene (Surr)	138		41 - 143	03/19/23 13:00	03/21/23 21:31	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/19/23 13:00	03/21/23 21:31	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.25	0.085	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
bis (2-chloroisopropyl) ether	ND		0.50	0.050	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4,5-Trichlorophenol	ND		0.75	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4,6-Trichlorophenol	ND		0.75	0.32	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dichlorophenol	ND		0.75	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dimethylphenol	ND		0.75	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dinitrophenol	ND		1.6	0.71	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,4-Dinitrotoluene	ND		1.0	0.31	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2,6-Dinitrotoluene	ND		1.0	0.28	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Chloronaphthalene	ND		0.25	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Chlorophenol	ND		0.25	0.050	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Methylnaphthalene	0.13		0.075	0.0098	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Methylphenol	ND		1.0	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Nitroaniline	ND		1.0	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
2-Nitrophenol	ND		0.25	0.065	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
3,3'-Dichlorobenzidine	ND		0.50	0.21	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
3-Nitroaniline	ND		1.0	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4,6-Dinitro-2-methylphenol	ND		1.6	0.40	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Bromophenyl phenyl ether	ND		0.25	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Chloro-3-methylphenol	ND		0.75	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Chloroaniline	ND		0.75	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Chlorophenyl phenyl ether	ND		0.25	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Nitroaniline	ND		1.0	0.30	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
4-Nitrophenol	ND		1.6	0.47	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Acenaphthene	ND		0.075	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Acenaphthylene	ND		0.075	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Acetophenone	ND		0.50	0.055	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Anthracene	0.017	J	0.075	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Atrazine	ND		1.0	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzaldehyde	ND		0.50	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[a]anthracene	0.073	J	0.075	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[a]pyrene	0.070	J	0.075	0.047	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[b]fluoranthene	0.096		0.075	0.032	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[g,h,i]perylene	0.061	J	0.075	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Benzo[k]fluoranthene	0.063	J	0.075	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Bis(2-chloroethoxy)methane	ND		0.50	0.060	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Bis(2-chloroethyl)ether	ND		0.50	0.060	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Bis(2-ethylhexyl) phthalate	ND		0.35	0.25	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Butyl benzyl phthalate	ND		0.35	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Caprolactam	ND		1.6	0.37	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Carbazole	ND		0.25	0.095	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Chrysene	0.096		0.075	0.0074	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4
Dibenz(a,h)anthracene	ND		0.075	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:27	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.068	J	0.25	0.065	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Diethyl phthalate	ND		0.35	0.15	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Dimethyl phthalate	ND		0.35	0.070	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Di-n-butyl phthalate	ND		0.35	0.25	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Di-n-octyl phthalate	ND		0.35	0.14	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Fluoranthene	0.13		0.075	0.022	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Fluorene	ND		0.075	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Hexachlorobenzene	ND		0.075	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Hexachlorobutadiene	ND		0.25	0.060	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Hexachlorocyclopentadiene	ND		1.6	0.31	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Hexachloroethane	ND		0.25	0.045	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Indeno[1,2,3-cd]pyrene	0.064	J	0.075	0.037	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Isophorone	ND		0.25	0.060	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
N-Nitrosodi-n-propylamine	ND		0.25	0.055	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
N-Nitrosodiphenylamine	ND		0.25	0.060	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Naphthalene	0.073	J	0.075	0.012	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Nitrobenzene	ND		0.50	0.065	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Pentachlorophenol	ND		0.75	0.29	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Phenanthrene	0.16		0.075	0.011	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Phenol	ND		0.25	0.040	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
Pyrene	0.13		0.075	0.011	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4
3 & 4 Methylphenol	ND		2.0	0.14	mg/Kg	✳	03/22/23 08:13	03/24/23 13:27	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	107		46 - 137	03/22/23 08:13	03/24/23 13:27	4
Phenol-d5 (Surr)	65		26 - 120	03/22/23 08:13	03/24/23 13:27	4
Nitrobenzene-d5 (Surr)	48		25 - 120	03/22/23 08:13	03/24/23 13:27	4
2-Fluorophenol (Surr)	54		20 - 120	03/22/23 08:13	03/24/23 13:27	4
2-Fluorobiphenyl (Surr)	77		34 - 120	03/22/23 08:13	03/24/23 13:27	4
2,4,6-Tribromophenol (Surr)	98		10 - 120	03/22/23 08:13	03/24/23 13:27	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.016	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:59	1
Barium	1.1	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:59	1
Cadmium	0.00088	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:59	1
Chromium	0.0060	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:59	1
Lead	0.0052	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:59	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:59	1
Silver	0.0013	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:59	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	20.0		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1,2,2-Tetrachloroethane	ND		0.0053	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0053	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1,2-Trichloroethane	ND	+	0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1-Dichloroethane	ND		0.0053	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,1-Dichloroethene	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2,4-Trichlorobenzene	ND		0.0053	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dibromo-3-Chloropropane	ND		0.011	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Ethylene Dibromide	ND		0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichlorobenzene	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichloroethane	ND		0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichloropropane	ND		0.0053	0.00090	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,3-Dichlorobenzene	ND		0.0053	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
1,4-Dichlorobenzene	ND		0.0053	0.00093	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
2-Butanone (MEK)	0.0091	J	0.021	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
2-Hexanone	ND		0.021	0.0043	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
4-Methyl-2-pentanone (MIBK)	ND		0.021	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Acetone	0.047		0.026	0.022	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Benzene	ND		0.0053	0.00074	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Dichlorobromomethane	ND		0.0053	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Bromoform	ND		0.0053	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Bromomethane	ND		0.0053	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Carbon disulfide	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Carbon tetrachloride	ND		0.0053	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chlorobenzene	ND		0.0053	0.00097	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chloroethane	ND		0.0053	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chloroform	ND		0.0053	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chloromethane	ND		0.0053	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
cis-1,2-Dichloroethene	ND		0.0053	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
cis-1,3-Dichloropropene	ND		0.0053	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Cyclohexane	ND		0.011	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Chlorodibromomethane	ND		0.0053	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Dichlorodifluoromethane	ND		0.0053	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Ethylbenzene	ND		0.0053	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Isopropylbenzene	ND		0.0053	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methyl acetate	ND		0.026	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methyl tert-butyl ether	ND		0.0053	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methylcyclohexane	ND		0.011	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Methylene Chloride	ND		0.026	0.013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Styrene	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Tetrachloroethene	ND		0.0053	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Toluene	ND	+	0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
trans-1,2-Dichloroethene	ND		0.0053	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
trans-1,3-Dichloropropene	ND		0.0053	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Trichloroethene	ND		0.0053	0.00067	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Trichlorofluoromethane	ND		0.0053	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Vinyl chloride	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1
Xylenes, Total	ND	+	0.011	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 11:09	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	86		56 - 125	03/19/23 13:00	03/21/23 11:09	1
Dibromofluoromethane (Surr)	86		41 - 138	03/19/23 13:00	03/21/23 11:09	1
4-Bromofluorobenzene (Surr)	69		41 - 143	03/19/23 13:00	03/21/23 11:09	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/19/23 13:00	03/21/23 11:09	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.13	0.043	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
bis (2-chloroisopropyl) ether	ND		0.26	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4,5-Trichlorophenol	ND		0.38	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4,6-Trichlorophenol	ND		0.38	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dichlorophenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dimethylphenol	ND		0.38	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dinitrophenol	ND		0.84	0.36	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,4-Dinitrotoluene	ND		0.51	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2,6-Dinitrotoluene	ND		0.51	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Chloronaphthalene	ND		0.13	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Chlorophenol	ND		0.13	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Methylnaphthalene	0.039		0.038	0.0050	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Methylphenol	ND		0.51	0.079	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Nitroaniline	ND		0.51	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
2-Nitrophenol	ND		0.13	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
3,3'-Dichlorobenzidine	ND		0.26	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
3-Nitroaniline	ND		0.51	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4,6-Dinitro-2-methylphenol	ND		0.84	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Bromophenyl phenyl ether	ND		0.13	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Chloro-3-methylphenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Chloroaniline	ND		0.38	0.077	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Chlorophenyl phenyl ether	ND		0.13	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Nitroaniline	ND		0.51	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
4-Nitrophenol	ND		0.84	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Acenaphthene	ND		0.038	0.0073	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Acenaphthylene	ND		0.038	0.010	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Acetophenone	ND		0.26	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Anthracene	0.013	J	0.038	0.0062	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Atrazine	ND		0.51	0.092	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzaldehyde	ND		0.26	0.059	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[a]anthracene	0.028	J	0.038	0.0087	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[a]pyrene	0.024	J	0.038	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[b]fluoranthene	0.044		0.038	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[g,h,i]perylene	0.024	J	0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Benzo[k]fluoranthene	0.021	J	0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Bis(2-chloroethoxy)methane	ND		0.26	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Bis(2-chloroethyl)ether	ND		0.26	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Bis(2-ethylhexyl) phthalate	ND		0.18	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Butyl benzyl phthalate	ND		0.18	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Caprolactam	ND		0.84	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Carbazole	ND		0.13	0.049	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Chrysene	0.030	J	0.038	0.0038	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2
Dibenz(a,h)anthracene	ND		0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:13	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.13	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Diethyl phthalate	ND		0.18	0.079	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Dimethyl phthalate	ND		0.18	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Di-n-butyl phthalate	ND		0.18	0.13	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Di-n-octyl phthalate	ND		0.18	0.072	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Fluoranthene	0.060		0.038	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Fluorene	ND		0.038	0.0070	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachlorobenzene	ND		0.038	0.0073	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachlorobutadiene	ND		0.13	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachlorocyclopentadiene	ND		0.84	0.16	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Hexachloroethane	ND		0.13	0.023	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Indeno[1,2,3-cd]pyrene	0.025	J	0.038	0.019	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Isophorone	ND		0.13	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
N-Nitrosodi-n-propylamine	ND		0.13	0.028	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
N-Nitrosodiphenylamine	ND		0.13	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Naphthalene	0.025	J	0.038	0.0062	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Nitrobenzene	ND		0.26	0.033	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Pentachlorophenol	ND		0.38	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Phenanthrene	0.063		0.038	0.0057	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Phenol	ND		0.13	0.020	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
Pyrene	0.057		0.038	0.0055	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2
3 & 4 Methylphenol	ND		1.0	0.074	mg/Kg	✱	03/22/23 08:13	03/24/23 14:13	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	03/22/23 08:13	03/24/23 14:13	2
Phenol-d5 (Surr)	59		26 - 120	03/22/23 08:13	03/24/23 14:13	2
Nitrobenzene-d5 (Surr)	46		25 - 120	03/22/23 08:13	03/24/23 14:13	2
2-Fluorophenol (Surr)	53		20 - 120	03/22/23 08:13	03/24/23 14:13	2
2-Fluorobiphenyl (Surr)	64		34 - 120	03/22/23 08:13	03/24/23 14:13	2
2,4,6-Tribromophenol (Surr)	79		10 - 120	03/22/23 08:13	03/24/23 14:13	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:04	1
Barium	1.1	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:04	1
Cadmium	0.00097	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:04	1
Chromium	0.0045	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:04	1
Lead	0.0061	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:04	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:04	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:04	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.9		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	21.1		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0060	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1,2,2-Tetrachloroethane	ND		0.0060	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0060	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1,2-Trichloroethane	ND	+	0.0060	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1-Dichloroethane	ND		0.0060	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,1-Dichloroethene	ND		0.0060	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2,4-Trichlorobenzene	ND		0.0060	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dibromo-3-Chloropropane	ND		0.012	0.0043	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Ethylene Dibromide	ND		0.0060	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichlorobenzene	ND		0.0060	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichloroethane	ND		0.0060	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichloropropane	ND		0.0060	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,3-Dichlorobenzene	ND		0.0060	0.00097	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
1,4-Dichlorobenzene	ND		0.0060	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
2-Butanone (MEK)	0.019	J	0.024	0.0042	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
2-Hexanone	ND		0.024	0.0049	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
4-Methyl-2-pentanone (MIBK)	ND		0.024	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Acetone	0.087		0.030	0.025	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Benzene	ND		0.0060	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Dichlorobromomethane	ND		0.0060	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Bromoform	ND		0.0060	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Bromomethane	ND		0.0060	0.0049	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Carbon disulfide	ND		0.0060	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Carbon tetrachloride	ND		0.0060	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chlorobenzene	ND		0.0060	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chloroethane	ND		0.0060	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chloroform	ND		0.0060	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chloromethane	ND		0.0060	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
cis-1,2-Dichloroethene	ND		0.0060	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
cis-1,3-Dichloropropene	ND		0.0060	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Cyclohexane	ND		0.012	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Chlorodibromomethane	ND		0.0060	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Dichlorodifluoromethane	ND		0.0060	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Ethylbenzene	ND		0.0060	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Isopropylbenzene	ND		0.0060	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methyl acetate	ND		0.030	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methyl tert-butyl ether	ND		0.0060	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methylcyclohexane	ND		0.012	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Methylene Chloride	ND		0.030	0.014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Styrene	ND		0.0060	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Tetrachloroethene	ND		0.0060	0.00087	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Toluene	ND	+	0.0060	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
trans-1,2-Dichloroethene	ND		0.0060	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
trans-1,3-Dichloropropene	ND		0.0060	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Trichloroethene	ND		0.0060	0.00075	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Trichlorofluoromethane	ND		0.0060	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Vinyl chloride	ND		0.0060	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1
Xylenes, Total	ND	+	0.012	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 11:30	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/19/23 13:00	03/21/23 11:30	1
Dibromofluoromethane (Surr)	83		41 - 138	03/19/23 13:00	03/21/23 11:30	1
4-Bromofluorobenzene (Surr)	73		41 - 143	03/19/23 13:00	03/21/23 11:30	1
1,2-Dichloroethane-d4 (Surr)	92		58 - 125	03/19/23 13:00	03/21/23 11:30	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.065	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4,5-Trichlorophenol	ND		0.19	0.089	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4,6-Trichlorophenol	ND		0.19	0.083	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dichlorophenol	ND		0.19	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dimethylphenol	ND		0.19	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dinitrophenol	ND		0.43	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,4-Dinitrotoluene	ND		0.26	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2,6-Dinitrotoluene	ND		0.26	0.073	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Chloronaphthalene	ND		0.065	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Chlorophenol	ND		0.065	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Methylphenol	ND		0.26	0.040	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Nitroaniline	ND		0.26	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
2-Nitrophenol	ND		0.065	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
3,3'-Dichlorobenzidine	ND		0.13	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
3-Nitroaniline	ND		0.26	0.064	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4,6-Dinitro-2-methylphenol	ND		0.43	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Bromophenyl phenyl ether	ND		0.065	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Chloro-3-methylphenol	ND		0.19	0.058	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Chloroaniline	ND		0.19	0.039	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Chlorophenyl phenyl ether	ND		0.065	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Nitroaniline	ND		0.26	0.078	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
4-Nitrophenol	ND		0.43	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Acenaphthene	ND		0.019	0.0037	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Acenaphthylene	ND		0.019	0.0052	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Acetophenone	ND		0.13	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Anthracene	0.0072	J	0.019	0.0031	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Atrazine	ND		0.26	0.047	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzaldehyde	ND		0.13	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[a]anthracene	0.022		0.019	0.0044	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[a]pyrene	0.020		0.019	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[b]fluoranthene	0.032		0.019	0.0084	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[g,h,i]perylene	0.022		0.019	0.0092	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Benzo[k]fluoranthene	0.014	J	0.019	0.0090	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Bis(2-chloroethoxy)methane	ND		0.13	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Bis(2-chloroethyl)ether	ND		0.13	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Bis(2-ethylhexyl) phthalate	ND		0.091	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Butyl benzyl phthalate	ND		0.091	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Caprolactam	ND		0.43	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Carbazole	ND		0.065	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Chrysene	0.024		0.019	0.0019	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1
Dibenz(a,h)anthracene	0.010	J	0.019	0.0090	mg/Kg	☆	03/22/23 08:13	03/24/23 16:07	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.022	J	0.065	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Diethyl phthalate	ND		0.091	0.040	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Dimethyl phthalate	ND		0.091	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Di-n-butyl phthalate	ND		0.091	0.066	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Di-n-octyl phthalate	ND		0.091	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Fluoranthene	0.040		0.019	0.0058	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Fluorene	0.0058	J	0.019	0.0036	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachlorobenzene	ND		0.019	0.0037	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachlorobutadiene	ND		0.065	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachlorocyclopentadiene	ND		0.43	0.080	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Hexachloroethane	ND		0.065	0.012	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Indeno[1,2,3-cd]pyrene	0.017	J	0.019	0.0095	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Isophorone	ND		0.065	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
N-Nitrosodi-n-propylamine	ND		0.065	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
N-Nitrosodiphenylamine	ND		0.065	0.016	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Naphthalene	0.024		0.019	0.0031	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Nitrobenzene	ND		0.13	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Pentachlorophenol	ND		0.19	0.075	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Phenanthrene	0.055		0.019	0.0029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Phenol	ND		0.065	0.010	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
Pyrene	0.043		0.019	0.0028	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1
3 & 4 Methylphenol	ND		0.52	0.038	mg/Kg	✱	03/22/23 08:13	03/24/23 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	03/22/23 08:13	03/24/23 16:07	1
Phenol-d5 (Surr)	50		26 - 120	03/22/23 08:13	03/24/23 16:07	1
Nitrobenzene-d5 (Surr)	42		25 - 120	03/22/23 08:13	03/24/23 16:07	1
2-Fluorophenol (Surr)	48		20 - 120	03/22/23 08:13	03/24/23 16:07	1
2-Fluorobiphenyl (Surr)	54		34 - 120	03/22/23 08:13	03/24/23 16:07	1
2,4,6-Tribromophenol (Surr)	87		10 - 120	03/22/23 08:13	03/24/23 16:07	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:08	1
Barium	1.1	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:08	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:08	1
Chromium	0.0054	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:08	1
Lead	0.0057	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:08	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:08	1
Silver	0.0029	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:08	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	76.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	24.0		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,1,2,2-Tetrachloroethane	ND		0.0053	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0053	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,1,2-Trichloroethane	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,1-Dichloroethane	ND		0.0053	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,1-Dichloroethene	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,2,4-Trichlorobenzene	ND		0.0053	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,2-Dibromo-3-Chloropropane	ND		0.011	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Ethylene Dibromide	ND		0.0053	0.00081	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichlorobenzene	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichloroethane	ND		0.0053	0.00081	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichloropropane	ND		0.0053	0.00090	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,3-Dichlorobenzene	ND		0.0053	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
1,4-Dichlorobenzene	ND		0.0053	0.00093	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
2-Butanone (MEK)	ND		0.021	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
2-Hexanone	ND		0.021	0.0043	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
4-Methyl-2-pentanone (MIBK)	ND		0.021	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Acetone	0.047	B	0.026	0.022	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Benzene	ND		0.0053	0.00074	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Dichlorobromomethane	ND		0.0053	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Bromoform	ND		0.0053	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Bromomethane	ND		0.0053	0.0044	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Carbon disulfide	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Carbon tetrachloride	ND		0.0053	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Chlorobenzene	ND		0.0053	0.00097	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Chloroethane	ND		0.0053	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Chloroform	ND		0.0053	0.00083	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Chloromethane	ND		0.0053	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
cis-1,2-Dichloroethene	ND		0.0053	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
cis-1,3-Dichloropropene	ND		0.0053	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Cyclohexane	ND		0.011	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Chlorodibromomethane	ND		0.0053	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Dichlorodifluoromethane	ND		0.0053	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Ethylbenzene	ND		0.0053	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Isopropylbenzene	ND		0.0053	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Methyl acetate	ND		0.026	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Methyl tert-butyl ether	ND		0.0053	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Methylcyclohexane	ND		0.011	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Methylene Chloride	ND		0.026	0.013	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Styrene	ND		0.0053	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Tetrachloroethene	ND		0.0053	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Toluene	ND		0.0053	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
trans-1,2-Dichloroethene	ND		0.0053	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
trans-1,3-Dichloropropene	ND		0.0053	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Trichloroethene	ND		0.0053	0.00067	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Trichlorofluoromethane	ND		0.0053	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Vinyl chloride	ND		0.0053	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1
Xylenes, Total	ND		0.011	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 21:57	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	121		56 - 125	03/19/23 13:00	03/21/23 21:57	1
Dibromofluoromethane (Surr)	105		41 - 138	03/19/23 13:00	03/21/23 21:57	1
4-Bromofluorobenzene (Surr)	126		41 - 143	03/19/23 13:00	03/21/23 21:57	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/19/23 13:00	03/21/23 21:57	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.064	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4,5-Trichlorophenol	ND		0.19	0.089	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4,6-Trichlorophenol	ND		0.19	0.082	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dichlorophenol	ND		0.19	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dimethylphenol	ND		0.19	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dinitrophenol	ND		0.42	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,4-Dinitrotoluene	ND		0.26	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2,6-Dinitrotoluene	ND		0.26	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Chloronaphthalene	ND		0.064	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Chlorophenol	ND		0.064	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Methylnaphthalene	ND		0.019	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Methylphenol	ND		0.26	0.040	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Nitroaniline	ND		0.26	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
2-Nitrophenol	ND		0.064	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
3,3'-Dichlorobenzidine	ND		0.13	0.055	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
3-Nitroaniline	ND		0.26	0.063	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4,6-Dinitro-2-methylphenol	ND		0.42	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Bromophenyl phenyl ether	ND		0.064	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Chloro-3-methylphenol	ND		0.19	0.058	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Chloroaniline	ND		0.19	0.039	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Chlorophenyl phenyl ether	ND		0.064	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Nitroaniline	ND		0.26	0.077	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
4-Nitrophenol	ND		0.42	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Acenaphthene	ND		0.019	0.0037	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Acenaphthylene	ND		0.019	0.0052	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Acetophenone	ND		0.13	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Anthracene	ND		0.019	0.0031	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Atrazine	ND		0.26	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzaldehyde	ND		0.13	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[a]anthracene	ND		0.019	0.0044	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[a]pyrene	ND		0.019	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[b]fluoranthene	ND		0.019	0.0084	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[g,h,i]perylene	ND		0.019	0.0091	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Benzo[k]fluoranthene	ND		0.019	0.0089	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Bis(2-chloroethoxy)methane	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Bis(2-chloroethyl)ether	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Bis(2-ethylhexyl) phthalate	ND		0.090	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Butyl benzyl phthalate	ND		0.090	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Caprolactam	ND		0.42	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Carbazole	ND		0.064	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Chrysene	ND		0.019	0.0019	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1
Dibenz(a,h)anthracene	ND		0.019	0.0089	mg/Kg	☆	03/22/23 08:13	03/24/23 14:35	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.064	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Diethyl phthalate	ND		0.090	0.040	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Dimethyl phthalate	ND		0.090	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Di-n-butyl phthalate	ND		0.090	0.065	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Di-n-octyl phthalate	ND		0.090	0.036	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Fluoranthene	ND		0.019	0.0057	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Fluorene	ND		0.019	0.0035	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachlorobenzene	ND		0.019	0.0037	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachlorobutadiene	ND		0.064	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachlorocyclopentadiene	ND		0.42	0.080	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Hexachloroethane	ND		0.064	0.012	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Indeno[1,2,3-cd]pyrene	ND		0.019	0.0095	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Isophorone	ND		0.064	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
N-Nitrosodi-n-propylamine	ND		0.064	0.014	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
N-Nitrosodiphenylamine	ND		0.064	0.015	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Naphthalene	ND		0.019	0.0031	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Nitrobenzene	ND		0.13	0.017	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Pentachlorophenol	ND		0.19	0.075	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Phenanthrene	ND		0.019	0.0029	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Phenol	ND		0.064	0.010	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
Pyrene	ND		0.019	0.0028	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1
3 & 4 Methylphenol	ND		0.52	0.037	mg/Kg	✱	03/22/23 08:13	03/24/23 14:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	95		46 - 137	03/22/23 08:13	03/24/23 14:35	1
Phenol-d5 (Surr)	51		26 - 120	03/22/23 08:13	03/24/23 14:35	1
Nitrobenzene-d5 (Surr)	42		25 - 120	03/22/23 08:13	03/24/23 14:35	1
2-Fluorophenol (Surr)	49		20 - 120	03/22/23 08:13	03/24/23 14:35	1
2-Fluorobiphenyl (Surr)	48		34 - 120	03/22/23 08:13	03/24/23 14:35	1
2,4,6-Tribromophenol (Surr)	68		10 - 120	03/22/23 08:13	03/24/23 14:35	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.017	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:21	1
Barium	0.88	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:21	1
Cadmium	0.0015	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:21	1
Chromium	0.0063	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:21	1
Lead	0.0043	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:21	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:21	1
Silver	0.0021	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:21	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.0		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	21.0		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1,2-Trichloroethane	ND	+	0.0050	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1-Dichloroethane	ND		0.0050	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Ethylene Dibromide	ND		0.0050	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichloroethane	ND		0.0050	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichloropropane	ND		0.0050	0.00086	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
1,4-Dichlorobenzene	ND		0.0050	0.00089	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
2-Butanone (MEK)	0.0051	J	0.020	0.0036	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
2-Hexanone	ND		0.020	0.0041	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Acetone	0.028		0.025	0.021	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Benzene	ND		0.0050	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Bromoform	ND		0.0050	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Bromomethane	ND		0.0050	0.0042	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chloroethane	ND		0.0050	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chloroform	ND		0.0050	0.00079	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chloromethane	ND		0.0050	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Cyclohexane	ND		0.010	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Dichlorodifluoromethane	ND		0.0050	0.00095	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Ethylbenzene	ND		0.0050	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methyl acetate	ND		0.025	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Methylene Chloride	ND		0.025	0.012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Styrene	ND		0.0050	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Toluene	ND	+	0.0050	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Trichloroethene	ND		0.0050	0.00064	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Vinyl chloride	0.0027	J	0.0050	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1
Xylenes, Total	ND	+	0.010	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 12:13	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/19/23 13:00	03/21/23 12:13	1
Dibromofluoromethane (Surr)	89		41 - 138	03/19/23 13:00	03/21/23 12:13	1
4-Bromofluorobenzene (Surr)	73		41 - 143	03/19/23 13:00	03/21/23 12:13	1
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	03/19/23 13:00	03/21/23 12:13	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.13	0.043	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
bis (2-chloroisopropyl) ether	ND		0.25	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4,5-Trichlorophenol	ND		0.38	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4,6-Trichlorophenol	ND		0.38	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dichlorophenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dimethylphenol	ND		0.38	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dinitrophenol	ND		0.83	0.36	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,4-Dinitrotoluene	ND		0.50	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2,6-Dinitrotoluene	ND		0.50	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Chloronaphthalene	ND		0.13	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Chlorophenol	ND		0.13	0.025	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Methylnaphthalene	0.069		0.038	0.0049	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Methylphenol	ND		0.50	0.078	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Nitroaniline	ND		0.50	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
2-Nitrophenol	ND		0.13	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
3,3'-Dichlorobenzidine	ND		0.25	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
3-Nitroaniline	ND		0.50	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4,6-Dinitro-2-methylphenol	ND		0.83	0.20	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Bromophenyl phenyl ether	ND		0.13	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Chloro-3-methylphenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Chloroaniline	ND		0.38	0.075	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Chlorophenyl phenyl ether	ND		0.13	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Nitroaniline	ND		0.50	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
4-Nitrophenol	ND		0.83	0.24	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Acenaphthene	0.010	J	0.038	0.0072	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Acenaphthylene	ND		0.038	0.010	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Acetophenone	ND		0.25	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Anthracene	0.012	J	0.038	0.0061	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Atrazine	ND		0.50	0.090	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzaldehyde	ND		0.25	0.058	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[a]anthracene	0.035	J	0.038	0.0086	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[a]pyrene	0.030	J	0.038	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[b]fluoranthene	0.047		0.038	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[g,h,i]perylene	0.028	J	0.038	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Benzo[k]fluoranthene	0.026	J	0.038	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Bis(2-chloroethoxy)methane	ND		0.25	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Bis(2-chloroethyl)ether	ND		0.25	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Bis(2-ethylhexyl) phthalate	ND		0.18	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Butyl benzyl phthalate	ND		0.18	0.055	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Caprolactam	ND		0.83	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Carbazole	ND		0.13	0.048	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Chrysene	0.070		0.038	0.0037	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2
Dibenz(a,h)anthracene	0.018	J	0.038	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 13:50	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.13	0.033	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Diethyl phthalate	ND		0.18	0.078	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Dimethyl phthalate	ND		0.18	0.035	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Di-n-butyl phthalate	ND		0.18	0.13	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Di-n-octyl phthalate	ND		0.18	0.070	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Fluoranthene	0.060		0.038	0.011	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Fluorene	0.0092	J	0.038	0.0069	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Hexachlorobenzene	ND		0.038	0.0072	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Hexachlorobutadiene	ND		0.13	0.030	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Hexachlorocyclopentadiene	ND		0.83	0.16	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Hexachloroethane	ND		0.13	0.023	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Indeno[1,2,3-cd]pyrene	0.028	J	0.038	0.018	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Isophorone	ND		0.13	0.030	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
N-Nitrosodi-n-propylamine	ND		0.13	0.028	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
N-Nitrosodiphenylamine	ND		0.13	0.030	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Naphthalene	0.040		0.038	0.0061	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Nitrobenzene	ND		0.25	0.033	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Pentachlorophenol	ND		0.38	0.15	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Phenanthrene	0.091		0.038	0.0056	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Phenol	ND		0.13	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
Pyrene	0.062		0.038	0.0054	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2
3 & 4 Methylphenol	ND		1.0	0.073	mg/Kg	✳	03/22/23 08:13	03/24/23 13:50	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	101		46 - 137	03/22/23 08:13	03/24/23 13:50	2
Phenol-d5 (Surr)	78		26 - 120	03/22/23 08:13	03/24/23 13:50	2
Nitrobenzene-d5 (Surr)	66		25 - 120	03/22/23 08:13	03/24/23 13:50	2
2-Fluorophenol (Surr)	77		20 - 120	03/22/23 08:13	03/24/23 13:50	2
2-Fluorobiphenyl (Surr)	80		34 - 120	03/22/23 08:13	03/24/23 13:50	2
2,4,6-Tribromophenol (Surr)	96		10 - 120	03/22/23 08:13	03/24/23 13:50	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:25	1
Barium	0.83	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:25	1
Cadmium	0.0011	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:25	1
Chromium	0.0052	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:25	1
Lead	0.0040	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:25	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:25	1
Silver	0.0015	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:25	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	78.6		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	21.4		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0061	0.0022	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,1,2,2-Tetrachloroethane	ND		0.0061	0.0017	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0061	0.0016	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,1,2-Trichloroethane	ND	+	0.0061	0.0014	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,1-Dichloroethane	ND		0.0061	0.00084	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,1-Dichloroethene	ND		0.0061	0.0022	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,2,4-Trichlorobenzene	ND		0.0061	0.0030	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,2-Dibromo-3-Chloropropane	ND		0.012	0.0044	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Ethylene Dibromide	ND		0.0061	0.00094	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichlorobenzene	ND		0.0061	0.0014	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichloroethane	ND		0.0061	0.00094	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichloropropane	ND		0.0061	0.0010	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,3-Dichlorobenzene	ND		0.0061	0.00099	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
1,4-Dichlorobenzene	ND		0.0061	0.0011	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
2-Butanone (MEK)	0.012	J	0.024	0.0043	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
2-Hexanone	ND		0.024	0.0050	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
4-Methyl-2-pentanone (MIBK)	ND		0.024	0.0045	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Acetone	0.069		0.030	0.026	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Benzene	ND		0.0061	0.00085	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Dichlorobromomethane	ND		0.0061	0.0018	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Bromoform	ND		0.0061	0.0029	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Bromomethane	ND		0.0061	0.0051	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Carbon disulfide	ND		0.0061	0.0014	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Carbon tetrachloride	ND		0.0061	0.0040	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Chlorobenzene	ND		0.0061	0.0011	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Chloroethane	ND		0.0061	0.0033	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Chloroform	ND		0.0061	0.00096	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Chloromethane	ND		0.0061	0.0028	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
cis-1,2-Dichloroethene	ND		0.0061	0.0018	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
cis-1,3-Dichloropropene	ND		0.0061	0.0035	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Cyclohexane	ND		0.012	0.0017	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Chlorodibromomethane	ND		0.0061	0.0034	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Dichlorodifluoromethane	ND		0.0061	0.0011	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Ethylbenzene	ND		0.0061	0.0013	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Isopropylbenzene	ND		0.0061	0.0023	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Methyl acetate	ND		0.030	0.0041	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Methyl tert-butyl ether	ND		0.0061	0.0024	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Methylcyclohexane	ND		0.012	0.0015	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Methylene Chloride	ND		0.030	0.015	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Styrene	ND		0.0061	0.0014	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Tetrachloroethene	ND		0.0061	0.00089	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Toluene	ND	+	0.0061	0.00094	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
trans-1,2-Dichloroethene	ND		0.0061	0.0017	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
trans-1,3-Dichloropropene	ND		0.0061	0.0045	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Trichloroethene	ND		0.0061	0.00077	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Trichlorofluoromethane	ND		0.0061	0.0033	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Vinyl chloride	0.0089		0.0061	0.0022	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1
Xylenes, Total	ND	+	0.012	0.0019	mg/Kg	☼	03/19/23 13:00	03/21/23 14:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	84		56 - 125	03/19/23 13:00	03/21/23 14:00	1
Dibromofluoromethane (Surr)	84		41 - 138	03/19/23 13:00	03/21/23 14:00	1
4-Bromofluorobenzene (Surr)	70		41 - 143	03/19/23 13:00	03/21/23 14:00	1
1,2-Dichloroethane-d4 (Surr)	94		58 - 125	03/19/23 13:00	03/21/23 14:00	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.063	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
bis (2-chloroisopropyl) ether	ND		0.13	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4,5-Trichlorophenol	ND		0.19	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4,6-Trichlorophenol	ND		0.19	0.081	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dichlorophenol	ND		0.19	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dimethylphenol	ND		0.19	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dinitrophenol	ND		0.42	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,4-Dinitrotoluene	ND		0.25	0.079	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2,6-Dinitrotoluene	ND		0.25	0.071	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Chloronaphthalene	ND		0.063	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Chlorophenol	ND		0.063	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Methylnaphthalene	0.039		0.019	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Methylphenol	ND		0.25	0.039	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Nitroaniline	ND		0.25	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
2-Nitrophenol	ND		0.063	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
3,3'-Dichlorobenzidine	ND		0.13	0.054	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
3-Nitroaniline	ND		0.25	0.062	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4,6-Dinitro-2-methylphenol	ND		0.42	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Bromophenyl phenyl ether	ND		0.063	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Chloro-3-methylphenol	ND		0.19	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Chloroaniline	ND		0.19	0.038	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Chlorophenyl phenyl ether	ND		0.063	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Nitroaniline	ND		0.25	0.076	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
4-Nitrophenol	ND		0.42	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Acenaphthene	0.0057	J	0.019	0.0036	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Acenaphthylene	ND		0.019	0.0051	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Acetophenone	ND		0.13	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Anthracene	0.0086	J	0.019	0.0031	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Atrazine	ND		0.25	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzaldehyde	ND		0.13	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[a]anthracene	0.032		0.019	0.0043	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[a]pyrene	0.028		0.019	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[b]fluoranthene	0.044		0.019	0.0082	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[g,h,i]perylene	0.024		0.019	0.0090	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Benzo[k]fluoranthene	0.018	J	0.019	0.0088	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Bis(2-chloroethoxy)methane	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Bis(2-chloroethyl)ether	ND		0.13	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Bis(2-ethylhexyl) phthalate	ND		0.089	0.065	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Butyl benzyl phthalate	ND		0.089	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Caprolactam	ND		0.42	0.095	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Carbazole	ND		0.063	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Chrysene	0.032		0.019	0.0019	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1
Dibenz(a,h)anthracene	0.011	J	0.019	0.0088	mg/Kg	☆	03/22/23 08:13	03/24/23 16:30	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.024	J	0.063	0.016	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Diethyl phthalate	ND		0.089	0.039	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Dimethyl phthalate	ND		0.089	0.018	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Di-n-butyl phthalate	ND		0.089	0.064	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Di-n-octyl phthalate	ND		0.089	0.035	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Fluoranthene	0.054		0.019	0.0056	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Fluorene	0.0061	J	0.019	0.0035	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachlorobenzene	ND		0.019	0.0036	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachlorobutadiene	ND		0.063	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachlorocyclopentadiene	ND		0.42	0.079	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Hexachloroethane	ND		0.063	0.011	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Indeno[1,2,3-cd]pyrene	0.021		0.019	0.0093	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Isophorone	ND		0.063	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
N-Nitrosodi-n-propylamine	ND		0.063	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
N-Nitrosodiphenylamine	ND		0.063	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Naphthalene	0.024		0.019	0.0031	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Nitrobenzene	ND		0.13	0.016	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Pentachlorophenol	ND		0.19	0.073	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Phenanthrene	0.067		0.019	0.0028	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Phenol	ND		0.063	0.010	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
Pyrene	0.055		0.019	0.0027	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1
3 & 4 Methylphenol	ND		0.51	0.037	mg/Kg	✳	03/22/23 08:13	03/24/23 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	94		46 - 137	03/22/23 08:13	03/24/23 16:30	1
Phenol-d5 (Surr)	52		26 - 120	03/22/23 08:13	03/24/23 16:30	1
Nitrobenzene-d5 (Surr)	41		25 - 120	03/22/23 08:13	03/24/23 16:30	1
2-Fluorophenol (Surr)	48		20 - 120	03/22/23 08:13	03/24/23 16:30	1
2-Fluorobiphenyl (Surr)	56		34 - 120	03/22/23 08:13	03/24/23 16:30	1
2,4,6-Tribromophenol (Surr)	90		10 - 120	03/22/23 08:13	03/24/23 16:30	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.014	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:30	1
Barium	0.99	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:30	1
Cadmium	0.0012	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:30	1
Chromium	0.0088	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:30	1
Lead	0.0041	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:30	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:30	1
Silver	0.0029	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:30	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.4		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	20.6		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 16:16	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 16:16	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 16:16	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 16:16	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 16:16	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 16:16	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:16	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:16	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 16:16	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 16:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120					03/22/23 16:16	1
Dibromofluoromethane (Surr)	98		71 - 121					03/22/23 16:16	1
4-Bromofluorobenzene (Surr)	108		80 - 120					03/22/23 16:16	1
1,2-Dichloroethane-d4 (Surr)	100		76 - 120					03/22/23 16:16	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 15:15	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 15:15	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 15:15	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 15:15	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 15:15	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 15:15	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 15:15	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 15:15	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 15:15	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 15:15	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 15:15	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 15:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		46 - 137				03/21/23 12:03	03/23/23 15:15	1
Phenol-d5 (Surr)	61		26 - 120				03/21/23 12:03	03/23/23 15:15	1
Nitrobenzene-d5 (Surr)	76		24 - 120				03/21/23 12:03	03/23/23 15:15	1
2-Fluorophenol (Surr)	70		19 - 120				03/21/23 12:03	03/23/23 15:15	1
2-Fluorobiphenyl (Surr)	91		33 - 120				03/21/23 12:03	03/23/23 15:15	1
2,4,6-Tribromophenol (Surr)	114		10 - 120				03/21/23 12:03	03/23/23 15:15	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 14:07	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 14:07	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 14:07	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 14:07	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 14:07	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 14:07	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 14:07	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	80		10 - 145	03/21/23 12:08	03/22/23 14:07	1
DCB Decachlorobiphenyl	79		10 - 145	03/21/23 12:08	03/22/23 14:07	1
Tetrachloro-m-xylene	63		10 - 123	03/21/23 12:08	03/22/23 14:07	1
Tetrachloro-m-xylene	67		10 - 123	03/21/23 12:08	03/22/23 14:07	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		65	32	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1221	ND		65	39	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1232	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1242	ND		65	25	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1248	ND		65	22	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1254	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1260	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1262	ND		65	29	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1
Aroclor-1268	ND		65	21	ug/Kg	☆	03/21/23 08:36	03/21/23 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	88		10 - 149	03/21/23 08:36	03/21/23 16:42	1
Tetrachloro-m-xylene	88		10 - 149	03/21/23 08:36	03/21/23 16:42	1
DCB Decachlorobiphenyl	82		10 - 174	03/21/23 08:36	03/21/23 16:42	1
DCB Decachlorobiphenyl	86		10 - 174	03/21/23 08:36	03/21/23 16:42	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 08:39	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 08:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	53		26 - 136	03/23/23 21:15	03/24/23 08:39	1
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	03/23/23 21:15	03/24/23 08:39	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	27	B	6.2	0.066	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,6,7,8-HpCDF	10	B	6.2	0.021	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,7,8-HxCDD	0.36	J B	6.2	0.021	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,7,8-HxCDF	1.9	J B	6.2	0.040	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,4,7,8,9-HpCDF	1.3	J B	6.2	0.026	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,6,7,8-HxCDD	1.2	J B	6.2	0.020	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,6,7,8-HxCDF	1.6	J B	6.2	0.040	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8-PeCDD	0.58	J I B	6.2	0.012	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8-PeCDF	0.72	J B	6.2	0.024	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8,9-HxCDD	0.88	J B	6.2	0.020	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
1,2,3,7,8,9-HxCDF	0.42	J B	6.2	0.044	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,4,6,7,8-HxCDF	1.2	J B	6.2	0.039	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,4,7,8-PeCDF	1.6	J B	6.2	0.019	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,7,8-TCDD	0.44	J B	1.2	0.0093	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
2,3,7,8-TCDF	0.43	J I	1.2	0.022	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
OCDD	450	B	12	0.075	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1
OCDF	22	B	12	0.034	ng/Kg	☆	03/28/23 09:37	03/29/23 22:49	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HxCDD	12	B	6.2	0.020	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total HxCDF	19	B	6.2	0.041	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total HpCDD	27	B	6.2	0.066	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total HpCDF	25	B	6.2	0.023	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total PeCDD	5.4	J I B	6.2	0.012	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total PeCDF	12	I B	6.2	0.021	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total TCDD	3.5	I B	1.2	0.0093	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Total TCDF	6.2	I	1.2	0.022	ng/Kg	☼	03/28/23 09:37	03/29/23 22:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	100		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-OCDD	104		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,7,8-TCDF	72		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,7,8-TCDD	77		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,4,7,8-PeCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-2,3,4,6,7,8-HxCDF	74		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8,9-HxCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8,9-HxCDD	78		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8-PeCDF	73		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,7,8-PeCDD	72		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,6,7,8-HxCDF	78		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,6,7,8-HxCDD	78		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,7,8,9-HpCDF	81		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,7,8-HxCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,7,8-HxCDD	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,6,7,8-HpCDF	75		40 - 135				03/28/23 09:37	03/29/23 22:49	1
13C-1,2,3,4,6,7,8-HpCDD	85		40 - 135				03/28/23 09:37	03/29/23 22:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	80.6		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	19.4		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 16:39	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 16:39	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 16:39	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 16:39	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 16:39	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 16:39	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:39	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 16:39	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 16:39	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 16:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	87		80 - 120					03/22/23 16:39	1
Dibromofluoromethane (Surr)	86		71 - 121					03/22/23 16:39	1
4-Bromofluorobenzene (Surr)	92		80 - 120					03/22/23 16:39	1
1,2-Dichloroethane-d4 (Surr)	92		76 - 120					03/22/23 16:39	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 15:38	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 15:38	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 15:38	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 15:38	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 15:38	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 15:38	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 15:38	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 15:38	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 15:38	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 15:38	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 15:38	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 15:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	115		46 - 137				03/21/23 12:03	03/23/23 15:38	1
Phenol-d5 (Surr)	52		26 - 120				03/21/23 12:03	03/23/23 15:38	1
Nitrobenzene-d5 (Surr)	66		24 - 120				03/21/23 12:03	03/23/23 15:38	1
2-Fluorophenol (Surr)	57		19 - 120				03/21/23 12:03	03/23/23 15:38	1
2-Fluorobiphenyl (Surr)	84		33 - 120				03/21/23 12:03	03/23/23 15:38	1
2,4,6-Tribromophenol (Surr)	112		10 - 120				03/21/23 12:03	03/23/23 15:38	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 14:39	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 14:39	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 14:39	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 14:39	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 14:39	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 14:39	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 14:39	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	76		10 - 145	03/21/23 12:08	03/22/23 14:39	1
DCB Decachlorobiphenyl	69		10 - 145	03/21/23 12:08	03/22/23 14:39	1
Tetrachloro-m-xylene	66		10 - 123	03/21/23 12:08	03/22/23 14:39	1
Tetrachloro-m-xylene	64		10 - 123	03/21/23 12:08	03/22/23 14:39	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		65	32	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1221	ND		65	39	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1232	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1242	ND		65	25	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1248	ND		65	22	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1254	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1260	ND		65	27	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1262	ND		65	28	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1
Aroclor-1268	ND		65	21	ug/Kg	☆	03/21/23 08:36	03/21/23 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	88		10 - 149	03/21/23 08:36	03/21/23 16:59	1
DCB Decachlorobiphenyl	88		10 - 174	03/21/23 08:36	03/21/23 16:59	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 09:07	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 09:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	53		26 - 136	03/23/23 21:15	03/24/23 09:07	1
2,4-Dichlorophenylacetic acid (Surr)	59		26 - 136	03/23/23 21:15	03/24/23 09:07	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	6.5	B	6.0	0.060	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,6,7,8-HpCDF	0.84	J I B	6.0	0.0084	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,7,8-HxCDD	0.15	J I B	6.0	0.0066	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,7,8-HxCDF	0.21	J B	6.0	0.010	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,4,7,8,9-HpCDF	0.13	J I B	6.0	0.011	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,6,7,8-HxCDD	0.18	J I B	6.0	0.0071	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,6,7,8-HxCDF	0.16	J B	6.0	0.010	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8-PeCDD	ND		6.0	0.0044	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8-PeCDF	0.12	J B	6.0	0.0068	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8,9-HxCDD	0.26	J B	6.0	0.0067	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
1,2,3,7,8,9-HxCDF	ND		6.0	0.012	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,4,6,7,8-HxCDF	0.18	J B	6.0	0.0096	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,4,7,8-PeCDF	0.18	J B	6.0	0.0053	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,7,8-TCDD	ND		1.2	0.013	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
2,3,7,8-TCDF	ND		1.2	0.0061	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
OCDD	250	B	12	0.065	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
OCDF	1.7	J B	12	0.013	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
Total HxCDD	3.9	J I B	6.0	0.0068	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1
Total HxCDF	1.4	J I B	6.0	0.011	ng/Kg	☆	03/28/23 09:37	03/29/23 23:38	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	6.5	B	6.0	0.060	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total HpCDF	0.97	J I B	6.0	0.0097	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total PeCDD	0.76	J I B	6.0	0.0044	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total PeCDF	1.6	J I B	6.0	0.0060	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total TCDD	0.20	J I B	1.2	0.013	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Total TCDF	0.49	J I	1.2	0.0061	ng/Kg	✱	03/28/23 09:37	03/29/23 23:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	91		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-OCDD	95		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,7,8-TCDF	66		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,7,8-TCDD	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,4,7,8-PeCDF	73		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-2,3,4,6,7,8-HxCDF	71		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8,9-HxCDF	69		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8,9-HxCDD	73		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8-PeCDF	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,7,8-PeCDD	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,6,7,8-HxCDF	72		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,6,7,8-HxCDD	75		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,7,8,9-HpCDF	75		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,7,8-HxCDF	70		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,7,8-HxCDD	71		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,6,7,8-HpCDF	71		40 - 135				03/28/23 09:37	03/29/23 23:38	1
13C-1,2,3,4,6,7,8-HpCDD	78		40 - 135				03/28/23 09:37	03/29/23 23:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	79.7		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	20.3		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1,2,2-Tetrachloroethane	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0042	0.0011	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1,2-Trichloroethane	ND		0.0042	0.00096	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1-Dichloroethane	ND		0.0042	0.00059	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,1-Dichloroethene	ND		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2,4-Trichlorobenzene	ND		0.0042	0.0021	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dibromo-3-Chloropropane	ND		0.0085	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Ethylene Dibromide	ND		0.0042	0.00065	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichlorobenzene	ND		0.0042	0.00094	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichloroethane	ND		0.0042	0.00065	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichloropropane	ND		0.0042	0.00072	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,3-Dichlorobenzene	ND		0.0042	0.00069	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
1,4-Dichlorobenzene	ND		0.0042	0.00075	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
2-Butanone (MEK)	ND		0.017	0.0030	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
2-Hexanone	ND		0.017	0.0035	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
4-Methyl-2-pentanone (MIBK)	ND		0.017	0.0031	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Acetone	ND		0.021	0.018	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Benzene	ND		0.0042	0.00059	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Dichlorobromomethane	ND		0.0042	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Bromoform	ND		0.0042	0.0020	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Bromomethane	ND		0.0042	0.0035	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Carbon disulfide	ND		0.0042	0.00098	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Carbon tetrachloride	ND		0.0042	0.0028	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chlorobenzene	ND		0.0042	0.00077	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chloroethane	ND		0.0042	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chloroform	ND		0.0042	0.00067	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chloromethane	ND		0.0042	0.0019	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
cis-1,2-Dichloroethene	ND		0.0042	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
cis-1,3-Dichloropropene	ND		0.0042	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Cyclohexane	ND		0.0085	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Chlorodibromomethane	ND		0.0042	0.0024	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Dichlorodifluoromethane	ND		0.0042	0.00080	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Ethylbenzene	ND		0.0042	0.00089	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Isopropylbenzene	ND		0.0042	0.0016	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methyl acetate	ND		0.021	0.0029	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methyl tert-butyl ether	ND		0.0042	0.0017	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methylcyclohexane	ND		0.0085	0.0010	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Methylene Chloride	ND		0.021	0.010	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Styrene	ND		0.0042	0.00098	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Tetrachloroethene	ND		0.0042	0.00062	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Toluene	ND		0.0042	0.00065	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
trans-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
trans-1,3-Dichloropropene	ND		0.0042	0.0031	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Trichloroethene	ND		0.0042	0.00054	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Trichlorofluoromethane	ND		0.0042	0.0023	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Vinyl chloride	0.0048		0.0042	0.0015	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1
Xylenes, Total	ND		0.0085	0.0013	mg/Kg	✱	03/19/23 13:00	03/21/23 22:22	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	122		56 - 125	03/19/23 13:00	03/21/23 22:22	1
Dibromofluoromethane (Surr)	112		41 - 138	03/19/23 13:00	03/21/23 22:22	1
4-Bromofluorobenzene (Surr)	127		41 - 143	03/19/23 13:00	03/21/23 22:22	1
1,2-Dichloroethane-d4 (Surr)	128	S1+	58 - 125	03/19/23 13:00	03/21/23 22:22	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.049	J	0.082	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
bis (2-chloroisopropyl) ether	ND		0.16	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4,5-Trichlorophenol	ND		0.25	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4,6-Trichlorophenol	ND		0.25	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dichlorophenol	ND		0.25	0.073	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dimethylphenol	ND		0.25	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dinitrophenol	ND		0.54	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,4-Dinitrotoluene	ND		0.33	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2,6-Dinitrotoluene	ND		0.33	0.092	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Chloronaphthalene	ND		0.082	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Chlorophenol	ND		0.082	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Methylnaphthalene	0.49		0.025	0.0032	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Methylphenol	ND		0.33	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Nitroaniline	ND		0.33	0.066	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
2-Nitrophenol	ND		0.082	0.021	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
3,3'-Dichlorobenzidine	ND		0.16	0.071	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
3-Nitroaniline	ND		0.33	0.081	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4,6-Dinitro-2-methylphenol	ND		0.54	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Bromophenyl phenyl ether	ND		0.082	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Chloro-3-methylphenol	ND		0.25	0.074	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Chloroaniline	ND		0.25	0.049	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Chlorophenyl phenyl ether	ND		0.082	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Nitroaniline	ND		0.33	0.099	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
4-Nitrophenol	ND		0.54	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Acenaphthene	0.035		0.025	0.0047	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Acenaphthylene	0.035		0.025	0.0066	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Acetophenone	ND		0.16	0.018	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Anthracene	0.083		0.025	0.0040	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Atrazine	ND		0.33	0.059	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzaldehyde	0.065	J	0.16	0.038	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[a]anthracene	0.41		0.025	0.0056	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[a]pyrene	0.50		0.025	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[b]fluoranthene	0.80		0.025	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[g,h,i]perylene	0.20		0.025	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Benzo[k]fluoranthene	0.28		0.025	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Bis(2-chloroethoxy)methane	ND		0.16	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Bis(2-chloroethyl)ether	ND		0.16	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Bis(2-ethylhexyl) phthalate	0.14		0.12	0.084	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Butyl benzyl phthalate	ND		0.12	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Caprolactam	ND		0.54	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Carbazole	0.063	J	0.082	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Chrysene	0.62		0.025	0.0025	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1
Dibenz(a,h)anthracene	0.066		0.025	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:24	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.19		0.082	0.021	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Diethyl phthalate	ND		0.12	0.051	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Dimethyl phthalate	ND		0.12	0.023	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Di-n-butyl phthalate	ND		0.12	0.083	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Di-n-octyl phthalate	ND		0.12	0.046	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Fluoranthene	0.90		0.025	0.0073	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Fluorene	0.047		0.025	0.0045	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachlorobenzene	ND		0.025	0.0047	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachlorobutadiene	ND		0.082	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachlorocyclopentadiene	ND		0.54	0.10	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Hexachloroethane	ND		0.082	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Indeno[1,2,3-cd]pyrene	0.19		0.025	0.012	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Isophorone	ND		0.082	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
N-Nitrosodi-n-propylamine	ND		0.082	0.018	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
N-Nitrosodiphenylamine	ND		0.082	0.020	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Naphthalene	0.28		0.025	0.0040	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Nitrobenzene	ND		0.16	0.021	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Pentachlorophenol	ND		0.25	0.096	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Phenanthrene	0.54		0.025	0.0037	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Phenol	0.014	J	0.082	0.013	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
Pyrene	0.85		0.025	0.0035	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1
3 & 4 Methylphenol	ND		0.66	0.048	mg/Kg	✳	03/22/23 08:13	03/24/23 18:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137	03/22/23 08:13	03/24/23 18:24	1
Phenol-d5 (Surr)	62		26 - 120	03/22/23 08:13	03/24/23 18:24	1
Nitrobenzene-d5 (Surr)	40		25 - 120	03/22/23 08:13	03/24/23 18:24	1
2-Fluorophenol (Surr)	55		20 - 120	03/22/23 08:13	03/24/23 18:24	1
2-Fluorobiphenyl (Surr)	66		34 - 120	03/22/23 08:13	03/24/23 18:24	1
2,4,6-Tribromophenol (Surr)	102		10 - 120	03/22/23 08:13	03/24/23 18:24	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.016	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:35	1
Barium	0.43	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:35	1
Cadmium	0.0031	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:35	1
Chromium	0.0042	J ^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:35	1
Lead	0.020	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:35	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:35	1
Silver	0.0018	J B ^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:35	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	60.5		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	39.5		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0047	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1,2,2-Tetrachloroethane	ND		0.0047	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0047	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1,2-Trichloroethane	ND	+	0.0047	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1-Dichloroethane	ND		0.0047	0.00065	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,1-Dichloroethene	ND		0.0047	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2,4-Trichlorobenzene	ND		0.0047	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dibromo-3-Chloropropane	ND		0.0093	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Ethylene Dibromide	ND		0.0047	0.00072	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichlorobenzene	ND		0.0047	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichloroethane	ND		0.0047	0.00072	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichloropropane	ND		0.0047	0.00079	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,3-Dichlorobenzene	ND		0.0047	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
1,4-Dichlorobenzene	ND		0.0047	0.00082	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
2-Butanone (MEK)	ND		0.019	0.0033	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
2-Hexanone	ND		0.019	0.0038	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
4-Methyl-2-pentanone (MIBK)	ND		0.019	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Acetone	ND		0.023	0.020	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Benzene	ND		0.0047	0.00065	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Dichlorobromomethane	ND		0.0047	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Bromoform	ND		0.0047	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Bromomethane	ND		0.0047	0.0039	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Carbon disulfide	ND		0.0047	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Carbon tetrachloride	ND		0.0047	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chlorobenzene	ND		0.0047	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chloroethane	ND		0.0047	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chloroform	ND		0.0047	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chloromethane	ND		0.0047	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
cis-1,2-Dichloroethene	ND		0.0047	0.0014	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
cis-1,3-Dichloropropene	ND		0.0047	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Cyclohexane	ND		0.0093	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Chlorodibromomethane	ND		0.0047	0.0026	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Dichlorodifluoromethane	ND		0.0047	0.00088	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Ethylbenzene	ND		0.0047	0.00098	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Isopropylbenzene	ND		0.0047	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methyl acetate	ND		0.023	0.0032	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methyl tert-butyl ether	ND		0.0047	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methylcyclohexane	ND		0.0093	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Methylene Chloride	ND		0.023	0.011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Styrene	ND		0.0047	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Tetrachloroethene	ND		0.0047	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Toluene	ND	+	0.0047	0.00072	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
trans-1,2-Dichloroethene	ND		0.0047	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
trans-1,3-Dichloropropene	ND		0.0047	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Trichloroethene	ND		0.0047	0.00059	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Trichlorofluoromethane	ND		0.0047	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Vinyl chloride	ND		0.0047	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1
Xylenes, Total	ND	+	0.0093	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 12:56	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	90		56 - 125	03/19/23 13:00	03/21/23 12:56	1
Dibromofluoromethane (Surr)	86		41 - 138	03/19/23 13:00	03/21/23 12:56	1
4-Bromofluorobenzene (Surr)	59		41 - 143	03/19/23 13:00	03/21/23 12:56	1
1,2-Dichloroethane-d4 (Surr)	98		58 - 125	03/19/23 13:00	03/21/23 12:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.14		0.12	0.041	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
bis (2-chloroisopropyl) ether	ND		0.24	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4,5-Trichlorophenol	ND		0.36	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4,6-Trichlorophenol	ND		0.36	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dichlorophenol	ND		0.36	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dimethylphenol	ND		0.36	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dinitrophenol	ND		0.80	0.34	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,4-Dinitrotoluene	ND		0.48	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2,6-Dinitrotoluene	ND		0.48	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Chloronaphthalene	ND		0.12	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Chlorophenol	ND		0.12	0.024	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Methylnaphthalene	0.95		0.036	0.0047	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Methylphenol	ND		0.48	0.075	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Nitroaniline	ND		0.48	0.097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
2-Nitrophenol	ND		0.12	0.031	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
3,3'-Dichlorobenzidine	ND		0.24	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
3-Nitroaniline	ND		0.48	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4,6-Dinitro-2-methylphenol	ND		0.80	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Bromophenyl phenyl ether	ND		0.12	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Chloro-3-methylphenol	ND		0.36	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Chloroaniline	ND		0.36	0.073	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Chlorophenyl phenyl ether	ND		0.12	0.034	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Nitroaniline	ND		0.48	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
4-Nitrophenol	ND		0.80	0.23	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Acenaphthene	0.39		0.036	0.0069	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Acenaphthylene	0.26		0.036	0.0097	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Acetophenone	ND		0.24	0.027	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Anthracene	0.40		0.036	0.0058	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Atrazine	ND		0.48	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzaldehyde	ND		0.24	0.056	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[a]anthracene	0.90		0.036	0.0083	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[a]pyrene	0.92		0.036	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[b]fluoranthene	1.4		0.036	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[g,h,i]perylene	0.36		0.036	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Benzo[k]fluoranthene	0.48		0.036	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Bis(2-chloroethoxy)methane	ND		0.24	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Bis(2-chloroethyl)ether	ND		0.24	0.029	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Bis(2-ethylhexyl) phthalate	ND		0.17	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Butyl benzyl phthalate	ND		0.17	0.053	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Caprolactam	ND		0.80	0.18	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Carbazole	0.21		0.12	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Chrysene	0.85		0.036	0.0036	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2
Dibenz(a,h)anthracene	0.11		0.036	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 16:52	2

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.65		0.12	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Diethyl phthalate	ND		0.17	0.075	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Dimethyl phthalate	ND		0.17	0.034	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Di-n-butyl phthalate	ND		0.17	0.12	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Di-n-octyl phthalate	ND		0.17	0.068	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Fluoranthene	1.8		0.036	0.011	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Fluorene	0.47		0.036	0.0066	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachlorobenzene	ND		0.036	0.0069	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachlorobutadiene	ND		0.12	0.029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachlorocyclopentadiene	ND		0.80	0.15	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Hexachloroethane	ND		0.12	0.022	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Indeno[1,2,3-cd]pyrene	0.32		0.036	0.018	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Isophorone	ND		0.12	0.029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
N-Nitrosodi-n-propylamine	ND		0.12	0.027	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
N-Nitrosodiphenylamine	ND		0.12	0.029	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Naphthalene	1.2		0.036	0.0058	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Nitrobenzene	ND		0.24	0.031	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Pentachlorophenol	ND		0.36	0.14	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Phenanthrene	1.7		0.036	0.0054	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Phenol	ND		0.12	0.019	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
Pyrene	1.9		0.036	0.0052	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2
3 & 4 Methylphenol	ND		0.97	0.070	mg/Kg	✱	03/22/23 08:13	03/24/23 16:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	67		46 - 137	03/22/23 08:13	03/24/23 16:52	2
Phenol-d5 (Surr)	67		26 - 120	03/22/23 08:13	03/24/23 16:52	2
Nitrobenzene-d5 (Surr)	52		25 - 120	03/22/23 08:13	03/24/23 16:52	2
2-Fluorophenol (Surr)	65		20 - 120	03/22/23 08:13	03/24/23 16:52	2
2-Fluorobiphenyl (Surr)	61		34 - 120	03/22/23 08:13	03/24/23 16:52	2
2,4,6-Tribromophenol (Surr)	83		10 - 120	03/22/23 08:13	03/24/23 16:52	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.011	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:39	1
Barium	0.67	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:39	1
Cadmium	0.0022	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:39	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:39	1
Lead	0.024	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:39	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:39	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:39	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	82.7		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	17.3		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0033	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,1,2,2-Tetrachloroethane	ND	*3	0.0033	0.00095	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0033	0.00085	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,1,2-Trichloroethane	ND	+	0.0033	0.00075	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,1-Dichloroethane	ND		0.0033	0.00046	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,1-Dichloroethene	ND		0.0033	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,2,4-Trichlorobenzene	ND	*3	0.0033	0.0017	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.0066	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Ethylene Dibromide	ND		0.0033	0.00051	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichlorobenzene	ND	*3	0.0033	0.00074	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichloroethane	ND		0.0033	0.00051	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichloropropane	ND		0.0033	0.00057	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,3-Dichlorobenzene	ND	*3	0.0033	0.00054	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
1,4-Dichlorobenzene	ND	*3	0.0033	0.00059	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
2-Butanone (MEK)	0.013		0.013	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
2-Hexanone	ND		0.013	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
4-Methyl-2-pentanone (MIBK)	0.012	J	0.013	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Acetone	0.072		0.017	0.014	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Benzene	0.0016	J	0.0033	0.00046	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Dichlorobromomethane	ND		0.0033	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Bromoform	ND		0.0033	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Bromomethane	ND		0.0033	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Carbon disulfide	ND		0.0033	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Carbon tetrachloride	ND		0.0033	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Chlorobenzene	ND		0.0033	0.00061	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Chloroethane	ND		0.0033	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Chloroform	ND		0.0033	0.00052	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Chloromethane	ND		0.0033	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
cis-1,2-Dichloroethene	ND		0.0033	0.00098	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
cis-1,3-Dichloropropene	ND		0.0033	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Cyclohexane	ND		0.0066	0.00091	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Chlorodibromomethane	ND		0.0033	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Dichlorodifluoromethane	ND		0.0033	0.00063	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Ethylbenzene	ND		0.0033	0.00070	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Isopropylbenzene	ND		0.0033	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Methyl acetate	ND		0.017	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Methyl tert-butyl ether	ND		0.0033	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Methylcyclohexane	0.0012	J	0.0066	0.00081	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Methylene Chloride	ND		0.017	0.0080	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Styrene	ND		0.0033	0.00077	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Tetrachloroethene	ND		0.0033	0.00048	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Toluene	0.00095	J**	0.0033	0.00051	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
trans-1,2-Dichloroethene	ND		0.0033	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
trans-1,3-Dichloropropene	ND		0.0033	0.0025	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Trichloroethene	ND		0.0033	0.00042	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Trichlorofluoromethane	ND		0.0033	0.0018	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Vinyl chloride	ND		0.0033	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1
Xylenes, Total	0.0017	J**	0.0066	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 13:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	03/19/23 13:00	03/21/23 13:17	1
Dibromofluoromethane (Surr)	83		41 - 138	03/19/23 13:00	03/21/23 13:17	1
4-Bromofluorobenzene (Surr)	53		41 - 143	03/19/23 13:00	03/21/23 13:17	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125	03/19/23 13:00	03/21/23 13:17	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.12	0.040	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
bis (2-chloroisopropyl) ether	ND		0.23	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4,5-Trichlorophenol	ND		0.35	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4,6-Trichlorophenol	ND		0.35	0.15	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dichlorophenol	ND		0.35	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dimethylphenol	ND		0.35	0.093	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dinitrophenol	ND		0.77	0.33	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,4-Dinitrotoluene	ND		0.47	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2,6-Dinitrotoluene	ND		0.47	0.13	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Chloronaphthalene	ND		0.12	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Chlorophenol	ND		0.12	0.023	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Methylnaphthalene	0.17		0.035	0.0046	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Methylphenol	ND		0.47	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Nitroaniline	ND		0.47	0.093	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
2-Nitrophenol	ND		0.12	0.030	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
3,3'-Dichlorobenzidine	ND		0.23	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
3-Nitroaniline	ND		0.47	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4,6-Dinitro-2-methylphenol	ND		0.77	0.19	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Bromophenyl phenyl ether	ND		0.12	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Chloro-3-methylphenol	ND		0.35	0.10	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Chloroaniline	ND		0.35	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Chlorophenyl phenyl ether	ND		0.12	0.033	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Nitroaniline	ND		0.47	0.14	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
4-Nitrophenol	ND		0.77	0.22	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Acenaphthene	0.13		0.035	0.0067	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Acenaphthylene	0.015	J	0.035	0.0093	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Acetophenone	ND		0.23	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Anthracene	0.28		0.035	0.0056	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Atrazine	ND		0.47	0.084	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzaldehyde	ND		0.23	0.054	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[a]anthracene	0.68		0.035	0.0079	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[a]pyrene	0.64		0.035	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[b]fluoranthene	0.93		0.035	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[g,h,i]perylene	0.26		0.035	0.017	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Benzo[k]fluoranthene	0.39		0.035	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Bis(2-chloroethoxy)methane	ND		0.23	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Bis(2-chloroethyl)ether	ND		0.23	0.028	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Bis(2-ethylhexyl) phthalate	0.16		0.16	0.12	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Butyl benzyl phthalate	0.089	J	0.16	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Caprolactam	ND		0.77	0.17	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Carbazole	0.25		0.12	0.044	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Chrysene	0.85		0.035	0.0035	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2
Dibenz(a,h)anthracene	0.083		0.035	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 17:15	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.13		0.12	0.030	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Diethyl phthalate	ND		0.16	0.072	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Dimethyl phthalate	ND		0.16	0.033	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Di-n-butyl phthalate	ND		0.16	0.12	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Di-n-octyl phthalate	ND		0.16	0.065	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Fluoranthene	2.1		0.035	0.010	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Fluorene	0.19		0.035	0.0064	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Hexachlorobenzene	ND		0.035	0.0066	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Hexachlorobutadiene	ND		0.12	0.028	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Hexachlorocyclopentadiene	ND		0.77	0.14	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Hexachloroethane	ND		0.12	0.021	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Indeno[1,2,3-cd]pyrene	0.25		0.035	0.017	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Isophorone	ND		0.12	0.028	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
N-Nitrosodi-n-propylamine	ND		0.12	0.026	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
N-Nitrosodiphenylamine	ND		0.12	0.028	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Naphthalene	0.12		0.035	0.0056	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Nitrobenzene	ND		0.23	0.030	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Pentachlorophenol	ND		0.35	0.13	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Phenanthrene	1.5		0.035	0.0052	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Phenol	ND		0.12	0.019	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
Pyrene	1.7		0.035	0.0050	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2
3 & 4 Methylphenol	ND		0.93	0.067	mg/Kg	✳	03/22/23 08:13	03/24/23 17:15	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	82		46 - 137	03/22/23 08:13	03/24/23 17:15	2
Phenol-d5 (Surr)	68		26 - 120	03/22/23 08:13	03/24/23 17:15	2
Nitrobenzene-d5 (Surr)	54		25 - 120	03/22/23 08:13	03/24/23 17:15	2
2-Fluorophenol (Surr)	64		20 - 120	03/22/23 08:13	03/24/23 17:15	2
2-Fluorobiphenyl (Surr)	72		34 - 120	03/22/23 08:13	03/24/23 17:15	2
2,4,6-Tribromophenol (Surr)	86		10 - 120	03/22/23 08:13	03/24/23 17:15	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:44	1
Barium	0.62	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:44	1
Cadmium	0.0010	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:44	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:44	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:44	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:44	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:44	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.5		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	13.5		0.1	0.1	%			03/21/23 11:05	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0042	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,1,2,2-Tetrachloroethane	ND	*3	0.0042	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0042	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,1,2-Trichloroethane	ND	*+	0.0042	0.00094	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,1-Dichloroethane	ND		0.0042	0.00058	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,1-Dichloroethene	ND		0.0042	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,2,4-Trichlorobenzene	ND	*3	0.0042	0.0021	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,2-Dibromo-3-Chloropropane	ND	*3	0.0083	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Ethylene Dibromide	ND		0.0042	0.00064	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichlorobenzene	ND	*3	0.0042	0.00092	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichloroethane	ND		0.0042	0.00064	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichloropropane	ND		0.0042	0.00071	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,3-Dichlorobenzene	ND	*3	0.0042	0.00068	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
1,4-Dichlorobenzene	ND	*3	0.0042	0.00073	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
2-Butanone (MEK)	ND		0.017	0.0030	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
2-Hexanone	ND		0.017	0.0034	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
4-Methyl-2-pentanone (MIBK)	ND		0.017	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Acetone	ND		0.021	0.017	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Benzene	ND		0.0042	0.00058	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Dichlorobromomethane	ND		0.0042	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Bromoform	ND		0.0042	0.0020	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Bromomethane	ND		0.0042	0.0035	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Carbon disulfide	ND		0.0042	0.00097	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Carbon tetrachloride	ND		0.0042	0.0027	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Chlorobenzene	ND		0.0042	0.00076	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Chloroethane	ND		0.0042	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Chloroform	ND		0.0042	0.00066	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Chloromethane	ND		0.0042	0.0019	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
cis-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
cis-1,3-Dichloropropene	ND		0.0042	0.0024	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Cyclohexane	ND		0.0083	0.0011	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Chlorodibromomethane	ND		0.0042	0.0023	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Dichlorodifluoromethane	ND		0.0042	0.00078	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Ethylbenzene	ND		0.0042	0.00087	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Isopropylbenzene	ND		0.0042	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Methyl acetate	ND		0.021	0.0028	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Methyl tert-butyl ether	ND		0.0042	0.0016	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Methylcyclohexane	ND		0.0083	0.0010	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Methylene Chloride	ND		0.021	0.010	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Styrene	ND		0.0042	0.00096	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Tetrachloroethene	ND		0.0042	0.00061	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Toluene	ND	*+	0.0042	0.00064	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
trans-1,2-Dichloroethene	ND		0.0042	0.0012	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
trans-1,3-Dichloropropene	ND		0.0042	0.0031	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Trichloroethene	ND		0.0042	0.00053	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Trichlorofluoromethane	ND		0.0042	0.0022	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Vinyl chloride	ND		0.0042	0.0015	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1
Xylenes, Total	0.0047	J**	0.0083	0.0013	mg/Kg	✳	03/19/23 13:00	03/21/23 13:38	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	107		56 - 125	03/19/23 13:00	03/21/23 13:38	1
Dibromofluoromethane (Surr)	95		41 - 138	03/19/23 13:00	03/21/23 13:38	1
4-Bromofluorobenzene (Surr)	54		41 - 143	03/19/23 13:00	03/21/23 13:38	1
1,2-Dichloroethane-d4 (Surr)	107		58 - 125	03/19/23 13:00	03/21/23 13:38	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.058	0.020	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
bis (2-chloroisopropyl) ether	ND		0.12	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4,5-Trichlorophenol	ND		0.17	0.080	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4,6-Trichlorophenol	ND		0.17	0.074	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dichlorophenol	ND		0.17	0.051	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dimethylphenol	ND		0.17	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dinitrophenol	ND		0.38	0.16	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,4-Dinitrotoluene	ND		0.23	0.072	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2,6-Dinitrotoluene	ND		0.23	0.065	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Chloronaphthalene	ND		0.058	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Chlorophenol	ND		0.058	0.012	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Methylnaphthalene	0.13		0.017	0.0023	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Methylphenol	ND		0.23	0.036	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Nitroaniline	ND		0.23	0.046	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
2-Nitrophenol	ND		0.058	0.015	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
3,3'-Dichlorobenzidine	ND		0.12	0.050	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
3-Nitroaniline	ND		0.23	0.057	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4,6-Dinitro-2-methylphenol	ND		0.38	0.093	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Bromophenyl phenyl ether	ND		0.058	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Chloro-3-methylphenol	ND		0.17	0.052	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Chloroaniline	ND		0.17	0.035	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Chlorophenyl phenyl ether	ND		0.058	0.016	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Nitroaniline	ND		0.23	0.070	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
4-Nitrophenol	ND		0.38	0.11	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Acenaphthene	0.010	J	0.017	0.0033	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Acenaphthylene	0.0065	J	0.017	0.0047	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Acetophenone	ND		0.12	0.013	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Anthracene	0.018		0.017	0.0028	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Atrazine	ND		0.23	0.042	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzaldehyde	0.042	J	0.12	0.027	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[a]anthracene	0.095		0.017	0.0040	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[a]pyrene	0.096		0.017	0.011	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[b]fluoranthene	0.15		0.017	0.0075	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[g,h,i]perylene	0.035		0.017	0.0082	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Benzo[k]fluoranthene	0.048		0.017	0.0080	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Bis(2-chloroethoxy)methane	ND		0.12	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Bis(2-chloroethyl)ether	ND		0.12	0.014	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Bis(2-ethylhexyl) phthalate	ND		0.081	0.059	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Butyl benzyl phthalate	ND		0.081	0.026	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Caprolactam	ND		0.38	0.087	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Carbazole	ND		0.058	0.022	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Chrysene	0.12		0.017	0.0017	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1
Dibenz(a,h)anthracene	ND		0.017	0.0080	mg/Kg	☆	03/22/23 08:13	03/24/23 18:47	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	0.062		0.058	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Diethyl phthalate	ND		0.081	0.036	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Dimethyl phthalate	ND		0.081	0.016	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Di-n-butyl phthalate	ND		0.081	0.059	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Di-n-octyl phthalate	ND		0.081	0.032	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Fluoranthene	0.21		0.017	0.0052	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Fluorene	0.0097	J	0.017	0.0032	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Hexachlorobenzene	ND		0.017	0.0033	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Hexachlorobutadiene	ND		0.058	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Hexachlorocyclopentadiene	ND		0.38	0.072	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Hexachloroethane	ND		0.058	0.010	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Indeno[1,2,3-cd]pyrene	0.033		0.017	0.0085	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Isophorone	ND		0.058	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
N-Nitrosodi-n-propylamine	ND		0.058	0.013	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
N-Nitrosodiphenylamine	ND		0.058	0.014	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Naphthalene	0.071		0.017	0.0028	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Nitrobenzene	ND		0.12	0.015	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Pentachlorophenol	ND		0.17	0.067	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Phenanthrene	0.19		0.017	0.0026	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Phenol	ND		0.058	0.0093	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
Pyrene	0.19		0.017	0.0025	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1
3 & 4 Methylphenol	ND		0.46	0.034	mg/Kg	✳	03/22/23 08:13	03/24/23 18:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	92		46 - 137	03/22/23 08:13	03/24/23 18:47	1
Phenol-d5 (Surr)	51		26 - 120	03/22/23 08:13	03/24/23 18:47	1
Nitrobenzene-d5 (Surr)	42		25 - 120	03/22/23 08:13	03/24/23 18:47	1
2-Fluorophenol (Surr)	47		20 - 120	03/22/23 08:13	03/24/23 18:47	1
2-Fluorobiphenyl (Surr)	57		34 - 120	03/22/23 08:13	03/24/23 18:47	1
2,4,6-Tribromophenol (Surr)	96		10 - 120	03/22/23 08:13	03/24/23 18:47	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0071	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:48	1
Barium	0.69	B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:48	1
Cadmium	0.0018	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:48	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:48	1
Lead	0.0042	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:48	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:48	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:48	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.3		0.1	0.1	%			03/21/23 11:05	1
Percent Moisture (EPA Moisture)	14.7		0.1	0.1	%			03/21/23 11:05	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 17:02	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 17:02	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 17:02	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 17:02	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 17:02	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 17:02	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 17:02	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 17:02	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 17:02	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 17:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120					03/22/23 17:02	1
Dibromofluoromethane (Surr)	96		71 - 121					03/22/23 17:02	1
4-Bromofluorobenzene (Surr)	108		80 - 120					03/22/23 17:02	1
1,2-Dichloroethane-d4 (Surr)	102		76 - 120					03/22/23 17:02	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 16:00	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 16:00	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 16:00	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 16:00	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 16:00	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 16:00	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 16:00	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 16:00	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 16:00	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 16:00	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 16:00	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 16:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		46 - 137				03/21/23 12:03	03/23/23 16:00	1
Phenol-d5 (Surr)	62		26 - 120				03/21/23 12:03	03/23/23 16:00	1
Nitrobenzene-d5 (Surr)	80		24 - 120				03/21/23 12:03	03/23/23 16:00	1
2-Fluorophenol (Surr)	72		19 - 120				03/21/23 12:03	03/23/23 16:00	1
2-Fluorobiphenyl (Surr)	95		33 - 120				03/21/23 12:03	03/23/23 16:00	1
2,4,6-Tribromophenol (Surr)	110		10 - 120				03/21/23 12:03	03/23/23 16:00	1

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 14:54	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 14:54	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 14:54	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 14:54	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 14:54	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 14:54	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 14:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	74		10 - 145	03/21/23 12:08	03/22/23 14:54	1
DCB Decachlorobiphenyl	71		10 - 145	03/21/23 12:08	03/22/23 14:54	1
Tetrachloro-m-xylene	66		10 - 123	03/21/23 12:08	03/22/23 14:54	1
Tetrachloro-m-xylene	68		10 - 123	03/21/23 12:08	03/22/23 14:54	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		81	41	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1221	ND		81	49	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1232	ND		81	34	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1242	ND		81	31	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1248	ND		81	28	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1254	ND		81	34	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1260	ND		81	34	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1262	ND		81	36	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1
Aroclor-1268	ND		81	26	ug/Kg	☆	03/21/23 08:36	03/21/23 17:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	86		10 - 149	03/21/23 08:36	03/21/23 17:15	1
DCB Decachlorobiphenyl	74		10 - 174	03/21/23 08:36	03/21/23 17:15	1

Method: SW846 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 09:35	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 09:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	51		26 - 136	03/23/23 21:15	03/24/23 09:35	1
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136	03/23/23 21:15	03/24/23 09:35	1

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3,4,6,7,8-HpCDD	180	B	7.9	0.12	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,6,7,8-HpCDF	62	B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,7,8-HxCDD	4.4	J B	7.9	0.057	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,7,8-HxCDF	4.2	J B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,4,7,8,9-HpCDF	2.8	J B	7.9	0.18	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,6,7,8-HxCDD	9.4	B	7.9	0.059	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,6,7,8-HxCDF	3.9	J B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8-PeCDD	5.1	J B	7.9	0.039	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8-PeCDF	1.4	J B	7.9	0.051	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8,9-HxCDD	20	B	7.9	0.060	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
1,2,3,7,8,9-HxCDF	0.79	J B	7.9	0.16	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,4,6,7,8-HxCDF	5.2	J B	7.9	0.13	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,4,7,8-PeCDF	6.4	J B	7.9	0.040	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,7,8-TCDD	1.2	J B	1.6	0.019	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
2,3,7,8-TCDF	1.2	J	1.6	0.041	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
OCDD	1600	B	16	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
OCDF	80	B	16	0.087	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
Total HxCDD	130	B	7.9	0.059	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1
Total HxCDF	91	B	7.9	0.14	ng/Kg	☆	03/28/23 09:37	03/30/23 00:26	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Method: SW846 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	180	B	7.9	0.12	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total HpCDF	130	B	7.9	0.16	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total PeCDD	42	IB	7.9	0.039	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total PeCDF	39	IB	7.9	0.046	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total TCDD	11	IB	1.6	0.019	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Total TCDF	34	I	1.6	0.041	ng/Kg	✳	03/28/23 09:37	03/30/23 00:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	66		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-OCDD	70		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,7,8-TCDF	48		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,7,8-TCDD	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,4,7,8-PeCDF	53		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-2,3,4,6,7,8-HxCDF	50		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8,9-HxCDF	49		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8,9-HxCDD	55		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8-PeCDF	53		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,7,8-PeCDD	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,6,7,8-HxCDF	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,6,7,8-HxCDD	57		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,7,8,9-HpCDF	54		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,7,8-HxCDF	53		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,7,8-HxCDD	55		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,6,7,8-HpCDF	52		40 - 135				03/28/23 09:37	03/30/23 00:26	1
13C-1,2,3,4,6,7,8-HpCDD	60		40 - 135				03/28/23 09:37	03/30/23 00:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	61.6		0.1	0.1	%			03/20/23 11:50	1
Percent Moisture (EPA Moisture)	38.4		0.1	0.1	%			03/20/23 11:50	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.5	1.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1,2,2-Tetrachloroethane	ND		3.5	2.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.5	0.95	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1,2-Trichloroethane	ND		3.5	0.81	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1-Dichloroethane	ND		3.5	0.68	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,1-Dichloroethene	ND		3.5	1.2	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2,4-Trichlorobenzene	ND		3.5	1.9	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dibromo-3-Chloropropane	ND		7.1	3.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Ethylene Dibromide	ND		3.5	1.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dichlorobenzene	ND		3.5	1.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dichloroethane	ND		3.5	0.67	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,2-Dichloropropane	ND		3.5	0.52	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,3-Dichlorobenzene	ND		3.5	0.65	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
1,4-Dichlorobenzene	ND		3.5	0.78	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
2-Butanone (MEK)	ND		14	2.2	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
2-Hexanone	ND		14	3.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
4-Methyl-2-pentanone (MIBK)	ND		14	3.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Acetone	ND		14	3.5	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Benzene	ND		3.5	0.59	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Dichlorobromomethane	ND		3.5	0.86	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Bromoform	ND		3.5	3.2	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Bromomethane	ND		3.5	2.3	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Carbon disulfide	ND		3.5	1.5	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Carbon tetrachloride	ND		3.5	1.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chlorobenzene	ND		3.5	0.50	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chloroethane	ND		3.5	2.1	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chloroform	ND		3.5	0.76	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chloromethane	ND		3.5	0.93	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
cis-1,2-Dichloroethene	ND		3.5	0.57	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
cis-1,3-Dichloropropene	ND		3.5	1.8	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Cyclohexane	ND		7.1	2.3	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Chlorodibromomethane	ND		3.5	1.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Dichlorodifluoromethane	ND		3.5	0.75	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Ethylbenzene	ND		3.5	0.67	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Isopropylbenzene	ND		3.5	0.54	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methyl acetate	ND		18	2.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methyl tert-butyl ether	ND		3.5	0.52	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methylcyclohexane	ND		7.1	0.93	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Methylene Chloride	ND		7.1	5.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Styrene	ND		3.5	0.74	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Tetrachloroethene	ND		3.5	1.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Toluene	ND		3.5	3.4	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
trans-1,2-Dichloroethene	ND		3.5	0.88	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
trans-1,3-Dichloropropene	ND		3.5	1.5	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Trichloroethene	ND		3.5	2.0	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Trichlorofluoromethane	ND		3.5	1.9	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Vinyl chloride	ND		3.5	1.7	mg/Kg		03/24/23 22:04	03/25/23 12:44	1
Xylenes, Total	ND		7.1	1.3	mg/Kg		03/24/23 22:04	03/25/23 12:44	1

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	79		56 - 125	03/24/23 22:04	03/25/23 12:44	1
Dibromofluoromethane (Surr)	83		41 - 138	03/24/23 22:04	03/25/23 12:44	1
4-Bromofluorobenzene (Surr)	65		41 - 143	03/24/23 22:04	03/25/23 12:44	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125	03/24/23 22:04	03/25/23 12:44	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.40	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
bis (2-chloroisopropyl) ether	ND		2.3	0.23	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4,5-Trichlorophenol	ND		3.5	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4,6-Trichlorophenol	ND		3.5	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dichlorophenol	ND		3.5	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dimethylphenol	ND		3.5	0.94	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dinitrophenol	ND		7.7	3.3	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,4-Dinitrotoluene	ND		4.7	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2,6-Dinitrotoluene	ND		4.7	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Chloronaphthalene	ND		1.2	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Chlorophenol	ND		1.2	0.23	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Methylnaphthalene	ND		0.35	0.046	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Methylphenol	ND		4.7	0.73	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Nitroaniline	ND		4.7	0.94	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
2-Nitrophenol	ND		1.2	0.30	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
3,3'-Dichlorobenzidine	ND		2.3	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
3-Nitroaniline	ND		4.7	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4,6-Dinitro-2-methylphenol	ND		7.7	1.9	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Bromophenyl phenyl ether	ND		1.2	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Chloro-3-methylphenol	ND		3.5	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Chloroaniline	ND		3.5	0.70	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Chlorophenyl phenyl ether	ND		1.2	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Nitroaniline	ND		4.7	1.4	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
4-Nitrophenol	ND		7.7	2.2	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Acenaphthene	ND		0.35	0.067	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Acenaphthylene	ND		0.35	0.094	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Acetophenone	ND		2.3	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Anthracene	ND		0.35	0.056	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Atrazine	ND		4.7	0.84	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzaldehyde	ND		2.3	0.54	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[a]anthracene	ND		0.35	0.080	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[a]pyrene	ND		0.35	0.22	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[b]fluoranthene	ND		0.35	0.15	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[g,h,i]perylene	ND		0.35	0.17	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Benzo[k]fluoranthene	ND		0.35	0.16	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Bis(2-chloroethoxy)methane	ND		2.3	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Bis(2-chloroethyl)ether	ND		2.3	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Bis(2-ethylhexyl) phthalate	ND		1.6	1.2	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Butyl benzyl phthalate	ND		1.6	0.52	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Caprolactam	ND		7.7	1.8	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Carbazole	ND		1.2	0.45	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Chrysene	ND		0.35	0.035	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Dibenz(a,h)anthracene	ND		0.35	0.16	mg/Kg		03/22/23 08:13	03/24/23 15:21	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.2	0.30	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Diethyl phthalate	ND		1.6	0.73	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Dimethyl phthalate	ND		1.6	0.33	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Di-n-butyl phthalate	ND		1.6	1.2	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Di-n-octyl phthalate	ND		1.6	0.66	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Fluoranthene	ND		0.35	0.10	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Fluorene	ND		0.35	0.064	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachlorobenzene	ND		0.35	0.067	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachlorobutadiene	ND		1.2	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachlorocyclopentadiene	ND		7.7	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Hexachloroethane	ND		1.2	0.21	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Indeno[1,2,3-cd]pyrene	ND		0.35	0.17	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Isophorone	ND		1.2	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
N-Nitrosodi-n-propylamine	ND		1.2	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
N-Nitrosodiphenylamine	ND		1.2	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Naphthalene	ND		0.35	0.056	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Nitrobenzene	ND		2.3	0.30	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Pentachlorophenol	ND		3.5	1.4	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Phenanthrene	ND		0.35	0.052	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Phenol	ND		1.2	0.19	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
Pyrene	ND		0.35	0.050	mg/Kg		03/22/23 08:13	03/24/23 15:21	1
3 & 4 Methylphenol	ND		9.4	0.68	mg/Kg		03/22/23 08:13	03/24/23 15:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	97		46 - 137	03/22/23 08:13	03/24/23 15:21	1
Phenol-d5 (Surr)	45		26 - 120	03/22/23 08:13	03/24/23 15:21	1
Nitrobenzene-d5 (Surr)	38		25 - 120	03/22/23 08:13	03/24/23 15:21	1
2-Fluorophenol (Surr)	43		20 - 120	03/22/23 08:13	03/24/23 15:21	1
2-Fluorobiphenyl (Surr)	58		34 - 120	03/22/23 08:13	03/24/23 15:21	1
2,4,6-Tribromophenol (Surr)	93		10 - 120	03/22/23 08:13	03/24/23 15:21	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0082	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:11	1
Barium	0.036	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:11	1
Cadmium	0.00034	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:11	1
Chromium	ND		0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:11	1
Lead	0.0066	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:11	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:11	1
Silver	ND		0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:11	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 18:05	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.0	0.64	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1,2,2-Tetrachloroethane	ND		2.0	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.55	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1,2-Trichloroethane	ND		2.0	0.47	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1-Dichloroethane	ND		2.0	0.39	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,1-Dichloroethene	ND		2.0	0.67	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2,4-Trichlorobenzene	ND		2.0	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dibromo-3-Chloropropane	ND		4.1	1.8	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Ethylene Dibromide	ND		2.0	0.65	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dichlorobenzene	ND		2.0	0.98	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dichloroethane	ND		2.0	0.39	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,2-Dichloropropane	ND		2.0	0.30	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,3-Dichlorobenzene	ND		2.0	0.38	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
1,4-Dichlorobenzene	ND		2.0	0.45	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
2-Butanone (MEK)	ND		8.2	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
2-Hexanone	ND		8.2	2.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
4-Methyl-2-pentanone (MIBK)	ND		8.2	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Acetone	ND		8.2	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Benzene	ND		2.0	0.34	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Dichlorobromomethane	ND		2.0	0.50	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Bromoform	ND		2.0	1.9	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Bromomethane	ND		2.0	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Carbon disulfide	ND		2.0	0.89	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Carbon tetrachloride	ND		2.0	0.84	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chlorobenzene	ND		2.0	0.29	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chloroethane	ND		2.0	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chloroform	ND		2.0	0.44	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chloromethane	ND		2.0	0.54	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
cis-1,2-Dichloroethene	ND		2.0	0.33	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
cis-1,3-Dichloropropene	ND		2.0	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Cyclohexane	ND		4.1	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Chlorodibromomethane	ND		2.0	0.96	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Dichlorodifluoromethane	ND		2.0	0.43	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Ethylbenzene	ND		2.0	0.39	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Isopropylbenzene	ND		2.0	0.31	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methyl acetate	ND		10	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methyl tert-butyl ether	ND		2.0	0.30	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methylcyclohexane	ND		4.1	0.54	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Methylene Chloride	ND		4.1	3.1	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Styrene	ND		2.0	0.43	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Tetrachloroethene	ND		2.0	0.80	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Toluene	ND		2.0	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
trans-1,2-Dichloroethene	ND		2.0	0.51	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
trans-1,3-Dichloropropene	ND		2.0	0.86	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Trichloroethene	ND		2.0	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Trichlorofluoromethane	ND		2.0	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Vinyl chloride	ND		2.0	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:06	1
Xylenes, Total	ND		4.1	0.75	mg/Kg		03/24/23 22:04	03/25/23 13:06	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/24/23 22:04	03/25/23 13:06	1
Dibromofluoromethane (Surr)	80		41 - 138	03/24/23 22:04	03/25/23 13:06	1
4-Bromofluorobenzene (Surr)	63		41 - 143	03/24/23 22:04	03/25/23 13:06	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/24/23 22:04	03/25/23 13:06	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.4	0.47	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
bis (2-chloroisopropyl) ether	ND		2.8	0.28	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4,5-Trichlorophenol	ND		4.2	1.9	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4,6-Trichlorophenol	ND		4.2	1.8	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dichlorophenol	ND		4.2	1.2	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dimethylphenol	ND		4.2	1.1	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dinitrophenol	ND		9.2	3.9	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,4-Dinitrotoluene	ND		5.6	1.7	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2,6-Dinitrotoluene	ND		5.6	1.6	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Chloronaphthalene	ND		1.4	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Chlorophenol	ND		1.4	0.28	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Methylnaphthalene	ND		0.42	0.054	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Methylphenol	ND		5.6	0.86	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Nitroaniline	ND		5.6	1.1	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
2-Nitrophenol	ND		1.4	0.36	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
3,3'-Dichlorobenzidine	ND		2.8	1.2	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
3-Nitroaniline	ND		5.6	1.4	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4,6-Dinitro-2-methylphenol	ND		9.2	2.2	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Bromophenyl phenyl ether	ND		1.4	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Chloro-3-methylphenol	ND		4.2	1.3	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Chloroaniline	ND		4.2	0.83	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Chlorophenyl phenyl ether	ND		1.4	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Nitroaniline	ND		5.6	1.7	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
4-Nitrophenol	ND		9.2	2.6	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Acenaphthene	ND		0.42	0.079	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Acenaphthylene	ND		0.42	0.11	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Acetophenone	ND		2.8	0.31	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Anthracene	ND		0.42	0.067	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Atrazine	ND		5.6	1.0	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzaldehyde	ND		2.8	0.64	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[a]anthracene	ND		0.42	0.095	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[a]pyrene	ND		0.42	0.26	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[b]fluoranthene	ND		0.42	0.18	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[g,h,i]perylene	ND		0.42	0.20	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Benzo[k]fluoranthene	ND		0.42	0.19	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Bis(2-chloroethoxy)methane	ND		2.8	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Bis(2-chloroethyl)ether	ND		2.8	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Bis(2-ethylhexyl) phthalate	ND		1.9	1.4	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Butyl benzyl phthalate	ND		1.9	0.61	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Caprolactam	ND		9.2	2.1	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Carbazole	ND		1.4	0.53	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Chrysene	ND		0.42	0.041	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Dibenz(a,h)anthracene	ND		0.42	0.19	mg/Kg		03/22/23 08:13	03/24/23 14:58	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.4	0.36	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Diethyl phthalate	ND		1.9	0.86	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Dimethyl phthalate	ND		1.9	0.39	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Di-n-butyl phthalate	ND		1.9	1.4	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Di-n-octyl phthalate	ND		1.9	0.78	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Fluoranthene	ND		0.42	0.12	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Fluorene	ND		0.42	0.076	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachlorobenzene	ND		0.42	0.079	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachlorobutadiene	ND		1.4	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachlorocyclopentadiene	ND		9.2	1.7	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Hexachloroethane	ND		1.4	0.25	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Indeno[1,2,3-cd]pyrene	ND		0.42	0.20	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Isophorone	ND		1.4	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
N-Nitrosodi-n-propylamine	ND		1.4	0.31	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
N-Nitrosodiphenylamine	ND		1.4	0.33	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Naphthalene	0.13	J	0.42	0.067	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Nitrobenzene	ND		2.8	0.36	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Pentachlorophenol	ND		4.2	1.6	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Phenanthrene	ND		0.42	0.062	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Phenol	ND		1.4	0.22	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
Pyrene	ND		0.42	0.059	mg/Kg		03/22/23 08:13	03/24/23 14:58	1
3 & 4 Methylphenol	ND		11	0.81	mg/Kg		03/22/23 08:13	03/24/23 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		46 - 137	03/22/23 08:13	03/24/23 14:58	1
Phenol-d5 (Surr)	67		26 - 120	03/22/23 08:13	03/24/23 14:58	1
Nitrobenzene-d5 (Surr)	60		25 - 120	03/22/23 08:13	03/24/23 14:58	1
2-Fluorophenol (Surr)	64		20 - 120	03/22/23 08:13	03/24/23 14:58	1
2-Fluorobiphenyl (Surr)	75		34 - 120	03/22/23 08:13	03/24/23 14:58	1
2,4,6-Tribromophenol (Surr)	86		10 - 120	03/22/23 08:13	03/24/23 14:58	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0048	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:53	1
Barium	0.068	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:53	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:53	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:53	1
Lead	0.0077	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:53	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:53	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:53	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:13	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		2.2	0.68	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1,2,2-Tetrachloroethane	ND		2.2	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.2	0.58	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1,2-Trichloroethane	ND		2.2	0.49	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1-Dichloroethane	ND		2.2	0.42	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,1-Dichloroethene	ND		2.2	0.71	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2,4-Trichlorobenzene	ND		2.2	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dibromo-3-Chloropropane	ND		4.3	1.9	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Ethylene Dibromide	ND		2.2	0.68	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dichlorobenzene	ND		2.2	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dichloroethane	ND		2.2	0.41	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,2-Dichloropropane	ND		2.2	0.32	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,3-Dichlorobenzene	ND		2.2	0.40	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
1,4-Dichlorobenzene	ND		2.2	0.48	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
2-Butanone (MEK)	ND		8.7	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
2-Hexanone	ND		8.7	2.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
4-Methyl-2-pentanone (MIBK)	ND		8.7	2.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Acetone	ND		8.7	2.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Benzene	ND		2.2	0.36	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Dichlorobromomethane	ND		2.2	0.53	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Bromoform	ND		2.2	2.0	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Bromomethane	ND		2.2	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Carbon disulfide	ND		2.2	0.94	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Carbon tetrachloride	ND		2.2	0.88	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chlorobenzene	ND		2.2	0.30	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chloroethane	ND		2.2	1.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chloroform	ND		2.2	0.47	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chloromethane	ND		2.2	0.57	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
cis-1,2-Dichloroethene	ND		2.2	0.35	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
cis-1,3-Dichloropropene	ND		2.2	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Cyclohexane	ND		4.3	1.4	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Chlorodibromomethane	ND		2.2	1.0	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Dichlorodifluoromethane	ND		2.2	0.46	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Ethylbenzene	ND		2.2	0.41	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Isopropylbenzene	ND		2.2	0.33	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methyl acetate	ND		11	1.5	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methyl tert-butyl ether	ND		2.2	0.32	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methylcyclohexane	ND		4.3	0.57	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Methylene Chloride	ND		4.3	3.3	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Styrene	ND		2.2	0.45	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Tetrachloroethene	ND		2.2	0.84	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Toluene	ND		2.2	2.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
trans-1,2-Dichloroethene	ND		2.2	0.54	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
trans-1,3-Dichloropropene	ND		2.2	0.91	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Trichloroethene	ND		2.2	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Trichlorofluoromethane	ND		2.2	1.2	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Vinyl chloride	ND		2.2	1.1	mg/Kg		03/24/23 22:04	03/25/23 13:27	1
Xylenes, Total	ND		4.3	0.79	mg/Kg		03/24/23 22:04	03/25/23 13:27	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	85		56 - 125	03/24/23 22:04	03/25/23 13:27	1
Dibromofluoromethane (Surr)	85		41 - 138	03/24/23 22:04	03/25/23 13:27	1
4-Bromofluorobenzene (Surr)	70		41 - 143	03/24/23 22:04	03/25/23 13:27	1
1,2-Dichloroethane-d4 (Surr)	90		58 - 125	03/24/23 22:04	03/25/23 13:27	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.3	0.44	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
bis (2-chloroisopropyl) ether	ND		2.6	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4,5-Trichlorophenol	ND		3.9	1.8	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4,6-Trichlorophenol	ND		3.9	1.7	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dichlorophenol	ND		3.9	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dimethylphenol	ND		3.9	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dinitrophenol	ND		8.5	3.7	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,4-Dinitrotoluene	ND		5.2	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2,6-Dinitrotoluene	ND		5.2	1.4	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Chloronaphthalene	ND		1.3	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Chlorophenol	ND		1.3	0.26	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Methylnaphthalene	ND		0.39	0.051	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Methylphenol	ND		5.2	0.80	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Nitroaniline	ND		5.2	1.0	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
2-Nitrophenol	ND		1.3	0.34	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
3,3'-Dichlorobenzidine	ND		2.6	1.1	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
3-Nitroaniline	ND		5.2	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4,6-Dinitro-2-methylphenol	ND		8.5	2.1	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Bromophenyl phenyl ether	ND		1.3	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Chloro-3-methylphenol	ND		3.9	1.2	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Chloroaniline	ND		3.9	0.78	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Chlorophenyl phenyl ether	ND		1.3	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Nitroaniline	ND		5.2	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
4-Nitrophenol	ND		8.5	2.4	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Acenaphthene	ND		0.39	0.074	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Acenaphthylene	ND		0.39	0.10	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Acetophenone	ND		2.6	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Anthracene	ND		0.39	0.062	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Atrazine	ND		5.2	0.93	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzaldehyde	ND		2.6	0.59	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[a]anthracene	ND		0.39	0.088	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[a]pyrene	ND		0.39	0.24	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[b]fluoranthene	ND		0.39	0.17	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[g,h,i]perylene	ND		0.39	0.18	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Benzo[k]fluoranthene	ND		0.39	0.18	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Bis(2-chloroethoxy)methane	ND		2.6	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Bis(2-chloroethyl)ether	ND		2.6	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Bis(2-ethylhexyl) phthalate	ND		1.8	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Butyl benzyl phthalate	ND		1.8	0.57	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Caprolactam	ND		8.5	1.9	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Carbazole	ND		1.3	0.49	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Chrysene	ND		0.39	0.039	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Dibenz(a,h)anthracene	ND		0.39	0.18	mg/Kg		03/22/23 08:13	03/24/23 15:44	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.3	0.34	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Diethyl phthalate	ND		1.8	0.80	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Dimethyl phthalate	ND		1.8	0.36	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Di-n-butyl phthalate	ND		1.8	1.3	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Di-n-octyl phthalate	ND		1.8	0.72	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Fluoranthene	ND		0.39	0.12	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Fluorene	ND		0.39	0.071	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachlorobenzene	ND		0.39	0.074	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachlorobutadiene	ND		1.3	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachlorocyclopentadiene	ND		8.5	1.6	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Hexachloroethane	ND		1.3	0.23	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Indeno[1,2,3-cd]pyrene	ND		0.39	0.19	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Isophorone	ND		1.3	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
N-Nitrosodi-n-propylamine	ND		1.3	0.28	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
N-Nitrosodiphenylamine	ND		1.3	0.31	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Naphthalene	ND		0.39	0.062	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Nitrobenzene	ND		2.6	0.34	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Pentachlorophenol	ND		3.9	1.5	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Phenanthrene	ND		0.39	0.058	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Phenol	ND		1.3	0.21	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
Pyrene	ND		0.39	0.055	mg/Kg		03/22/23 08:13	03/24/23 15:44	1
3 & 4 Methylphenol	ND		10	0.75	mg/Kg		03/22/23 08:13	03/24/23 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	108		46 - 137	03/22/23 08:13	03/24/23 15:44	1
Phenol-d5 (Surr)	53		26 - 120	03/22/23 08:13	03/24/23 15:44	1
Nitrobenzene-d5 (Surr)	46		25 - 120	03/22/23 08:13	03/24/23 15:44	1
2-Fluorophenol (Surr)	51		20 - 120	03/22/23 08:13	03/24/23 15:44	1
2-Fluorobiphenyl (Surr)	62		34 - 120	03/22/23 08:13	03/24/23 15:44	1
2,4,6-Tribromophenol (Surr)	98		10 - 120	03/22/23 08:13	03/24/23 15:44	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0066	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 18:58	1
Barium	0.020	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 18:58	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 18:58	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 18:58	1
Lead	0.0050	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 18:58	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 18:58	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 18:58	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:15	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		59	18	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1,2,2-Tetrachloroethane	ND		59	35	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		59	16	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1,2-Trichloroethane	ND		59	13	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1-Dichloroethane	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,1-Dichloroethene	ND		59	19	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2,4-Trichlorobenzene	ND		59	31	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dibromo-3-Chloropropane	ND		120	52	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Ethylene Dibromide	ND		59	19	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dichlorobenzene	ND		59	28	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dichloroethane	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,2-Dichloropropane	ND		59	8.7	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,3-Dichlorobenzene	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
1,4-Dichlorobenzene	ND		59	13	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
2-Butanone (MEK)	ND		240	37	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
2-Hexanone	ND		240	62	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
4-Methyl-2-pentanone (MIBK)	ND		240	56	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Acetone	ND		240	57	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Benzene	ND		59	9.9	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Dichlorobromomethane	ND		59	14	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Bromoform	ND		59	54	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Bromomethane	ND		59	39	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Carbon disulfide	ND		59	25	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Carbon tetrachloride	ND		59	24	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chlorobenzene	ND		59	8.2	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chloroethane	ND		59	35	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chloroform	ND		59	13	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chloromethane	ND		59	16	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
cis-1,2-Dichloroethene	ND		59	9.4	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
cis-1,3-Dichloropropene	ND		59	29	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Cyclohexane	ND		120	38	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Chlorodibromomethane	ND		59	28	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Dichlorodifluoromethane	ND		59	12	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Ethylbenzene	ND		59	11	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Isopropylbenzene	ND		59	8.9	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methyl acetate	ND		290	40	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methyl tert-butyl ether	ND		59	8.7	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methylcyclohexane	ND		120	16	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Methylene Chloride	ND		120	90	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Styrene	ND		59	12	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Tetrachloroethene	ND		59	23	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Toluene	ND		59	56	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
trans-1,2-Dichloroethene	ND		59	15	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
trans-1,3-Dichloropropene	ND		59	25	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Trichloroethene	ND		59	34	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Trichlorofluoromethane	ND		59	32	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Vinyl chloride	ND		59	29	mg/Kg		03/24/23 22:04	03/28/23 08:39	20
Xylenes, Total	ND		120	21	mg/Kg		03/24/23 22:04	03/28/23 08:39	20

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	88		56 - 125	03/24/23 22:04	03/28/23 08:39	20
Dibromofluoromethane (Surr)	87		41 - 138	03/24/23 22:04	03/28/23 08:39	20
4-Bromofluorobenzene (Surr)	73		41 - 143	03/24/23 22:04	03/28/23 08:39	20
1,2-Dichloroethane-d4 (Surr)	93		58 - 125	03/24/23 22:04	03/28/23 08:39	20

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		6.3	2.1	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
bis (2-chloroisopropyl) ether	ND		13	1.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4,5-Trichlorophenol	ND		19	8.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4,6-Trichlorophenol	ND		19	8.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dichlorophenol	ND		19	5.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dimethylphenol	ND		19	5.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dinitrophenol	ND		41	18	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,4-Dinitrotoluene	ND		25	7.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2,6-Dinitrotoluene	ND		25	7.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Chloronaphthalene	ND		6.3	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Chlorophenol	ND		6.3	1.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Methylnaphthalene	ND		1.9	0.25	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Methylphenol	ND		25	3.9	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Nitroaniline	ND		25	5.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
2-Nitrophenol	ND		6.3	1.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
3,3'-Dichlorobenzidine	ND		13	5.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
3-Nitroaniline	ND		25	6.1	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4,6-Dinitro-2-methylphenol	ND		41	10	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Bromophenyl phenyl ether	ND		6.3	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Chloro-3-methylphenol	ND		19	5.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Chloroaniline	ND		19	3.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Chlorophenyl phenyl ether	ND		6.3	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Nitroaniline	ND		25	7.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
4-Nitrophenol	ND		41	12	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Acenaphthene	ND		1.9	0.36	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Acenaphthylene	ND		1.9	0.50	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Acetophenone	ND		13	1.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Anthracene	ND		1.9	0.30	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Atrazine	ND		25	4.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzaldehyde	ND		13	2.9	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[a]anthracene	0.50	J	1.9	0.43	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[a]pyrene	ND		1.9	1.2	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[b]fluoranthene	1.0	J	1.9	0.81	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[g,h,i]perylene	ND		1.9	0.89	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Benzo[k]fluoranthene	ND		1.9	0.87	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Bis(2-chloroethoxy)methane	ND		13	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Bis(2-chloroethyl)ether	ND		13	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Bis(2-ethylhexyl) phthalate	ND		8.8	6.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Butyl benzyl phthalate	3.4	J	8.8	2.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Caprolactam	ND		41	9.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Carbazole	ND		6.3	2.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Chrysene	ND		1.9	0.19	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Dibenz(a,h)anthracene	ND		1.9	0.87	mg/Kg		03/22/23 08:13	03/24/23 17:38	5

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		6.3	1.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Diethyl phthalate	ND		8.8	3.9	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Dimethyl phthalate	ND		8.8	1.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Di-n-butyl phthalate	ND		8.8	6.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Di-n-octyl phthalate	ND		8.8	3.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Fluoranthene	0.78	J	1.9	0.56	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Fluorene	ND		1.9	0.34	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachlorobenzene	ND		1.9	0.36	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachlorobutadiene	ND		6.3	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachlorocyclopentadiene	ND		41	7.8	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Hexachloroethane	ND		6.3	1.1	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Indeno[1,2,3-cd]pyrene	ND		1.9	0.92	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Isophorone	ND		6.3	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
N-Nitrosodi-n-propylamine	ND		6.3	1.4	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
N-Nitrosodiphenylamine	ND		6.3	1.5	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Naphthalene	ND		1.9	0.30	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Nitrobenzene	ND		13	1.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Pentachlorophenol	ND		19	7.3	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Phenanthrene	0.96	J	1.9	0.28	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Phenol	ND		6.3	1.0	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
Pyrene	0.82	J	1.9	0.27	mg/Kg		03/22/23 08:13	03/24/23 17:38	5
3 & 4 Methylphenol	ND		50	3.6	mg/Kg		03/22/23 08:13	03/24/23 17:38	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137	03/22/23 08:13	03/24/23 17:38	5
Phenol-d5 (Surr)	73		26 - 120	03/22/23 08:13	03/24/23 17:38	5
Nitrobenzene-d5 (Surr)	65		25 - 120	03/22/23 08:13	03/24/23 17:38	5
2-Fluorophenol (Surr)	65		20 - 120	03/22/23 08:13	03/24/23 17:38	5
2-Fluorobiphenyl (Surr)	83		34 - 120	03/22/23 08:13	03/24/23 17:38	5
2,4,6-Tribromophenol (Surr)	88		10 - 120	03/22/23 08:13	03/24/23 17:38	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0075	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 19:02	1
Barium	0.080	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 19:02	1
Cadmium	0.00041	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 19:02	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 19:02	1
Lead	0.0077	J	0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 19:02	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 19:02	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 19:02	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:17	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 11:00	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		9.0	2.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1,2,2-Tetrachloroethane	ND		9.0	5.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		9.0	2.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1,2-Trichloroethane	ND		9.0	2.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1-Dichloroethane	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,1-Dichloroethene	ND		9.0	2.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2,4-Trichlorobenzene	ND		9.0	4.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dibromo-3-Chloropropane	ND		18	7.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Ethylene Dibromide	ND		9.0	2.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dichlorobenzene	ND		9.0	4.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dichloroethane	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,2-Dichloropropane	ND		9.0	1.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,3-Dichlorobenzene	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
1,4-Dichlorobenzene	ND		9.0	2.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
2-Butanone (MEK)	ND		36	5.6	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
2-Hexanone	ND		36	9.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
4-Methyl-2-pentanone (MIBK)	ND		36	8.6	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Acetone	ND		36	8.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Benzene	ND		9.0	1.5	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Dichlorobromomethane	ND		9.0	2.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Bromoform	ND		9.0	8.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Bromomethane	ND		9.0	6.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Carbon disulfide	ND		9.0	3.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Carbon tetrachloride	ND		9.0	3.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chlorobenzene	ND		9.0	1.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chloroethane	ND		9.0	5.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chloroform	ND		9.0	1.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chloromethane	ND		9.0	2.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
cis-1,2-Dichloroethene	ND		9.0	1.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
cis-1,3-Dichloropropene	ND		9.0	4.5	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Cyclohexane	ND		18	5.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Chlorodibromomethane	ND		9.0	4.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Dichlorodifluoromethane	ND		9.0	1.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Ethylbenzene	ND		9.0	1.7	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Isopropylbenzene	ND		9.0	1.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methyl acetate	ND		45	6.0	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methyl tert-butyl ether	ND		9.0	1.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methylcyclohexane	ND		18	2.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Methylene Chloride	ND		18	14	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Styrene	ND		9.0	1.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Tetrachloroethene	ND		9.0	3.5	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Toluene	ND		9.0	8.6	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
trans-1,2-Dichloroethene	ND		9.0	2.2	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
trans-1,3-Dichloropropene	ND		9.0	3.8	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Trichloroethene	ND		9.0	5.1	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Trichlorofluoromethane	ND		9.0	4.9	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Vinyl chloride	ND		9.0	4.4	mg/Kg		03/24/23 22:04	03/28/23 09:00	4
Xylenes, Total	ND		18	3.3	mg/Kg		03/24/23 22:04	03/28/23 09:00	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	75		56 - 125	03/24/23 22:04	03/28/23 09:00	4
Dibromofluoromethane (Surr)	81		41 - 138	03/24/23 22:04	03/28/23 09:00	4
4-Bromofluorobenzene (Surr)	64		41 - 143	03/24/23 22:04	03/28/23 09:00	4
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/24/23 22:04	03/28/23 09:00	4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.0	1.0	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
bis (2-chloroisopropyl) ether	ND		6.1	0.61	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4,5-Trichlorophenol	ND		9.1	4.2	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4,6-Trichlorophenol	ND		9.1	3.9	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dichlorophenol	ND		9.1	2.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dimethylphenol	ND		9.1	2.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dinitrophenol	ND		20	8.6	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,4-Dinitrotoluene	ND		12	3.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2,6-Dinitrotoluene	ND		12	3.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Chloronaphthalene	ND		3.0	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Chlorophenol	ND		3.0	0.61	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Methylnaphthalene	ND		0.91	0.12	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Methylphenol	ND		12	1.9	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Nitroaniline	ND		12	2.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
2-Nitrophenol	ND		3.0	0.79	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
3,3'-Dichlorobenzidine	ND		6.1	2.6	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
3-Nitroaniline	ND		12	3.0	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4,6-Dinitro-2-methylphenol	ND		20	4.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Bromophenyl phenyl ether	ND		3.0	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Chloro-3-methylphenol	ND		9.1	2.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Chloroaniline	ND		9.1	1.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Chlorophenyl phenyl ether	ND		3.0	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Nitroaniline	ND		12	3.6	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
4-Nitrophenol	ND		20	5.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Acenaphthene	0.23	J	0.91	0.17	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Acenaphthylene	ND		0.91	0.24	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Acetophenone	ND		6.1	0.67	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Anthracene	ND		0.91	0.15	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Atrazine	ND		12	2.2	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzaldehyde	ND		6.1	1.4	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[a]anthracene	0.34	J	0.91	0.21	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[a]pyrene	ND		0.91	0.57	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[b]fluoranthene	ND		0.91	0.39	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[g,h,i]perylene	ND		0.91	0.43	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Benzo[k]fluoranthene	ND		0.91	0.42	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Bis(2-chloroethoxy)methane	ND		6.1	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Bis(2-chloroethyl)ether	ND		6.1	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Bis(2-ethylhexyl) phthalate	4.1	J	4.2	3.1	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Butyl benzyl phthalate	ND		4.2	1.3	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Caprolactam	ND		20	4.5	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Carbazole	ND		3.0	1.2	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Chrysene	0.37	J	0.91	0.090	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Dibenz(a,h)anthracene	ND		0.91	0.42	mg/Kg		03/22/23 08:13	03/24/23 18:01	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		3.0	0.79	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Diethyl phthalate	ND		4.2	1.9	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Dimethyl phthalate	ND		4.2	0.85	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Di-n-butyl phthalate	ND		4.2	3.1	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Di-n-octyl phthalate	ND		4.2	1.7	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Fluoranthene	1.2		0.91	0.27	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Fluorene	0.20	J	0.91	0.17	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachlorobenzene	ND		0.91	0.17	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachlorobutadiene	ND		3.0	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachlorocyclopentadiene	ND		20	3.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Hexachloroethane	ND		3.0	0.55	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Indeno[1,2,3-cd]pyrene	ND		0.91	0.45	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Isophorone	ND		3.0	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
N-Nitrosodi-n-propylamine	ND		3.0	0.67	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
N-Nitrosodiphenylamine	ND		3.0	0.73	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Naphthalene	ND		0.91	0.15	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Nitrobenzene	ND		6.1	0.79	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Pentachlorophenol	ND		9.1	3.5	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Phenanthrene	0.90	J	0.91	0.14	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Phenol	ND		3.0	0.48	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
Pyrene	1.2		0.91	0.13	mg/Kg		03/22/23 08:13	03/24/23 18:01	4
3 & 4 Methylphenol	ND		24	1.8	mg/Kg		03/22/23 08:13	03/24/23 18:01	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	101		46 - 137	03/22/23 08:13	03/24/23 18:01	4
Phenol-d5 (Surr)	67		26 - 120	03/22/23 08:13	03/24/23 18:01	4
Nitrobenzene-d5 (Surr)	54		25 - 120	03/22/23 08:13	03/24/23 18:01	4
2-Fluorophenol (Surr)	61		20 - 120	03/22/23 08:13	03/24/23 18:01	4
2-Fluorobiphenyl (Surr)	80		34 - 120	03/22/23 08:13	03/24/23 18:01	4
2,4,6-Tribromophenol (Surr)	65		10 - 120	03/22/23 08:13	03/24/23 18:01	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0071	J B	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 19:15	1
Barium	0.066	J B	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 19:15	1
Cadmium	0.00038	J	0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 19:15	1
Chromium	ND	^+	0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 19:15	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 19:15	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 19:15	1
Silver	ND	^+	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 19:15	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 17:19	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	Done				NONE			03/20/23 12:54	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (56-125)	DBFM (41-138)	BFB (41-143)	DCA (58-125)
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	82	84	77	86
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	73 *3	95 *3	77 *3	122 *3
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	122	106	127	117
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	119	102	119	118
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	82	76	80	83
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	128 S1+	108	138	116
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	86	86	69	87
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	80	83	73	92
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	121	105	126	116
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	80	89	73	94
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	84	84	70	94
240-182202-13	WC-SB1188-SOIL + DEBRIS	122	112	127	128 S1+
240-182202-14	WC-AMU112-SOIL + DEBRIS	90	86	59	98
240-182202-15	WC-SB2655-SOIL + DEBRIS	107	83	53	89
240-182202-16	WC-SB2455-SOIL + DEBRIS	107	95	54	107
240-182202-18	WC-SB2418-ABSORBENTS	79	83	65	84
240-182202-19	WC-SB1833-ABSORBENTS	80	80	63	87
240-182202-20	WC-SB2446-ABSORBENTS	85	85	70	90
240-182202-21	WC-SB1450-ABSORBENTS	88	87	73	93
240-182202-22	WC-SB1905-ABSORBENTS	75	81	64	87
240-182202-22 MS	WC-SB1905-ABSORBENTS	81	83	76	80
240-182202-22 MSD	WC-SB1905-ABSORBENTS	83	80	77	81
LCS 240-566108/2-A	Lab Control Sample	81	83	77	82
LCS 240-566133/6	Lab Control Sample	91	88	86	88
LCS 240-566249/3	Lab Control Sample	113	105	113	110
LCS 240-566719/2-A	Lab Control Sample	82	79	75	79
MB 240-566108/1-A	Method Blank	81	77	69	86
MB 240-566125/2-A	Method Blank	80	80	68	87
MB 240-566125/3-A	Method Blank	114	105	116	116
MB 240-566133/7	Method Blank	79	78	71	82
MB 240-566719/1-A	Method Blank	80	80	62	84

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
LCS 240-566367/10	Lab Control Sample	91	92	101	97

Surrogate Legend

TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: TCLP

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TOL (80-120)	DBFM (71-121)	BFB (80-120)	DCA (76-120)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	95	98	108	100
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	87	86	92	92
240-182202-17	WC-COMP-SOIL + DEBRIS	97	96	108	102
LB 240-566129/1-A MB	Method Blank	89	93	100	98

Surrogate Legend

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (25-120)	2FP (20-120)	FBP (34-120)	TBP (10-120)
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	87	61	40	45	61	48
240-182202-1 MS	WC-S. TRACK-DEEP-01 (8-10')	88	64	53	62	73	52
240-182202-1 MSD	WC-S. TRACK-DEEP-01 (8-10')	85	58	42	45	63	55
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	93	53	39	44	57	55
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	83	47	33	38	50	42
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	89	69	51	54	80	61
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	107	65	48	54	77	98
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	94	59	46	53	64	79
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	94	50	42	48	54	87
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	95	51	42	49	48	68
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	101	78	66	77	80	96
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	94	52	41	48	56	90
240-182202-13	WC-SB1188-SOIL + DEBRIS	89	62	40	55	66	102
240-182202-14	WC-AMU112-SOIL + DEBRIS	67	67	52	65	61	83
240-182202-15	WC-SB2655-SOIL + DEBRIS	82	68	54	64	72	86
240-182202-16	WC-SB2455-SOIL + DEBRIS	92	51	42	47	57	96
240-182202-18	WC-SB2418-ABSORBENTS	97	45	38	43	58	93
240-182202-19	WC-SB1833-ABSORBENTS	99	67	60	64	75	86
240-182202-20	WC-SB2446-ABSORBENTS	108	53	46	51	62	98
240-182202-21	WC-SB1450-ABSORBENTS	106	73	65	65	83	88
240-182202-22	WC-SB1905-ABSORBENTS	101	67	54	61	80	65
LCS 240-566295/2-A	Lab Control Sample	124	59	55	60	63	112
MB 240-566295/1-A	Method Blank	103	36	33	33	40	33

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)

PHL = Phenol-d5 (Surr)

NBZ = Nitrobenzene-d5 (Surr)

2FP = 2-Fluorophenol (Surr)

FBP = 2-Fluorobiphenyl (Surr)

TBP = 2,4,6-Tribromophenol (Surr)

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
LCS 240-566221/9-A	Lab Control Sample	112	68	84	76	94	123 S1+
MB 240-566221/8-A	Method Blank	121	65	81	73	93	116

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TPHL (46-137)	PHL (26-120)	NBZ (24-120)	2FP (19-120)	FBP (33-120)	TBP (10-120)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	118	61	76	70	91	114
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	115	52	66	57	84	112
240-182202-17	WC-COMP-SOIL + DEBRIS	118	62	80	72	95	110

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)
 PHL = Phenol-d5 (Surr)
 NBZ = Nitrobenzene-d5 (Surr)
 2FP = 2-Fluorophenol (Surr)
 FBP = 2-Fluorobiphenyl (Surr)
 TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
LCS 240-566222/6-A	Lab Control Sample	69	67	65	71
MB 240-566222/5-A	Method Blank	71	69	69	73

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	80	79	63	67
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	84	75	65	67
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	76	69	66	64

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Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1 (10-145)	DCBP2 (10-145)	TCX1 (10-123)	TCX2 (10-123)
240-182202-17	WC-COMP-SOIL + DEBRIS	74	71	66	68

Surrogate Legend
 DCBP = DCB Decachlorobiphenyl
 TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		TCX1 (10-149)	TCX2 (10-149)	DCBP1 (10-174)	DCBP2 (10-174)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	88	88	86	82
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	88		88	
240-182202-17	WC-COMP-SOIL + DEBRIS	86		74	
LCS 240-566161/2-A	Lab Control Sample	98		83	
MB 240-566161/1-A	Method Blank	86		75	

Surrogate Legend
 TCX = Tetrachloro-m-xylene
 DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
LCS 410-356959/3-A	Lab Control Sample	58	64
LCSD 410-356959/4-A	Lab Control Sample Dup	60	67
MB 410-356959/2-A	Method Blank	52	57

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: TCLP

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPAA1 (26-136)	DCPAA2 (26-136)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	53	61
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	57	65
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	53	59
240-182202-17	WC-COMP-SOIL + DEBRIS	51	57

Surrogate Legend
 DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 240-566108/1-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566108

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Acetone	ND		1.0	0.24	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Benzene	ND		0.25	0.042	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Bromoform	ND		0.25	0.23	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chloroform	ND		0.25	0.054	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Styrene	ND		0.25	0.052	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Toluene	ND		0.25	0.24	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/20/23 14:08	03/21/23 15:06	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/20/23 14:08	03/21/23 15:06	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566108/1-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566108

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	81		56 - 125	03/20/23 14:08	03/21/23 15:06	1
Dibromofluoromethane (Surr)	77		41 - 138	03/20/23 14:08	03/21/23 15:06	1
4-Bromofluorobenzene (Surr)	69		41 - 143	03/20/23 14:08	03/21/23 15:06	1
1,2-Dichloroethane-d4 (Surr)	86		58 - 125	03/20/23 14:08	03/21/23 15:06	1

Lab Sample ID: LCS 240-566108/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.22		mg/Kg		98	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.29		mg/Kg		104	64 - 148
1,1,2-Trichloroethane	1.25	1.28		mg/Kg		102	79 - 120
1,1-Dichloroethane	1.25	1.18		mg/Kg		94	74 - 121
1,1-Dichloroethene	1.25	1.19		mg/Kg		95	68 - 141
1,2,4-Trichlorobenzene	1.25	0.988		mg/Kg		79	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.852		mg/Kg		68	52 - 133
Ethylene Dibromide	1.25	1.22		mg/Kg		98	80 - 121
1,2-Dichlorobenzene	1.25	1.18		mg/Kg		95	73 - 120
1,2-Dichloroethane	1.25	1.29		mg/Kg		103	71 - 123
1,2-Dichloropropane	1.25	1.22		mg/Kg		97	76 - 126
1,3-Dichlorobenzene	1.25	1.09		mg/Kg		87	73 - 120
1,4-Dichlorobenzene	1.25	1.10		mg/Kg		88	74 - 120
2-Butanone (MEK)	2.50	2.92		mg/Kg		117	63 - 142
2-Hexanone	2.50	2.51		mg/Kg		100	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.26		mg/Kg		90	62 - 142
Acetone	2.50	3.35		mg/Kg		134	58 - 160
Benzene	1.25	1.23		mg/Kg		98	76 - 121
Dichlorobromomethane	1.25	1.07		mg/Kg		86	71 - 138
Bromoform	1.25	0.913		mg/Kg		73	57 - 140
Bromomethane	1.25	0.810		mg/Kg		65	10 - 171
Carbon disulfide	1.25	0.935		mg/Kg		75	43 - 152
Carbon tetrachloride	1.25	1.20		mg/Kg		96	64 - 144
Chlorobenzene	1.25	1.18		mg/Kg		94	80 - 120
Chloroethane	1.25	1.02		mg/Kg		82	11 - 164
Chloroform	1.25	1.31		mg/Kg		105	78 - 120
Chloromethane	1.25	0.800		mg/Kg		64	41 - 142
cis-1,2-Dichloroethene	1.25	1.23		mg/Kg		99	78 - 124
cis-1,3-Dichloropropene	1.25	0.936		mg/Kg		75	70 - 133
Cyclohexane	1.25	1.17		mg/Kg		94	65 - 137
Chlorodibromomethane	1.25	0.999		mg/Kg		80	68 - 131
Dichlorodifluoromethane	1.25	0.795		mg/Kg		64	21 - 150
Ethylbenzene	1.25	1.16		mg/Kg		93	80 - 120
Isopropylbenzene	1.25	1.22		mg/Kg		98	80 - 130
Methyl acetate	2.50	2.65		mg/Kg		106	60 - 133
Methyl tert-butyl ether	1.25	1.17		mg/Kg		94	70 - 130
Methylcyclohexane	1.25	1.11		mg/Kg		89	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566108/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	1.25	1.09		mg/Kg		87	71 - 124
Styrene	1.25	1.25		mg/Kg		100	75 - 140
Tetrachloroethene	1.25	1.15		mg/Kg		92	76 - 127
Toluene	1.25	1.23		mg/Kg		98	80 - 120
trans-1,2-Dichloroethene	1.25	1.23		mg/Kg		98	76 - 130
trans-1,3-Dichloropropene	1.25	0.912		mg/Kg		73	61 - 121
Trichloroethene	1.25	1.14		mg/Kg		91	74 - 130
Trichlorofluoromethane	1.25	1.06		mg/Kg		85	50 - 154
Vinyl chloride	1.25	0.984		mg/Kg		79	49 - 146
Xylenes, Total	2.50	2.42		mg/Kg		97	80 - 122
m-Xylene & p-Xylene	1.25	1.16		mg/Kg		93	80 - 122
o-Xylene	1.25	1.26		mg/Kg		101	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	81		56 - 125
Dibromofluoromethane (Surr)	83		41 - 138
4-Bromofluorobenzene (Surr)	77		41 - 143
1,2-Dichloroethane-d4 (Surr)	82		58 - 125

Lab Sample ID: MB 240-566125/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Acetone	ND		0.025	0.021	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/20/23 17:03	03/21/23 10:27	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566125/2-A
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/20/23 17:03	03/21/23 10:27	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/20/23 17:03	03/21/23 10:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125	03/20/23 17:03	03/21/23 10:27	1
Dibromofluoromethane (Surr)	80		41 - 138	03/20/23 17:03	03/21/23 10:27	1
4-Bromofluorobenzene (Surr)	68		41 - 143	03/20/23 17:03	03/21/23 10:27	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/20/23 17:03	03/21/23 10:27	1

Lab Sample ID: MB 240-566125/3-A
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0050	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0030	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1-Dichloroethane	ND		0.0050	0.00096	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,1-Dichloroethene	ND		0.0050	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0044	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Ethylene Dibromide	ND		0.0050	0.0016	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichlorobenzene	ND		0.0050	0.0024	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloroethane	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloropropane	ND		0.0050	0.00074	mg/Kg		03/20/23 17:03	03/21/23 19:25	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566125/3-A
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566125

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		0.0050	0.00092	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
1,4-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Butanone (MEK)	ND		0.020	0.0031	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
2-Hexanone	ND		0.020	0.0053	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0048	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Acetone	0.00954	J	0.020	0.0049	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Benzene	ND		0.0050	0.00084	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Dichlorobromomethane	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Bromoform	ND		0.0050	0.0046	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Bromomethane	ND		0.0050	0.0033	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Carbon disulfide	ND		0.0050	0.0022	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Carbon tetrachloride	ND		0.0050	0.0020	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chlorobenzene	ND		0.0050	0.00070	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloroethane	ND		0.0050	0.0030	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloroform	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chloromethane	ND		0.0050	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
cis-1,2-Dichloroethene	ND		0.0050	0.00080	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
cis-1,3-Dichloropropene	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Cyclohexane	ND		0.010	0.0033	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Chlorodibromomethane	ND		0.0050	0.0023	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Dichlorodifluoromethane	ND		0.0050	0.0011	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Ethylbenzene	ND		0.0050	0.00094	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Isopropylbenzene	ND		0.0050	0.00076	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methyl tert-butyl ether	ND		0.0050	0.00074	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methylcyclohexane	ND		0.010	0.0013	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Methylene Chloride	ND		0.010	0.0077	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Styrene	ND		0.0050	0.0010	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Tetrachloroethene	ND		0.0050	0.0019	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Toluene	ND		0.0050	0.0048	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
trans-1,2-Dichloroethene	ND		0.0050	0.0012	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
trans-1,3-Dichloropropene	ND		0.0050	0.0021	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Trichloroethene	ND		0.0050	0.0029	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Vinyl chloride	ND		0.0050	0.0025	mg/Kg		03/20/23 17:03	03/21/23 19:25	1
Xylenes, Total	ND		0.010	0.0018	mg/Kg		03/20/23 17:03	03/21/23 19:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	114		56 - 125	03/20/23 17:03	03/21/23 19:25	1
Dibromofluoromethane (Surr)	105		41 - 138	03/20/23 17:03	03/21/23 19:25	1
4-Bromofluorobenzene (Surr)	116		41 - 143	03/20/23 17:03	03/21/23 19:25	1
1,2-Dichloroethane-d4 (Surr)	116		58 - 125	03/20/23 17:03	03/21/23 19:25	1

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566133/7
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg			03/21/23 05:49	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg			03/21/23 05:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg			03/21/23 05:49	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg			03/21/23 05:49	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg			03/21/23 05:49	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg			03/21/23 05:49	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg			03/21/23 05:49	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg			03/21/23 05:49	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg			03/21/23 05:49	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg			03/21/23 05:49	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg			03/21/23 05:49	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg			03/21/23 05:49	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg			03/21/23 05:49	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg			03/21/23 05:49	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg			03/21/23 05:49	1
2-Hexanone	ND		0.020	0.0041	mg/Kg			03/21/23 05:49	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg			03/21/23 05:49	1
Acetone	ND		0.025	0.021	mg/Kg			03/21/23 05:49	1
Benzene	ND		0.0050	0.00070	mg/Kg			03/21/23 05:49	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg			03/21/23 05:49	1
Bromoform	ND		0.0050	0.0024	mg/Kg			03/21/23 05:49	1
Bromomethane	ND		0.0050	0.0042	mg/Kg			03/21/23 05:49	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg			03/21/23 05:49	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg			03/21/23 05:49	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg			03/21/23 05:49	1
Chloroethane	ND		0.0050	0.0027	mg/Kg			03/21/23 05:49	1
Chloroform	ND		0.0050	0.00079	mg/Kg			03/21/23 05:49	1
Chloromethane	ND		0.0050	0.0023	mg/Kg			03/21/23 05:49	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg			03/21/23 05:49	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg			03/21/23 05:49	1
Cyclohexane	ND		0.010	0.0014	mg/Kg			03/21/23 05:49	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg			03/21/23 05:49	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg			03/21/23 05:49	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg			03/21/23 05:49	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg			03/21/23 05:49	1
Methyl acetate	ND		0.025	0.0034	mg/Kg			03/21/23 05:49	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg			03/21/23 05:49	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg			03/21/23 05:49	1
Methylene Chloride	ND		0.025	0.012	mg/Kg			03/21/23 05:49	1
Styrene	ND		0.0050	0.0012	mg/Kg			03/21/23 05:49	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg			03/21/23 05:49	1
Toluene	ND		0.0050	0.00077	mg/Kg			03/21/23 05:49	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg			03/21/23 05:49	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg			03/21/23 05:49	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg			03/21/23 05:49	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg			03/21/23 05:49	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg			03/21/23 05:49	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg			03/21/23 05:49	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566133/7
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	79		56 - 125		03/21/23 05:49	1
Dibromofluoromethane (Surr)	78		41 - 138		03/21/23 05:49	1
4-Bromofluorobenzene (Surr)	71		41 - 143		03/21/23 05:49	1
1,2-Dichloroethane-d4 (Surr)	82		58 - 125		03/21/23 05:49	1

Lab Sample ID: LCS 240-566133/6
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,1,1-Trichloroethane	0.0250	0.0308		mg/Kg		123	74 - 136
1,1,1,2-Tetrachloroethane	0.0250	0.0292		mg/Kg		117	66 - 129
1,1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0343		mg/Kg		137	64 - 148
1,1,2-Trichloroethane	0.0250	0.0305	*+	mg/Kg		122	79 - 120
1,1-Dichloroethane	0.0250	0.0294		mg/Kg		118	74 - 121
1,1-Dichloroethene	0.0250	0.0313		mg/Kg		125	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0255		mg/Kg		102	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0229		mg/Kg		91	52 - 133
Ethylene Dibromide	0.0250	0.0296		mg/Kg		118	80 - 121
1,2-Dichlorobenzene	0.0250	0.0285		mg/Kg		114	73 - 120
1,2-Dichloroethane	0.0250	0.0295		mg/Kg		118	71 - 123
1,2-Dichloropropane	0.0250	0.0292		mg/Kg		117	76 - 126
1,3-Dichlorobenzene	0.0250	0.0286		mg/Kg		114	73 - 120
1,4-Dichlorobenzene	0.0250	0.0281		mg/Kg		113	74 - 120
2-Butanone (MEK)	0.0500	0.0655		mg/Kg		131	63 - 142
2-Hexanone	0.0500	0.0572		mg/Kg		114	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0550		mg/Kg		110	62 - 142
Acetone	0.0500	0.0801		mg/Kg		160	58 - 160
Benzene	0.0250	0.0298		mg/Kg		119	76 - 121
Dichlorobromomethane	0.0250	0.0294		mg/Kg		118	71 - 138
Bromoform	0.0250	0.0255		mg/Kg		102	57 - 140
Bromomethane	0.0250	0.0280		mg/Kg		112	10 - 171
Carbon disulfide	0.0250	0.0288		mg/Kg		115	43 - 152
Carbon tetrachloride	0.0250	0.0312		mg/Kg		125	64 - 144
Chlorobenzene	0.0250	0.0285		mg/Kg		114	80 - 120
Chloroethane	0.0250	0.0250		mg/Kg		100	11 - 164
Chloroform	0.0250	0.0298		mg/Kg		119	78 - 120
Chloromethane	0.0250	0.0205		mg/Kg		82	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0285		mg/Kg		114	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0265		mg/Kg		106	70 - 133
Cyclohexane	0.0250	0.0329		mg/Kg		132	65 - 137
Chlorodibromomethane	0.0250	0.0276		mg/Kg		111	68 - 131
Dichlorodifluoromethane	0.0250	0.0200		mg/Kg		80	21 - 150
Ethylbenzene	0.0250	0.0297		mg/Kg		119	80 - 120
Isopropylbenzene	0.0250	0.0311		mg/Kg		124	80 - 130
Methyl acetate	0.0500	0.0522		mg/Kg		104	60 - 133
Methyl tert-butyl ether	0.0250	0.0268		mg/Kg		107	70 - 130
Methylcyclohexane	0.0250	0.0314		mg/Kg		126	70 - 138

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566133/6
Matrix: Solid
Analysis Batch: 566133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	0.0250	0.0239	J	mg/Kg		96	71 - 124
Styrene	0.0250	0.0318		mg/Kg		127	75 - 140
Tetrachloroethene	0.0250	0.0305		mg/Kg		122	76 - 127
Toluene	0.0250	0.0304	*+	mg/Kg		122	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0311		mg/Kg		124	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0258		mg/Kg		103	61 - 121
Trichloroethene	0.0250	0.0296		mg/Kg		119	74 - 130
Trichlorofluoromethane	0.0250	0.0292		mg/Kg		117	50 - 154
Vinyl chloride	0.0250	0.0273		mg/Kg		109	49 - 146
Xylenes, Total	0.0500	0.0613	*+	mg/Kg		123	80 - 122
m-Xylene & p-Xylene	0.0250	0.0302		mg/Kg		121	80 - 122
o-Xylene	0.0250	0.0311		mg/Kg		124	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	91		56 - 125
Dibromofluoromethane (Surr)	88		41 - 138
4-Bromofluorobenzene (Surr)	86		41 - 143
1,2-Dichloroethane-d4 (Surr)	88		58 - 125

Lab Sample ID: LCS 240-566249/3
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	0.0250	0.0278		mg/Kg		111	74 - 136
1,1,1,2-Tetrachloroethane	0.0250	0.0277		mg/Kg		111	66 - 129
1,1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0241		mg/Kg		96	64 - 148
1,1,2-Trichloroethane	0.0250	0.0271		mg/Kg		109	79 - 120
1,1-Dichloroethane	0.0250	0.0243		mg/Kg		97	74 - 121
1,1-Dichloroethene	0.0250	0.0263		mg/Kg		105	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0251		mg/Kg		101	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0246		mg/Kg		98	52 - 133
Ethylene Dibromide	0.0250	0.0261		mg/Kg		105	80 - 121
1,2-Dichlorobenzene	0.0250	0.0261		mg/Kg		104	73 - 120
1,2-Dichloroethane	0.0250	0.0259		mg/Kg		104	71 - 123
1,2-Dichloropropane	0.0250	0.0243		mg/Kg		97	76 - 126
1,3-Dichlorobenzene	0.0250	0.0262		mg/Kg		105	73 - 120
1,4-Dichlorobenzene	0.0250	0.0264		mg/Kg		106	74 - 120
2-Butanone (MEK)	0.0500	0.0524		mg/Kg		105	63 - 142
2-Hexanone	0.0500	0.0552		mg/Kg		110	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0537		mg/Kg		107	62 - 142
Acetone	0.0500	0.0703		mg/Kg		141	58 - 160
Benzene	0.0250	0.0256		mg/Kg		102	76 - 121
Dichlorobromomethane	0.0250	0.0252		mg/Kg		101	71 - 138
Bromoform	0.0250	0.0232		mg/Kg		93	57 - 140
Bromomethane	0.0250	0.0252		mg/Kg		101	10 - 171
Carbon disulfide	0.0250	0.0248		mg/Kg		99	43 - 152
Carbon tetrachloride	0.0250	0.0278		mg/Kg		111	64 - 144

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566249/3
Matrix: Solid
Analysis Batch: 566249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzene	0.0250	0.0258		mg/Kg		103	80 - 120
Chloroethane	0.0250	0.0223		mg/Kg		89	11 - 164
Chloroform	0.0250	0.0268		mg/Kg		107	78 - 120
Chloromethane	0.0250	0.0216		mg/Kg		86	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0258		mg/Kg		103	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0246		mg/Kg		99	70 - 133
Cyclohexane	0.0250	0.0243		mg/Kg		97	65 - 137
Chlorodibromomethane	0.0250	0.0252		mg/Kg		101	68 - 131
Dichlorodifluoromethane	0.0250	0.0278		mg/Kg		111	21 - 150
Ethylbenzene	0.0250	0.0264		mg/Kg		105	80 - 120
Isopropylbenzene	0.0250	0.0271		mg/Kg		108	80 - 130
Methyl acetate	0.0500	0.0451		mg/Kg		90	60 - 133
Methyl tert-butyl ether	0.0250	0.0249		mg/Kg		99	70 - 130
Methylcyclohexane	0.0250	0.0248		mg/Kg		99	70 - 138
Methylene Chloride	0.0250	0.0262		mg/Kg		105	71 - 124
Styrene	0.0250	0.0267		mg/Kg		107	75 - 140
Tetrachloroethene	0.0250	0.0267		mg/Kg		107	76 - 127
Toluene	0.0250	0.0269		mg/Kg		108	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0248		mg/Kg		99	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0269		mg/Kg		108	61 - 121
Trichloroethene	0.0250	0.0247		mg/Kg		99	74 - 130
Trichlorofluoromethane	0.0250	0.0263		mg/Kg		105	50 - 154
Vinyl chloride	0.0250	0.0230		mg/Kg		92	49 - 146
Xylenes, Total	0.0500	0.0522		mg/Kg		104	80 - 122
m-Xylene & p-Xylene	0.0250	0.0262		mg/Kg		105	80 - 122
o-Xylene	0.0250	0.0260		mg/Kg		104	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	113		56 - 125
Dibromofluoromethane (Surr)	105		41 - 138
4-Bromofluorobenzene (Surr)	113		41 - 143
1,2-Dichloroethane-d4 (Surr)	110		58 - 125

Lab Sample ID: LCS 240-566367/10
Matrix: Solid
Analysis Batch: 566367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	1.00	0.935		mg/L		94	74 - 127
1,2-Dichloroethane	1.00	1.01		mg/L		101	72 - 120
2-Butanone (MEK)	2.00	2.22		mg/L		111	68 - 130
Benzene	1.00	0.975		mg/L		98	80 - 121
Carbon tetrachloride	1.00	0.895		mg/L		89	69 - 120
Chlorobenzene	1.00	0.937		mg/L		94	80 - 120
Chloroform	1.00	0.969		mg/L		97	75 - 120
Tetrachloroethene	1.00	0.910		mg/L		91	74 - 120
Trichloroethene	1.00	0.892		mg/L		89	75 - 120
Vinyl chloride	1.00	0.801		mg/L		80	53 - 147

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566367/10
Matrix: Solid
Analysis Batch: 566367

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	91		80 - 120
Dibromofluoromethane (Surr)	92		71 - 121
4-Bromofluorobenzene (Surr)	101		80 - 120
1,2-Dichloroethane-d4 (Surr)	97		76 - 120

Lab Sample ID: MB 240-566719/1-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566719

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Acetone	ND		1.0	0.24	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Benzene	ND		0.25	0.042	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Bromoform	ND		0.25	0.23	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chloroform	ND		0.25	0.054	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/24/23 22:04	03/25/23 12:01	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 240-566719/1-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566719

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Styrene	ND		0.25	0.052	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Toluene	ND		0.25	0.24	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/24/23 22:04	03/25/23 12:01	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/24/23 22:04	03/25/23 12:01	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	80		56 - 125	03/24/23 22:04	03/25/23 12:01	1
Dibromofluoromethane (Surr)	80		41 - 138	03/24/23 22:04	03/25/23 12:01	1
4-Bromofluorobenzene (Surr)	62		41 - 143	03/24/23 22:04	03/25/23 12:01	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125	03/24/23 22:04	03/25/23 12:01	1

Lab Sample ID: LCS 240-566719/2-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2,2-Tetrachloroethane	1.25	1.20		mg/Kg		96	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.28		mg/Kg		102	64 - 148
1,1,2-Trichloroethane	1.25	1.33		mg/Kg		106	79 - 120
1,1-Dichloroethane	1.25	1.08		mg/Kg		86	74 - 121
1,1-Dichloroethene	1.25	1.11		mg/Kg		89	68 - 141
1,2,4-Trichlorobenzene	1.25	0.903		mg/Kg		72	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.803		mg/Kg		64	52 - 133
Ethylene Dibromide	1.25	1.21		mg/Kg		96	80 - 121
1,2-Dichlorobenzene	1.25	1.15		mg/Kg		92	73 - 120
1,2-Dichloroethane	1.25	1.25		mg/Kg		100	71 - 123
1,2-Dichloropropane	1.25	1.15		mg/Kg		92	76 - 126
1,3-Dichlorobenzene	1.25	1.10		mg/Kg		88	73 - 120
1,4-Dichlorobenzene	1.25	1.11		mg/Kg		89	74 - 120
2-Butanone (MEK)	2.50	2.65		mg/Kg		106	63 - 142
2-Hexanone	2.50	2.11		mg/Kg		85	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.04		mg/Kg		82	62 - 142
Acetone	2.50	2.79		mg/Kg		111	58 - 160
Benzene	1.25	1.21		mg/Kg		97	76 - 121
Dichlorobromomethane	1.25	1.10		mg/Kg		88	71 - 138
Bromoform	1.25	0.994		mg/Kg		80	57 - 140
Bromomethane	1.25	0.699		mg/Kg		56	10 - 171
Carbon disulfide	1.25	0.815		mg/Kg		65	43 - 152
Carbon tetrachloride	1.25	1.21		mg/Kg		97	64 - 144
Chlorobenzene	1.25	1.20		mg/Kg		96	80 - 120
Chloroethane	1.25	0.859		mg/Kg		69	11 - 164

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 240-566719/2-A
Matrix: Solid
Analysis Batch: 566725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566719

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloroform	1.25	1.24		mg/Kg		100	78 - 120
Chloromethane	1.25	0.596		mg/Kg		48	41 - 142
cis-1,2-Dichloroethene	1.25	1.18		mg/Kg		94	78 - 124
cis-1,3-Dichloropropene	1.25	0.947		mg/Kg		76	70 - 133
Cyclohexane	1.25	1.06		mg/Kg		85	65 - 137
Chlorodibromomethane	1.25	1.02		mg/Kg		82	68 - 131
Dichlorodifluoromethane	1.25	0.636		mg/Kg		51	21 - 150
Ethylbenzene	1.25	1.22		mg/Kg		97	80 - 120
Isopropylbenzene	1.25	1.21		mg/Kg		97	80 - 130
Methyl acetate	2.50	2.31		mg/Kg		93	60 - 133
Methyl tert-butyl ether	1.25	1.10		mg/Kg		88	70 - 130
Methylcyclohexane	1.25	1.14		mg/Kg		91	70 - 138
Methylene Chloride	1.25	0.924		mg/Kg		74	71 - 124
Styrene	1.25	1.29		mg/Kg		103	75 - 140
Tetrachloroethene	1.25	1.25		mg/Kg		100	76 - 127
Toluene	1.25	1.24		mg/Kg		100	80 - 120
trans-1,2-Dichloroethene	1.25	1.14		mg/Kg		92	76 - 130
trans-1,3-Dichloropropene	1.25	0.946		mg/Kg		76	61 - 121
Trichloroethene	1.25	1.21		mg/Kg		97	74 - 130
Trichlorofluoromethane	1.25	0.961		mg/Kg		77	50 - 154
Vinyl chloride	1.25	0.769		mg/Kg		62	49 - 146
Xylenes, Total	2.50	2.52		mg/Kg		101	80 - 122
m-Xylene & p-Xylene	1.25	1.22		mg/Kg		98	80 - 122
o-Xylene	1.25	1.30		mg/Kg		104	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	82		56 - 125
Dibromofluoromethane (Surr)	79		41 - 138
4-Bromofluorobenzene (Surr)	75		41 - 143
1,2-Dichloroethane-d4 (Surr)	79		58 - 125

Lab Sample ID: 240-182202-22 MS
Matrix: Solid
Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS
Prep Type: Total/NA
Prep Batch: 566719

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		44.9	46.6		mg/Kg		104	46 - 144
1,1,2,2-Tetrachloroethane	ND		44.9	42.1		mg/Kg		94	26 - 159
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		44.9	47.9		mg/Kg		107	35 - 164
1,1,2-Trichloroethane	ND		44.9	46.2		mg/Kg		103	26 - 149
1,1-Dichloroethane	ND		44.9	41.1		mg/Kg		92	46 - 135
1,1-Dichloroethene	ND		44.9	43.0		mg/Kg		96	44 - 160
1,2,4-Trichlorobenzene	ND		44.9	37.8		mg/Kg		84	10 - 120
1,2-Dibromo-3-Chloropropane	ND		44.9	27.5		mg/Kg		61	12 - 144
Ethylene Dibromide	ND		44.9	43.7		mg/Kg		97	31 - 142
1,2-Dichlorobenzene	ND		44.9	43.6		mg/Kg		97	10 - 126
1,2-Dichloroethane	ND		44.9	44.6		mg/Kg		99	40 - 132
1,2-Dichloropropane	ND		44.9	40.6		mg/Kg		90	45 - 133

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-182202-22 MS

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS

Prep Type: Total/NA

Prep Batch: 566719

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
1,3-Dichlorobenzene	ND		44.9	43.6		mg/Kg		97	10 - 131
1,4-Dichlorobenzene	ND		44.9	42.0		mg/Kg		94	10 - 129
2-Butanone (MEK)	ND		89.8	87.1		mg/Kg		97	30 - 157
2-Hexanone	ND		89.8	74.6		mg/Kg		83	20 - 166
4-Methyl-2-pentanone (MIBK)	ND		89.8	69.3		mg/Kg		77	31 - 159
Acetone	ND		89.8	99.1		mg/Kg		110	35 - 167
Benzene	ND		44.9	44.5		mg/Kg		99	39 - 134
Dichlorobromomethane	ND		44.9	42.9		mg/Kg		96	32 - 146
Bromoform	ND		44.9	36.5		mg/Kg		81	12 - 144
Bromomethane	ND		44.9	40.7		mg/Kg		91	10 - 161
Carbon disulfide	ND		44.9	36.9		mg/Kg		82	24 - 153
Carbon tetrachloride	ND		44.9	46.9		mg/Kg		105	37 - 145
Chlorobenzene	ND		44.9	44.3		mg/Kg		99	18 - 134
Chloroethane	ND		44.9	35.0		mg/Kg		78	14 - 159
Chloroform	ND		44.9	45.6		mg/Kg		102	43 - 134
Chloromethane	ND		44.9	24.5		mg/Kg		55	32 - 151
cis-1,2-Dichloroethene	ND		44.9	44.1		mg/Kg		98	48 - 132
cis-1,3-Dichloropropene	ND		44.9	35.8		mg/Kg		80	23 - 139
Cyclohexane	ND		44.9	39.4		mg/Kg		88	31 - 147
Chlorodibromomethane	ND		44.9	39.8		mg/Kg		89	25 - 143
Dichlorodifluoromethane	ND		44.9	31.7		mg/Kg		70	16 - 157
Ethylbenzene	ND		44.9	45.3		mg/Kg		101	17 - 137
Isopropylbenzene	ND		44.9	46.0		mg/Kg		102	10 - 146
Methyl acetate	ND		89.8	76.9		mg/Kg		86	13 - 164
Methyl tert-butyl ether	ND		44.9	38.9		mg/Kg		87	55 - 134
Methylcyclohexane	ND		44.9	41.9		mg/Kg		93	20 - 153
Methylene Chloride	ND		44.9	36.6		mg/Kg		81	38 - 145
Styrene	ND		44.9	47.3		mg/Kg		105	10 - 149
Tetrachloroethene	ND		44.9	47.1		mg/Kg		105	19 - 147
Toluene	ND		44.9	45.3		mg/Kg		101	30 - 137
trans-1,2-Dichloroethene	ND		44.9	44.0		mg/Kg		98	41 - 145
trans-1,3-Dichloropropene	ND		44.9	34.6		mg/Kg		77	19 - 130
Trichloroethene	ND		44.9	44.2		mg/Kg		98	21 - 158
Trichlorofluoromethane	ND		44.9	42.6		mg/Kg		95	36 - 161
Vinyl chloride	ND		44.9	34.0		mg/Kg		76	32 - 163
Xylenes, Total	ND		89.8	93.9		mg/Kg		105	17 - 138
m-Xylene & p-Xylene	ND		44.9	45.6		mg/Kg		102	10 - 141
o-Xylene	ND		44.9	48.3		mg/Kg		108	18 - 139

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	81		56 - 125
Dibromofluoromethane (Surr)	83		41 - 138
4-Bromofluorobenzene (Surr)	76		41 - 143
1,2-Dichloroethane-d4 (Surr)	80		58 - 125

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-182202-22 MSD

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS

Prep Type: Total/NA

Prep Batch: 566719

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1,1-Trichloroethane	ND		44.9	38.0		mg/Kg		85	46 - 144	20	37
1,1,2,2-Tetrachloroethane	ND		44.9	38.9		mg/Kg		87	26 - 159	8	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		44.9	40.8		mg/Kg		91	35 - 164	16	37
1,1,2-Trichloroethane	ND		44.9	40.5		mg/Kg		90	26 - 149	13	40
1,1-Dichloroethane	ND		44.9	37.2		mg/Kg		83	46 - 135	10	36
1,1-Dichloroethene	ND		44.9	39.7		mg/Kg		88	44 - 160	8	37
1,2,4-Trichlorobenzene	ND		44.9	31.5		mg/Kg		70	10 - 120	18	40
1,2-Dibromo-3-Chloropropane	ND		44.9	21.5		mg/Kg		48	12 - 144	24	40
Ethylene Dibromide	ND		44.9	38.3		mg/Kg		85	31 - 142	13	40
1,2-Dichlorobenzene	ND		44.9	33.9		mg/Kg		75	10 - 126	25	40
1,2-Dichloroethane	ND		44.9	39.5		mg/Kg		88	40 - 132	12	35
1,2-Dichloropropane	ND		44.9	37.6		mg/Kg		84	45 - 133	8	37
1,3-Dichlorobenzene	ND		44.9	36.8		mg/Kg		82	10 - 131	17	40
1,4-Dichlorobenzene	ND		44.9	36.1		mg/Kg		80	10 - 129	15	40
2-Butanone (MEK)	ND		89.8	91.3		mg/Kg		102	30 - 157	5	40
2-Hexanone	ND		89.8	79.5		mg/Kg		89	20 - 166	6	40
4-Methyl-2-pentanone (MIBK)	ND		89.8	71.8		mg/Kg		80	31 - 159	3	40
Acetone	ND		89.8	110		mg/Kg		123	35 - 167	11	40
Benzene	ND		44.9	38.5		mg/Kg		86	39 - 134	14	40
Dichlorobromomethane	ND		44.9	35.7		mg/Kg		80	32 - 146	18	39
Bromoform	ND		44.9	30.9		mg/Kg		69	12 - 144	16	40
Bromomethane	ND		44.9	40.4		mg/Kg		90	10 - 161	1	40
Carbon disulfide	ND		44.9	33.9		mg/Kg		76	24 - 153	8	40
Carbon tetrachloride	ND		44.9	37.6		mg/Kg		84	37 - 145	22	38
Chlorobenzene	ND		44.9	36.9		mg/Kg		82	18 - 134	18	40
Chloroethane	ND		44.9	34.3		mg/Kg		76	14 - 159	2	40
Chloroform	ND		44.9	40.3		mg/Kg		90	43 - 134	12	36
Chloromethane	ND		44.9	27.5		mg/Kg		61	32 - 151	12	38
cis-1,2-Dichloroethene	ND		44.9	37.9		mg/Kg		84	48 - 132	15	37
cis-1,3-Dichloropropene	ND		44.9	30.6		mg/Kg		68	23 - 139	16	39
Cyclohexane	ND		44.9	35.9		mg/Kg		80	31 - 147	10	39
Chlorodibromomethane	ND		44.9	32.7		mg/Kg		73	25 - 143	20	40
Dichlorodifluoromethane	ND		44.9	27.5		mg/Kg		61	16 - 157	14	40
Ethylbenzene	ND		44.9	37.0		mg/Kg		82	17 - 137	20	40
Isopropylbenzene	ND		44.9	39.3		mg/Kg		87	10 - 146	16	40
Methyl acetate	ND		89.8	85.4		mg/Kg		95	13 - 164	11	40
Methyl tert-butyl ether	ND		44.9	37.0		mg/Kg		82	55 - 134	5	37
Methylcyclohexane	ND		44.9	33.9		mg/Kg		75	20 - 153	21	40
Methylene Chloride	ND		44.9	32.9		mg/Kg		73	38 - 145	11	40
Styrene	ND		44.9	40.3		mg/Kg		90	10 - 149	16	40
Tetrachloroethene	ND		44.9	37.0		mg/Kg		82	19 - 147	24	40
Toluene	ND		44.9	38.7		mg/Kg		86	30 - 137	16	40
trans-1,2-Dichloroethene	ND		44.9	37.7		mg/Kg		84	41 - 145	15	37
trans-1,3-Dichloropropene	ND		44.9	31.0		mg/Kg		69	19 - 130	11	40
Trichloroethene	ND		44.9	37.1		mg/Kg		83	21 - 158	18	40
Trichlorofluoromethane	ND		44.9	39.5		mg/Kg		88	36 - 161	7	40
Vinyl chloride	ND		44.9	34.8		mg/Kg		77	32 - 163	2	38
Xylenes, Total	ND		89.8	77.9		mg/Kg		87	17 - 138	19	40

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 240-182202-22 MSD

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-SB1905-ABSORBENTS

Prep Type: Total/NA

Prep Batch: 566719

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	ND		44.9	37.3		mg/Kg		83	10 - 141	20	40
o-Xylene	ND		44.9	40.6		mg/Kg		90	18 - 139	17	40
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
Toluene-d8 (Surr)	83		56 - 125								
Dibromofluoromethane (Surr)	80		41 - 138								
4-Bromofluorobenzene (Surr)	77		41 - 143								
1,2-Dichloroethane-d4 (Surr)	81		58 - 125								

Lab Sample ID: LB 240-566129/1-A MB

Matrix: Solid

Analysis Batch: 566367

Client Sample ID: Method Blank

Prep Type: TCLP

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethene	ND		0.025	0.00049	mg/L			03/22/23 15:29	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/22/23 15:29	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/22/23 15:29	1
Benzene	ND		0.025	0.00042	mg/L			03/22/23 15:29	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/22/23 15:29	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/22/23 15:29	1
Chloroform	ND		0.025	0.00047	mg/L			03/22/23 15:29	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/22/23 15:29	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/22/23 15:29	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/22/23 15:29	1
Surrogate	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		80 - 120					03/22/23 15:29	1
Dibromofluoromethane (Surr)	93		71 - 121					03/22/23 15:29	1
4-Bromofluorobenzene (Surr)	100		80 - 120					03/22/23 15:29	1
1,2-Dichloroethane-d4 (Surr)	98		76 - 120					03/22/23 15:29	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-566221/8-A

Matrix: Solid

Analysis Batch: 566449

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566221

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/21/23 12:03	03/23/23 10:08	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/21/23 12:03	03/23/23 10:08	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/21/23 12:03	03/23/23 10:08	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/21/23 12:03	03/23/23 10:08	1
Pyridine	ND		0.0040	0.00036	mg/L		03/21/23 12:03	03/23/23 10:08	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/21/23 12:03	03/23/23 10:08	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/21/23 12:03	03/23/23 10:08	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/21/23 12:03	03/23/23 10:08	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/21/23 12:03	03/23/23 10:08	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/21/23 12:03	03/23/23 10:08	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566221/8-A

Matrix: Solid

Analysis Batch: 566449

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566221

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/21/23 12:03	03/23/23 10:08	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/21/23 12:03	03/23/23 10:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	121		46 - 137	03/21/23 12:03	03/23/23 10:08	1
Phenol-d5 (Surr)	65		26 - 120	03/21/23 12:03	03/23/23 10:08	1
Nitrobenzene-d5 (Surr)	81		24 - 120	03/21/23 12:03	03/23/23 10:08	1
2-Fluorophenol (Surr)	73		19 - 120	03/21/23 12:03	03/23/23 10:08	1
2-Fluorobiphenyl (Surr)	93		33 - 120	03/21/23 12:03	03/23/23 10:08	1
2,4,6-Tribromophenol (Surr)	116		10 - 120	03/21/23 12:03	03/23/23 10:08	1

Lab Sample ID: LCS 240-566221/9-A

Matrix: Solid

Analysis Batch: 566449

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 566221

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	0.0800	0.0599		mg/L		75	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0768		mg/L		96	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0796		mg/L		100	51 - 120
2,4-Dinitrotoluene	0.0800	0.0759		mg/L		95	58 - 125
Pyridine	0.160	0.0696		mg/L		44	10 - 120
2-Methylphenol	0.0800	0.0606		mg/L		76	45 - 120
Hexachlorobenzene	0.0800	0.0810		mg/L		101	55 - 120
Hexachlorobutadiene	0.0800	0.0662		mg/L		83	41 - 120
Hexachloroethane	0.0800	0.0601		mg/L		75	39 - 120
Nitrobenzene	0.0800	0.0634		mg/L		79	47 - 120
Pentachlorophenol	0.160	0.129		mg/L		81	19 - 132
3 & 4 Methylphenol	0.0800	0.0615		mg/L		77	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	112		46 - 137
Phenol-d5 (Surr)	68		26 - 120
Nitrobenzene-d5 (Surr)	84		24 - 120
2-Fluorophenol (Surr)	76		19 - 120
2-Fluorobiphenyl (Surr)	94		33 - 120
2,4,6-Tribromophenol (Surr)	123	S1+	10 - 120

Lab Sample ID: MB 240-566295/1-A

Matrix: Solid

Analysis Batch: 566576

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566295

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/22/23 08:13	03/24/23 08:51	1

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QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566295/1-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566295

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Atrazine	ND		0.20	0.036	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Carbazole	ND		0.050	0.019	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/22/23 08:13	03/24/23 08:51	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-566295/1-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566295

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isophorone	ND		0.050	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Phenol	ND		0.050	0.0080	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/22/23 08:13	03/24/23 08:51	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/22/23 08:13	03/24/23 08:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	103		46 - 137	03/22/23 08:13	03/24/23 08:51	1
Phenol-d5 (Surr)	36		26 - 120	03/22/23 08:13	03/24/23 08:51	1
Nitrobenzene-d5 (Surr)	33		25 - 120	03/22/23 08:13	03/24/23 08:51	1
2-Fluorophenol (Surr)	33		20 - 120	03/22/23 08:13	03/24/23 08:51	1
2-Fluorobiphenyl (Surr)	40		34 - 120	03/22/23 08:13	03/24/23 08:51	1
2,4,6-Tribromophenol (Surr)	33		10 - 120	03/22/23 08:13	03/24/23 08:51	1

Lab Sample ID: LCS 240-566295/2-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566295

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,1'-Biphenyl	0.667	0.371		mg/Kg		56	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.327		mg/Kg		49	38 - 120
2,4,5-Trichlorophenol	0.667	0.502		mg/Kg		75	50 - 120
2,4,6-Trichlorophenol	0.667	0.476		mg/Kg		71	50 - 120
2,4-Dichlorophenol	0.667	0.398		mg/Kg		60	50 - 120
2,4-Dimethylphenol	0.667	0.392		mg/Kg		59	24 - 120
2,4-Dinitrophenol	1.33	1.09		mg/Kg		82	19 - 132
2,4-Dinitrotoluene	0.667	0.679		mg/Kg		102	64 - 120
2,6-Dinitrotoluene	0.667	0.603		mg/Kg		90	62 - 120
2-Chloronaphthalene	0.667	0.377		mg/Kg		57	51 - 120
2-Chlorophenol	0.667	0.373		mg/Kg		56	47 - 120
2-Methylnaphthalene	0.667	0.359		mg/Kg		54	38 - 120
2-Methylphenol	0.667	0.347		mg/Kg		52	45 - 120
2-Nitroaniline	0.667	0.523		mg/Kg		79	57 - 120
2-Nitrophenol	0.667	0.424		mg/Kg		64	51 - 120
3,3'-Dichlorobenzidine	1.33	1.46		mg/Kg		110	27 - 199
3-Nitroaniline	0.667	0.555		mg/Kg		83	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.26		mg/Kg		95	46 - 126
4-Bromophenyl phenyl ether	0.667	0.558		mg/Kg		84	65 - 120
4-Chloro-3-methylphenol	0.667	0.458		mg/Kg		69	51 - 120
4-Chloroaniline	0.667	0.350		mg/Kg		52	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.470		mg/Kg		70	59 - 120
4-Nitroaniline	0.667	0.650		mg/Kg		97	48 - 128
4-Nitrophenol	1.33	1.27		mg/Kg		96	43 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-566295/2-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566295

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	0.667	0.394		mg/Kg		59	52 - 120
Acenaphthylene	0.667	0.391		mg/Kg		59	52 - 120
Acetophenone	0.667	0.363		mg/Kg		54	47 - 120
Anthracene	0.667	0.599		mg/Kg		90	64 - 120
Atrazine	1.33	1.35		mg/Kg		102	71 - 125
Benzaldehyde	1.33	0.648		mg/Kg		49	42 - 120
Benzo[a]anthracene	0.667	0.726		mg/Kg		109	70 - 120
Benzo[a]pyrene	0.667	0.608		mg/Kg		91	63 - 125
Benzo[b]fluoranthene	0.667	0.567		mg/Kg		85	64 - 121
Benzo[g,h,i]perylene	0.667	0.662		mg/Kg		99	62 - 120
Benzo[k]fluoranthene	0.667	0.615		mg/Kg		92	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.349		mg/Kg		52	50 - 120
Bis(2-chloroethyl)ether	0.667	0.289		mg/Kg		43	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.664		mg/Kg		100	63 - 133
Butyl benzyl phthalate	0.667	0.679		mg/Kg		102	66 - 127
Caprolactam	1.33	1.18		mg/Kg		89	67 - 120
Carbazole	0.667	0.676		mg/Kg		101	61 - 129
Chrysene	0.667	0.683		mg/Kg		102	67 - 120
Dibenz(a,h)anthracene	0.667	0.630		mg/Kg		95	62 - 120
Dibenzofuran	0.667	0.426		mg/Kg		64	55 - 120
Diethyl phthalate	0.667	0.613		mg/Kg		92	61 - 120
Dimethyl phthalate	0.667	0.571		mg/Kg		86	64 - 120
Di-n-butyl phthalate	0.667	0.650		mg/Kg		97	70 - 129
Di-n-octyl phthalate	0.667	0.609		mg/Kg		91	64 - 129
Fluoranthene	0.667	0.699		mg/Kg		105	71 - 124
Fluorene	0.667	0.470		mg/Kg		70	58 - 120
Hexachlorobenzene	0.667	0.618		mg/Kg		93	59 - 120
Hexachlorobutadiene	0.667	0.359		mg/Kg		54	45 - 120
Hexachlorocyclopentadiene	0.667	0.239	J	mg/Kg		36	10 - 120
Hexachloroethane	0.667	0.308		mg/Kg		46	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.669		mg/Kg		100	65 - 122
Isophorone	0.667	0.348		mg/Kg		52	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.352		mg/Kg		53	48 - 120
N-Nitrosodiphenylamine	0.667	0.542		mg/Kg		81	64 - 120
Naphthalene	0.667	0.338		mg/Kg		51	34 - 120
Nitrobenzene	0.667	0.355		mg/Kg		53	48 - 120
Pentachlorophenol	1.33	0.815		mg/Kg		61	10 - 120
Phenanthrene	0.667	0.566		mg/Kg		85	60 - 120
Phenol	0.667	0.349		mg/Kg		52	48 - 120
Pyrene	0.667	0.721		mg/Kg		108	67 - 120
3 & 4 Methylphenol	0.667	0.365	J	mg/Kg		55	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	124		46 - 137
Phenol-d5 (Surr)	59		26 - 120
Nitrobenzene-d5 (Surr)	55		25 - 120
2-Fluorophenol (Surr)	60		20 - 120
2-Fluorobiphenyl (Surr)	63		34 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-566295/2-A
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566295

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	112		10 - 120

Lab Sample ID: 240-182202-1 MS
Matrix: Solid
Analysis Batch: 566576

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')
Prep Type: Total/NA
Prep Batch: 566295

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
1,1'-Biphenyl	ND		0.800	ND		mg/Kg	⊛	NC	29 - 120
bis (2-chloroisopropyl) ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	10 - 120
2,4,5-Trichlorophenol	ND		0.800	ND		mg/Kg	⊛	NC	35 - 120
2,4,6-Trichlorophenol	ND		0.800	ND		mg/Kg	⊛	NC	18 - 120
2,4-Dichlorophenol	ND		0.800	ND		mg/Kg	⊛	NC	21 - 120
2,4-Dimethylphenol	ND		0.800	ND		mg/Kg	⊛	NC	10 - 120
2,4-Dinitrophenol	ND		1.60	ND		mg/Kg	⊛	NC	10 - 126
2,4-Dinitrotoluene	ND		0.800	ND		mg/Kg	⊛	NC	46 - 120
2,6-Dinitrotoluene	ND		0.800	ND		mg/Kg	⊛	NC	44 - 120
2-Chloronaphthalene	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	33 - 120
2-Chlorophenol	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	19 - 120
2-Methylnaphthalene	0.32	J	0.800	0.476	J	mg/Kg	⊛	19	13 - 122
2-Methylphenol	ND		0.800	ND		mg/Kg	⊛	NC	12 - 120
2-Nitroaniline	ND		0.800	ND		mg/Kg	⊛	NC	36 - 122
2-Nitrophenol	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	28 - 120
3,3'-Dichlorobenzidine	ND		1.60	2.94	J	mg/Kg	⊛	NC	10 - 179
3-Nitroaniline	ND		0.800	ND		mg/Kg	⊛	NC	10 - 123
4,6-Dinitro-2-methylphenol	ND		1.60	ND		mg/Kg	⊛	NC	11 - 120
4-Bromophenyl phenyl ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	49 - 120
4-Chloro-3-methylphenol	ND		0.800	ND		mg/Kg	⊛	NC	35 - 120
4-Chloroaniline	ND		0.800	ND		mg/Kg	⊛	NC	10 - 120
4-Chlorophenyl phenyl ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	45 - 120
4-Nitroaniline	ND		0.800	ND		mg/Kg	⊛	NC	13 - 129
4-Nitrophenol	ND		1.60	ND		mg/Kg	⊛	NC	28 - 123
Acenaphthene	ND		0.800	0.537	J	mg/Kg	⊛	67	33 - 120
Acenaphthylene	ND		0.800	0.472	J	mg/Kg	⊛	59	39 - 120
Acetophenone	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	11 - 120
Anthracene	ND		0.800	0.522	J	mg/Kg	⊛	65	30 - 127
Atrazine	ND		1.60	ND		mg/Kg	⊛	NC	52 - 126
Benzaldehyde	ND	F1	1.60	ND	F1	mg/Kg	⊛	0	13 - 120
Benzo[a]anthracene	0.18	J	0.800	0.580	J	mg/Kg	⊛	50	24 - 137
Benzo[a]pyrene	ND		0.800	0.585	J	mg/Kg	⊛	73	28 - 136
Benzo[b]fluoranthene	0.38	J	0.800	0.649	J	mg/Kg	⊛	33	21 - 142
Benzo[g,h,i]perylene	ND		0.800	0.658	J	mg/Kg	⊛	82	10 - 144
Benzo[k]fluoranthene	ND		0.800	0.604	J	mg/Kg	⊛	75	36 - 135
Bis(2-chloroethoxy)methane	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	25 - 120
Bis(2-chloroethyl)ether	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	16 - 120
Bis(2-ethylhexyl) phthalate	ND		0.800	ND		mg/Kg	⊛	NC	37 - 143
Butyl benzyl phthalate	ND		0.800	1.36	J	mg/Kg	⊛	NC	49 - 130
Caprolactam	ND		1.60	ND		mg/Kg	⊛	NC	37 - 127
Carbazole	ND		0.800	ND		mg/Kg	⊛	NC	33 - 132

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182202-1 MS

Matrix: Solid

Analysis Batch: 566576

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Prep Type: Total/NA

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
Chrysene	0.16	J	0.800	0.586	J	mg/Kg	⊛	53	28 - 129	
Dibenz(a,h)anthracene	ND		0.800	0.631	J	mg/Kg	⊛	79	10 - 132	
Dibenzofuran	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	33 - 120	
Diethyl phthalate	ND		0.800	ND		mg/Kg	⊛	NC	48 - 120	
Dimethyl phthalate	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	45 - 120	
Di-n-butyl phthalate	ND		0.800	ND		mg/Kg	⊛	NC	40 - 137	
Di-n-octyl phthalate	ND		0.800	1.95	J	mg/Kg	⊛	NC	34 - 152	
Fluoranthene	0.21	J	0.800	0.564	J	mg/Kg	⊛	70	31 - 140	
Fluorene	ND		0.800	0.558	J	mg/Kg	⊛	70	43 - 120	
Hexachlorobenzene	ND		0.800	0.608	J	mg/Kg	⊛	76	44 - 120	
Hexachlorobutadiene	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	13 - 120	
Hexachlorocyclopentadiene	ND		0.800	ND		mg/Kg	⊛	NC	10 - 120	
Hexachloroethane	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	10 - 120	
Indeno[1,2,3-cd]pyrene	ND		0.800	0.716	J	mg/Kg	⊛	89	10 - 139	
Isophorone	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	27 - 120	
N-Nitrosodi-n-propylamine	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	23 - 120	
N-Nitrosodiphenylamine	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	30 - 128	
Naphthalene	0.26	J	0.800	0.451	J	mg/Kg	⊛	24	10 - 120	
Nitrobenzene	ND	F1	0.800	ND	F1	mg/Kg	⊛	0	19 - 120	
Pentachlorophenol	ND		1.60	ND		mg/Kg	⊛	NC	10 - 120	
Phenanthrene	0.51	J F1	0.800	0.633	J F1	mg/Kg	⊛	15	36 - 120	
Phenol	ND		0.800	0.459	J	mg/Kg	⊛	57	10 - 120	
Pyrene	0.22	J	0.800	0.602	J	mg/Kg	⊛	48	31 - 134	
3 & 4 Methylphenol	ND		0.800	ND		mg/Kg	⊛	NC	10 - 122	

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	88		46 - 137
Phenol-d5 (Surr)	64		26 - 120
Nitrobenzene-d5 (Surr)	53		25 - 120
2-Fluorophenol (Surr)	62		20 - 120
2-Fluorobiphenyl (Surr)	73		34 - 120
2,4,6-Tribromophenol (Surr)	52		10 - 120

Lab Sample ID: 240-182202-1 MSD

Matrix: Solid

Analysis Batch: 566576

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Prep Type: Total/NA

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	RPD
	Result	Qualifier		Result	Qualifier						Limit	
1,1'-Biphenyl	ND		0.791	ND		mg/Kg	⊛	NC	29 - 120	NC	45	
bis (2-chloroisopropyl) ether	ND	F1	0.791	ND	F1	mg/Kg	⊛	0	10 - 120	NC	45	
2,4,5-Trichlorophenol	ND		0.791	ND		mg/Kg	⊛	NC	35 - 120	NC	39	
2,4,6-Trichlorophenol	ND		0.791	ND		mg/Kg	⊛	NC	18 - 120	NC	45	
2,4-Dichlorophenol	ND		0.791	ND		mg/Kg	⊛	NC	21 - 120	NC	44	
2,4-Dimethylphenol	ND		0.791	ND		mg/Kg	⊛	NC	10 - 120	NC	45	
2,4-Dinitrophenol	ND		1.58	ND		mg/Kg	⊛	NC	10 - 126	NC	45	
2,4-Dinitrotoluene	ND		0.791	ND		mg/Kg	⊛	NC	46 - 120	NC	45	
2,6-Dinitrotoluene	ND		0.791	ND		mg/Kg	⊛	NC	44 - 120	NC	45	
2-Chloronaphthalene	ND	F1	0.791	ND	F1	mg/Kg	⊛	0	33 - 120	NC	45	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182202-1 MSD

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566576

Prep Batch: 566295

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Added	Result				Qualifier		Limits
2-Chlorophenol	ND	F1	0.791	ND	F1	mg/Kg	*	0	19 - 120	NC	45
2-Methylnaphthalene	0.32	J	0.791	0.509	J	mg/Kg	*	23	13 - 122	7	45
2-Methylphenol	ND		0.791	ND		mg/Kg	*	NC	12 - 120	NC	45
2-Nitroaniline	ND		0.791	ND		mg/Kg	*	NC	36 - 122	NC	42
2-Nitrophenol	ND	F1	0.791	ND	F1	mg/Kg	*	0	28 - 120	NC	45
3,3'-Dichlorobenzidine	ND		1.58	2.78	J	mg/Kg	*	NC	10 - 179	6	45
3-Nitroaniline	ND		0.791	ND		mg/Kg	*	NC	10 - 123	NC	45
4,6-Dinitro-2-methylphenol	ND		1.58	ND		mg/Kg	*	NC	11 - 120	NC	40
4-Bromophenyl phenyl ether	ND	F1	0.791	ND	F1	mg/Kg	*	0	49 - 120	NC	42
4-Chloro-3-methylphenol	ND		0.791	ND		mg/Kg	*	NC	35 - 120	NC	42
4-Chloroaniline	ND		0.791	ND		mg/Kg	*	NC	10 - 120	NC	45
4-Chlorophenyl phenyl ether	ND	F1	0.791	ND	F1	mg/Kg	*	0	45 - 120	NC	44
4-Nitroaniline	ND		0.791	ND		mg/Kg	*	NC	13 - 129	NC	38
4-Nitrophenol	ND		1.58	ND		mg/Kg	*	NC	28 - 123	NC	45
Acenaphthene	ND		0.791	0.524	J	mg/Kg	*	66	33 - 120	2	45
Acenaphthylene	ND		0.791	0.459	J	mg/Kg	*	58	39 - 120	3	45
Acetophenone	ND	F1	0.791	ND	F1	mg/Kg	*	0	11 - 120	NC	45
Anthracene	ND		0.791	0.546	J	mg/Kg	*	69	30 - 127	4	45
Atrazine	ND		1.58	ND		mg/Kg	*	NC	52 - 126	NC	34
Benzaldehyde	ND	F1	1.58	ND	F1	mg/Kg	*	0	13 - 120	NC	45
Benzo[a]anthracene	0.18	J	0.791	0.626	J	mg/Kg	*	56	24 - 137	8	42
Benzo[a]pyrene	ND		0.791	0.582	J	mg/Kg	*	74	28 - 136	0	41
Benzo[b]fluoranthene	0.38	J	0.791	0.669	J	mg/Kg	*	36	21 - 142	3	42
Benzo[g,h,i]perylene	ND		0.791	0.630	J	mg/Kg	*	80	10 - 144	4	40
Benzo[k]fluoranthene	ND		0.791	0.607	J	mg/Kg	*	77	36 - 135	1	44
Bis(2-chloroethoxy)methane	ND	F1	0.791	ND	F1	mg/Kg	*	0	25 - 120	NC	45
Bis(2-chloroethyl)ether	ND	F1	0.791	ND	F1	mg/Kg	*	0	16 - 120	NC	45
Bis(2-ethylhexyl) phthalate	ND		0.791	ND		mg/Kg	*	NC	37 - 143	NC	38
Butyl benzyl phthalate	ND		0.791	1.32	J	mg/Kg	*	NC	49 - 130	3	41
Caprolactam	ND		1.58	ND		mg/Kg	*	NC	37 - 127	NC	45
Carbazole	ND		0.791	ND		mg/Kg	*	NC	33 - 132	NC	45
Chrysene	0.16	J	0.791	0.648	J	mg/Kg	*	61	28 - 129	10	42
Dibenz(a,h)anthracene	ND		0.791	0.625	J	mg/Kg	*	79	10 - 132	1	37
Dibenzofuran	ND	F1	0.791	0.629	J	mg/Kg	*	80	33 - 120	NC	43
Diethyl phthalate	ND		0.791	ND		mg/Kg	*	NC	48 - 120	NC	38
Dimethyl phthalate	ND	F1	0.791	ND	F1	mg/Kg	*	0	45 - 120	NC	43
Di-n-butyl phthalate	ND		0.791	ND		mg/Kg	*	NC	40 - 137	NC	42
Di-n-octyl phthalate	ND		0.791	1.90	J	mg/Kg	*	NC	34 - 152	3	39
Fluoranthene	0.21	J	0.791	0.583	J	mg/Kg	*	74	31 - 140	3	45
Fluorene	ND		0.791	0.552	J	mg/Kg	*	70	43 - 120	1	39
Hexachlorobenzene	ND		0.791	0.591	J	mg/Kg	*	75	44 - 120	3	39
Hexachlorobutadiene	ND	F1	0.791	ND	F1	mg/Kg	*	0	13 - 120	NC	45
Hexachlorocyclopentadiene	ND		0.791	ND		mg/Kg	*	NC	10 - 120	NC	45
Hexachloroethane	ND	F1	0.791	ND	F1	mg/Kg	*	0	10 - 120	NC	45
Indeno[1,2,3-cd]pyrene	ND		0.791	0.725		mg/Kg	*	92	10 - 139	1	41
Isophorone	ND	F1	0.791	ND	F1	mg/Kg	*	0	27 - 120	NC	45
N-Nitrosodi-n-propylamine	ND	F1	0.791	ND	F1	mg/Kg	*	0	23 - 120	NC	45
N-Nitrosodiphenylamine	ND	F1	0.791	ND	F1	mg/Kg	*	0	30 - 128	NC	44
Naphthalene	0.26	J	0.791	0.454	J	mg/Kg	*	25	10 - 120	1	45

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-182202-1 MSD

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566576

Prep Batch: 566295

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrobenzene	ND	F1	0.791	ND	F1	mg/Kg	☼	0	19 - 120	NC	45
Pentachlorophenol	ND		1.58	ND		mg/Kg	☼	NC	10 - 120	NC	45
Phenanthrene	0.51	J F1	0.791	0.748	F1	mg/Kg	☼	30	36 - 120	17	41
Phenol	ND		0.791	0.408	J	mg/Kg	☼	52	10 - 120	12	45
Pyrene	0.22	J	0.791	0.658	J	mg/Kg	☼	56	31 - 134	9	43
3 & 4 Methylphenol	ND		0.791	ND		mg/Kg	☼	NC	10 - 122	NC	45

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
Terphenyl-d14 (Surr)	85		46 - 137
Phenol-d5 (Surr)	58		26 - 120
Nitrobenzene-d5 (Surr)	42		25 - 120
2-Fluorophenol (Surr)	45		20 - 120
2-Fluorobiphenyl (Surr)	63		34 - 120
2,4,6-Tribromophenol (Surr)	55		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-566222/5-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566344

Prep Batch: 566222

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/21/23 12:08	03/22/23 13:36	1
Endrin	ND		0.00050	0.0000065	mg/L		03/21/23 12:08	03/22/23 13:36	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/21/23 12:08	03/22/23 13:36	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/21/23 12:08	03/22/23 13:36	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/21/23 12:08	03/22/23 13:36	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/21/23 12:08	03/22/23 13:36	1
Toxaphene	ND		0.020	0.000058	mg/L		03/21/23 12:08	03/22/23 13:36	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	71		10 - 145	03/21/23 12:08	03/22/23 13:36	1
DCB Decachlorobiphenyl	69		10 - 145	03/21/23 12:08	03/22/23 13:36	1
Tetrachloro-m-xylene	69		10 - 123	03/21/23 12:08	03/22/23 13:36	1
Tetrachloro-m-xylene	73		10 - 123	03/21/23 12:08	03/22/23 13:36	1

Lab Sample ID: LCS 240-566222/6-A

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566344

Prep Batch: 566222

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Endrin	0.00100	0.000894		mg/L		89	36 - 120
Heptachlor	0.00100	0.000851		mg/L		85	29 - 120
Heptachlor epoxide	0.00100	0.000846		mg/L		85	36 - 120
gamma-BHC (Lindane)	0.00100	0.000847		mg/L		85	23 - 120
Methoxychlor	0.00100	0.00105		mg/L		105	23 - 140

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 240-566222/6-A
Matrix: Solid
Analysis Batch: 566344

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566222

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	69		10 - 145
DCB Decachlorobiphenyl	67		10 - 145
Tetrachloro-m-xylene	65		10 - 123
Tetrachloro-m-xylene	71		10 - 123

Lab Sample ID: 240-182202-11 MS
Matrix: Solid
Analysis Batch: 566344

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)
Prep Type: TCLP
Prep Batch: 566222

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Endrin	ND		0.00100	0.000958		mg/L		96		58 - 120
Heptachlor	ND		0.00100	0.000862		mg/L		86		42 - 120
Heptachlor epoxide	ND		0.00100	0.000876		mg/L		88		54 - 120
gamma-BHC (Lindane)	ND		0.00100	0.000858		mg/L		86		32 - 120
Methoxychlor	ND		0.00100	0.00124		mg/L		124		11 - 159

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	84		10 - 145
DCB Decachlorobiphenyl	75		10 - 145
Tetrachloro-m-xylene	65		10 - 123
Tetrachloro-m-xylene	67		10 - 123

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 240-566161/1-A
Matrix: Solid
Analysis Batch: 566139

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566161

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Aroclor-1016	ND		50	25	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1221	ND		50	30	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1232	ND		50	21	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1242	ND		50	19	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1248	ND		50	17	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1254	ND		50	21	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1260	ND		50	21	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1262	ND		50	22	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	
Aroclor-1268	ND		50	16	ug/Kg		03/21/23 08:36	03/21/23 17:31	1	

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil	Fac
	%Recovery	Qualifier					
Tetrachloro-m-xylene	86		10 - 149	03/21/23 08:36	03/21/23 17:31	1	
DCB Decachlorobiphenyl	75		10 - 174	03/21/23 08:36	03/21/23 17:31	1	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCS 240-566161/2-A
Matrix: Solid
Analysis Batch: 566139

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aroclor-1016	1000	765		ug/Kg		76	28 - 140
Aroclor-1260	1000	762		ug/Kg		76	39 - 153
		LCS %Recovery	LCS Qualifier	Limits			
<i>Surrogate</i>							
Tetrachloro-m-xylene		98		10 - 149			
DCB Decachlorobiphenyl		83		10 - 174			

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-356959/2-A
Matrix: Solid
Analysis Batch: 356976

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 356959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	ND		0.0050	0.0010	mg/L		03/23/23 21:15	03/24/23 06:19	1
2,4-D	ND		0.050	0.016	mg/L		03/23/23 21:15	03/24/23 06:19	1
		MB %Recovery	MB Qualifier	Limits		Prepared		Analyzed	Dil Fac
<i>Surrogate</i>									
2,4-Dichlorophenylacetic acid (Surr)		52		26 - 136		03/23/23 21:15		03/24/23 06:19	1
2,4-Dichlorophenylacetic acid (Surr)		57		26 - 136		03/23/23 21:15		03/24/23 06:19	1

Lab Sample ID: LCS 410-356959/3-A
Matrix: Solid
Analysis Batch: 356976

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Silvex (2,4,5-TP)	0.00500	0.00355	J	mg/L		71	58 - 148
2,4-D	0.0502	0.0342	J	mg/L		68	42 - 147
		LCS %Recovery	LCS Qualifier	Limits			
<i>Surrogate</i>							
2,4-Dichlorophenylacetic acid (Surr)		58		26 - 136			
2,4-Dichlorophenylacetic acid (Surr)		64		26 - 136			

Lab Sample ID: LCSD 410-356959/4-A
Matrix: Solid
Analysis Batch: 356976

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 356959

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Silvex (2,4,5-TP)	0.00500	0.00365	J	mg/L		73	58 - 148	3	30
2,4-D	0.0502	0.0355	J	mg/L		71	42 - 147	4	30
		LCSD %Recovery	LCSD Qualifier	Limits		RPD		Limit	
<i>Surrogate</i>									
2,4-Dichlorophenylacetic acid (Surr)		60		26 - 136					
2,4-Dichlorophenylacetic acid (Surr)		67		26 - 136					

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: 240-182202-11 MS

Matrix: Solid

Analysis Batch: 356976

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Prep Type: TCLP

Prep Batch: 356959

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Silvex (2,4,5-TP)	ND		0.00500	0.00345	J	mg/L		69	58 - 148
2,4-D	ND		0.0502	0.0346	J	mg/L		69	42 - 147
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
2,4-Dichlorophenylacetic acid (Surr)	57		26 - 136						
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136						

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Lab Sample ID: MB 410-358137/1-A

Matrix: Solid

Analysis Batch: 358629

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 358137

Analyte	MB	MB	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3,4,6,7,8-HpCDD	0.258	J I	5.0	0.014	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,6,7,8-HpCDF	0.0936	J	5.0	0.0053	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,7,8-HxCDD	0.0678	J I	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,7,8-HxCDF	0.0721	J	5.0	0.0098	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,4,7,8,9-HpCDF	0.0748	J	5.0	0.0073	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,6,7,8-HxCDD	0.0928	J	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,6,7,8-HxCDF	0.0470	J I	5.0	0.0093	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8-PeCDD	0.121	J I	5.0	0.0048	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8-PeCDF	0.0800	J I	5.0	0.0040	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8,9-HxCDD	0.0491	J I	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
1,2,3,7,8,9-HxCDF	0.103	J I	5.0	0.011	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,4,6,7,8-HxCDF	0.0624	J	5.0	0.0087	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,4,7,8-PeCDF	0.0666	J	5.0	0.0029	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,7,8-TCDD	0.0322	J I	1.0	0.0056	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
2,3,7,8-TCDF	ND		1.0	0.0043	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
OCDD	0.959	J I	10	0.015	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
OCDF	0.206	J I	10	0.0041	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HxCDD	0.340	J I	5.0	0.010	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HxCDF	0.285	J I	5.0	0.0098	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HpCDD	0.258	J I	5.0	0.014	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total HpCDF	0.335	J I	5.0	0.0063	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total PeCDD	0.202	J I	5.0	0.0048	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total PeCDF	0.312	J I	5.0	0.0034	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total TCDD	0.0968	J I	1.0	0.0056	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
Total TCDF	ND		1.0	0.0043	ng/Kg		03/28/23 09:37	03/30/23 04:29	1
MB MB									
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
13C-OCDF	109		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-OCDD	113		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,7,8-TCDF	84		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,7,8-TCDD	91		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,4,7,8-PeCDF	88		40 - 135			03/28/23 09:37	03/30/23 04:29	1	
13C-2,3,4,6,7,8-HxCDF	91		40 - 135			03/28/23 09:37	03/30/23 04:29	1	

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: MB 410-358137/1-A
Matrix: Solid
Analysis Batch: 358629

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 358137

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,7,8,9-HxCDF	90		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,7,8,9-HxCDD	97		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,7,8-PeCDF	86		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,7,8-PeCDD	88		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,6,7,8-HxCDF	98		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,6,7,8-HxCDD	96		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,7,8,9-HpCDF	93		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,7,8-HxCDF	92		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,7,8-HxCDD	93		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,6,7,8-HpCDF	93		40 - 135	03/28/23 09:37	03/30/23 04:29	1
13C-1,2,3,4,6,7,8-HpCDD	100		40 - 135	03/28/23 09:37	03/30/23 04:29	1

Lab Sample ID: LCS 410-358137/2-A
Matrix: Solid
Analysis Batch: 358629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 358137

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
1,2,3,4,6,7,8-HpCDD	100	101		ng/Kg		101	77 - 127
1,2,3,4,6,7,8-HpCDF	100	99.3		ng/Kg		99	77 - 127
1,2,3,4,7,8-HxCDD	100	104		ng/Kg		104	77 - 127
1,2,3,4,7,8-HxCDF	100	101		ng/Kg		101	77 - 129
1,2,3,4,7,8,9-HpCDF	100	102		ng/Kg		102	77 - 127
1,2,3,6,7,8-HxCDD	100	104		ng/Kg		104	76 - 127
1,2,3,6,7,8-HxCDF	100	101		ng/Kg		101	77 - 129
1,2,3,7,8-PeCDD	100	109		ng/Kg		109	77 - 127
1,2,3,7,8-PeCDF	100	105		ng/Kg		105	75 - 129
1,2,3,7,8,9-HxCDD	100	105		ng/Kg		105	76 - 127
1,2,3,7,8,9-HxCDF	100	102		ng/Kg		102	76 - 126
2,3,4,6,7,8-HxCDF	100	102		ng/Kg		102	78 - 128
2,3,4,7,8-PeCDF	100	103		ng/Kg		103	75 - 131
2,3,7,8-TCDD	20.0	20.3		ng/Kg		101	68 - 142
2,3,7,8-TCDF	20.0	19.8		ng/Kg		99	70 - 133
OCDD	200	207		ng/Kg		104	77 - 125
OCDF	200	203		ng/Kg		102	75 - 128

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-OCDF	129		40 - 135
13C-OCDD	133		40 - 135
13C-2,3,7,8-TCDF	88		40 - 135
13C-2,3,7,8-TCDD	93		40 - 135
13C-2,3,4,7,8-PeCDF	100		40 - 135
13C-2,3,4,6,7,8-HxCDF	93		40 - 135
13C-1,2,3,7,8,9-HxCDF	91		40 - 135
13C-1,2,3,7,8,9-HxCDD	98		40 - 135
13C-1,2,3,7,8-PeCDF	96		40 - 135
13C-1,2,3,7,8-PeCDD	98		40 - 135
13C-1,2,3,6,7,8-HxCDF	98		40 - 135
13C-1,2,3,6,7,8-HxCDD	102		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	103		40 - 135

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS) (Continued)

Lab Sample ID: LCS 410-358137/2-A
Matrix: Solid
Analysis Batch: 358629

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 358137

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-1,2,3,4,7,8-HxCDF	94		40 - 135
13C-1,2,3,4,7,8-HxCDD	98		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	92		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	103		40 - 135

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-566210/2-A
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566210

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 17:02	1
Barium	ND		0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 17:02	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 17:02	1
Chromium	ND		0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 17:02	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 17:02	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 17:02	1
Silver	0.00116	J	0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 17:02	1

Lab Sample ID: LCS 240-566210/3-A
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566210

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec	Limits
		Result	Qualifier					
Arsenic	2.00	2.11		mg/L		106		50 - 150
Barium	2.00	1.93		mg/L		96		50 - 150
Cadmium	1.00	0.983		mg/L		98		50 - 150
Chromium	1.00	1.02		mg/L		102		50 - 150
Lead	1.00	0.940		mg/L		94		50 - 150
Selenium	2.00	2.18		mg/L		109		50 - 150
Silver	0.100	0.107		mg/L		107		50 - 150

Lab Sample ID: LB 240-566126/1-B
Matrix: Solid
Analysis Batch: 566447

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 566210

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	0.00499	J	0.050	0.0041	mg/L		03/21/23 14:00	03/22/23 16:58	1
Barium	0.00246	J	0.50	0.0013	mg/L		03/21/23 14:00	03/22/23 16:58	1
Cadmium	ND		0.050	0.00020	mg/L		03/21/23 14:00	03/22/23 16:58	1
Chromium	ND		0.050	0.0040	mg/L		03/21/23 14:00	03/22/23 16:58	1
Lead	ND		0.050	0.0028	mg/L		03/21/23 14:00	03/22/23 16:58	1
Selenium	ND		0.050	0.0060	mg/L		03/21/23 14:00	03/22/23 16:58	1
Silver	ND		0.050	0.00062	mg/L		03/21/23 14:00	03/22/23 16:58	1

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 240-182202-18 MS

Matrix: Solid
Analysis Batch: 566447

Client Sample ID: WC-SB2418-ABSORBENTS

Prep Type: TCLP
Prep Batch: 566210

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Arsenic	0.0082	J B	5.00	5.13		mg/L		102		75 - 125
Barium	0.036	J B	50.0	46.9		mg/L		94		75 - 125
Cadmium	0.00034	J	1.00	0.952		mg/L		95		75 - 125
Chromium	ND		5.00	5.20	^+	mg/L		104		75 - 125
Lead	0.0066	J	5.00	4.82		mg/L		96		75 - 125
Selenium	ND		1.00	1.07		mg/L		107		75 - 125
Silver	ND		1.00	1.05	^+	mg/L		105		75 - 125

Lab Sample ID: 240-182202-18 MSD

Matrix: Solid
Analysis Batch: 566447

Client Sample ID: WC-SB2418-ABSORBENTS

Prep Type: TCLP
Prep Batch: 566210

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Arsenic	0.0082	J B	5.00	5.20		mg/L		104		75 - 125	1	20
Barium	0.036	J B	50.0	47.3		mg/L		95		75 - 125	1	20
Cadmium	0.00034	J	1.00	0.955		mg/L		95		75 - 125	0	20
Chromium	ND		5.00	5.20	^+	mg/L		104		75 - 125	0	20
Lead	0.0066	J	5.00	4.85		mg/L		97		75 - 125	1	20
Selenium	ND		1.00	1.04		mg/L		104		75 - 125	2	20
Silver	ND		1.00	1.06	^+	mg/L		106		75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-566212/2-A

Matrix: Solid
Analysis Batch: 566547

Client Sample ID: Method Blank

Prep Type: Total/NA
Prep Batch: 566212

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:22	1

Lab Sample ID: LCS 240-566212/3-A

Matrix: Solid
Analysis Batch: 566547

Client Sample ID: Lab Control Sample

Prep Type: Total/NA
Prep Batch: 566212

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	Limits
Mercury	0.00500	0.00429		mg/L		86		80 - 120

Lab Sample ID: LB 240-566126/1-C

Matrix: Solid
Analysis Batch: 566547

Client Sample ID: Method Blank

Prep Type: TCLP
Prep Batch: 566212

Analyte	LB	LB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/21/23 14:00	03/23/23 16:20	1

Lab Sample ID: 240-182202-18 MS

Matrix: Solid
Analysis Batch: 566547

Client Sample ID: WC-SB2418-ABSORBENTS

Prep Type: TCLP
Prep Batch: 566212

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier					
Mercury	ND		0.00500	0.00433		mg/L		87		80 - 120

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: 240-182202-18 MSD
Matrix: Solid
Analysis Batch: 566547

Client Sample ID: WC-SB2418-ABSORBENTS
Prep Type: TCLP
Prep Batch: 566212

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00441		mg/L		88	80 - 120	2	20

Method: Moisture - Percent Moisture

Lab Sample ID: 240-182202-12 DU
Matrix: Solid
Analysis Batch: 566074

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	79.7		78.3		%		2	20
Percent Moisture	20.3		21.7		%		7	20

Lab Sample ID: 240-182202-1 DU
Matrix: Solid
Analysis Batch: 566207

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	84.0		85.2		%		1	20
Percent Moisture	16.0		14.8		%		8	20

Lab Sample ID: 240-182202-10 DU
Matrix: Solid
Analysis Batch: 566207

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Solids	79.4		79.6		%		0.2	20
Percent Moisture	20.6		20.4		%		0.8	20

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS VOA

Composite Batch: 566084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	Composite	

Prep Batch: 566108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	5035	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	5035	
MB 240-566108/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-566108/2-A	Lab Control Sample	Total/NA	Solid	5035	

Prep Batch: 566125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	5035	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	5035	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	5035	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	5035	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	5035	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	5035	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	5035	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	5035	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	5035	
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	5035	
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	5035	
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	5035	
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	5035	
MB 240-566125/2-A	Method Blank	Total/NA	Solid	5035	
MB 240-566125/3-A	Method Blank	Total/NA	Solid	5035	

Leach Batch: 566129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	566084
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	566084
LB 240-566129/1-A MB	Method Blank	TCLP	Solid	1311	

Analysis Batch: 566133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8260D	566125
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	8260D	566125
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	8260D	566125
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	8260D	566125
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	8260D	566125
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	8260D	566125
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
MB 240-566108/1-A	Method Blank	Total/NA	Solid	8260D	566108
MB 240-566125/2-A	Method Blank	Total/NA	Solid	8260D	566125
MB 240-566133/7	Method Blank	Total/NA	Solid	8260D	
LCS 240-566108/2-A	Lab Control Sample	Total/NA	Solid	8260D	566108

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS VOA (Continued)

Analysis Batch: 566133 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-566133/6	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 566249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	8260D	566125
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	8260D	566108
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	8260D	566125
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	8260D	566125
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	8260D	566125
MB 240-566125/3-A	Method Blank	Total/NA	Solid	8260D	566125
LCS 240-566249/3	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 566260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	8260D	566108

Analysis Batch: 566367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8260D	566129
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8260D	566129
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8260D	566129
LB 240-566129/1-A MB	Method Blank	TCLP	Solid	8260D	566129
LCS 240-566367/10	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 566719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	5035	
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	5035	
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	5035	
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	5035	
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	5035	
MB 240-566719/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-566719/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-182202-22 MS	WC-SB1905-ABSORBENTS	Total/NA	Solid	5035	
240-182202-22 MSD	WC-SB1905-ABSORBENTS	Total/NA	Solid	5035	

Analysis Batch: 566725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	8260D	566719
MB 240-566719/1-A	Method Blank	Total/NA	Solid	8260D	566719
LCS 240-566719/2-A	Lab Control Sample	Total/NA	Solid	8260D	566719

Analysis Batch: 566934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-22 MS	WC-SB1905-ABSORBENTS	Total/NA	Solid	8260D	566719
240-182202-22 MSD	WC-SB1905-ABSORBENTS	Total/NA	Solid	8260D	566719

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS Semi VOA

Composite Batch: 566084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	Composite	

Leach Batch: 566127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	566084
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	566084

Prep Batch: 566221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	3510C	566127
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	3510C	566127
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	3510C	566127
MB 240-566221/8-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-566221/9-A	Lab Control Sample	Total/NA	Solid	3510C	

Prep Batch: 566295

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	3540C	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	3540C	
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	3540C	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	3540C	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	3540C	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	3540C	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	3540C	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	3540C	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	3540C	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	3540C	
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	3540C	
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	3540C	
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	3540C	
MB 240-566295/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-566295/2-A	Lab Control Sample	Total/NA	Solid	3540C	
240-182202-1 MS	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	3540C	
240-182202-1 MSD	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	3540C	

Analysis Batch: 566449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8270E	566221
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8270E	566221
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8270E	566221
MB 240-566221/8-A	Method Blank	Total/NA	Solid	8270E	566221
LCS 240-566221/9-A	Lab Control Sample	Total/NA	Solid	8270E	566221

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC/MS Semi VOA

Analysis Batch: 566576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8270E	566295
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	8270E	566295
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	8270E	566295
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	8270E	566295
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	8270E	566295
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	8270E	566295
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	8270E	566295
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	8270E	566295
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	8270E	566295
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	8270E	566295
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	8270E	566295
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	8270E	566295
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	8270E	566295
MB 240-566295/1-A	Method Blank	Total/NA	Solid	8270E	566295
LCS 240-566295/2-A	Lab Control Sample	Total/NA	Solid	8270E	566295
240-182202-1 MS	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8270E	566295
240-182202-1 MSD	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	8270E	566295

GC Semi VOA

Leach Batch: 356514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	

Prep Batch: 356959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356514
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8151A	356514
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8151A	356514
MB 410-356959/2-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-356959/3-A	Lab Control Sample	Total/NA	Solid	8151A	
LCSD 410-356959/4-A	Lab Control Sample Dup	Total/NA	Solid	8151A	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356514

Analysis Batch: 356976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356959
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8151A	356959
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8151A	356959
MB 410-356959/2-A	Method Blank	Total/NA	Solid	8151A	356959
LCS 410-356959/3-A	Lab Control Sample	Total/NA	Solid	8151A	356959
LCSD 410-356959/4-A	Lab Control Sample Dup	Total/NA	Solid	8151A	356959

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC Semi VOA (Continued)

Analysis Batch: 356976 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8151A	356959

Composite Batch: 566080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	Composite	

Composite Batch: 566084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	Composite	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	Composite	

Leach Batch: 566127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	1311	566084
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	1311	566084
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	1311	566084

Analysis Batch: 566139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	8082A	566161
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	8082A	566161
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	8082A	566161
MB 240-566161/1-A	Method Blank	Total/NA	Solid	8082A	566161
LCS 240-566161/2-A	Lab Control Sample	Total/NA	Solid	8082A	566161

Prep Batch: 566161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	3546	566080
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	3546	566080
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	3546	566080
MB 240-566161/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-566161/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 566222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	3510C	566127
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	3510C	566127
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	3510C	566127
MB 240-566222/5-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-566222/6-A	Lab Control Sample	Total/NA	Solid	3510C	
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	3510C	566127

Analysis Batch: 566344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8081B	566222
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	TCLP	Solid	8081B	566222

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

GC Semi VOA (Continued)

Analysis Batch: 566344 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-17	WC-COMP-SOIL + DEBRIS	TCLP	Solid	8081B	566222
MB 240-566222/5-A	Method Blank	Total/NA	Solid	8081B	566222
LCS 240-566222/6-A	Lab Control Sample	Total/NA	Solid	8081B	566222
240-182202-11 MS	WC-S. TRACK-DEEP-COMP (01-05)	TCLP	Solid	8081B	566222

Specialty Organics

Prep Batch: 358137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	HRMS-Soxtherm	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	HRMS-Soxtherm	
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	HRMS-Soxtherm	
MB 410-358137/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-358137/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 358629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	8290A	358137
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	8290A	358137
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	8290A	358137
MB 410-358137/1-A	Method Blank	Total/NA	Solid	8290A	358137
LCS 410-358137/2-A	Lab Control Sample	Total/NA	Solid	8290A	358137

Metals

Leach Batch: 566126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	1311	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	1311	
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	1311	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	1311	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	1311	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	1311	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	1311	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	1311	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	1311	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	1311	
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	1311	
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	1311	
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	1311	
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	1311	
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	1311	
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	1311	
LB 240-566126/1-B	Method Blank	TCLP	Solid	1311	
LB 240-566126/1-C	Method Blank	TCLP	Solid	1311	
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	1311	
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	1311	

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Metals

Prep Batch: 566210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	3010A	566126
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	3010A	566126
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	3010A	566126
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	3010A	566126
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	3010A	566126
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	3010A	566126
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	3010A	566126
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	3010A	566126
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	3010A	566126
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	3010A	566126
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	3010A	566126
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	3010A	566126
LB 240-566126/1-B	Method Blank	TCLP	Solid	3010A	566126
MB 240-566210/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-566210/3-A	Lab Control Sample	Total/NA	Solid	3010A	
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	3010A	566126
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	3010A	566126

Prep Batch: 566212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	7470A	566126
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	7470A	566126
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	7470A	566126
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	7470A	566126
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	7470A	566126
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	7470A	566126
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	7470A	566126
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	7470A	566126
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	7470A	566126
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	7470A	566126
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	7470A	566126
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	7470A	566126
LB 240-566126/1-C	Method Blank	TCLP	Solid	7470A	566126
MB 240-566212/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-566212/3-A	Lab Control Sample	Total/NA	Solid	7470A	
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566126
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566126

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Metals

Analysis Batch: 566447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	6010D	566210
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	6010D	566210
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	6010D	566210
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	6010D	566210
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	6010D	566210
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	6010D	566210
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	6010D	566210
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	6010D	566210
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	6010D	566210
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	6010D	566210
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	6010D	566210
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	6010D	566210
LB 240-566126/1-B	Method Blank	TCLP	Solid	6010D	566210
MB 240-566210/2-A	Method Blank	Total/NA	Solid	6010D	566210
LCS 240-566210/3-A	Lab Control Sample	Total/NA	Solid	6010D	566210
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	6010D	566210
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	6010D	566210

Analysis Batch: 566547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	TCLP	Solid	7470A	566212
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	TCLP	Solid	7470A	566212
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	TCLP	Solid	7470A	566212
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	TCLP	Solid	7470A	566212
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	TCLP	Solid	7470A	566212
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	TCLP	Solid	7470A	566212
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	TCLP	Solid	7470A	566212
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	TCLP	Solid	7470A	566212
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	TCLP	Solid	7470A	566212
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	TCLP	Solid	7470A	566212
240-182202-13	WC-SB1188-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-14	WC-AMU112-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-15	WC-SB2655-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-16	WC-SB2455-SOIL + DEBRIS	TCLP	Solid	7470A	566212
240-182202-18	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-19	WC-SB1833-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-20	WC-SB2446-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-21	WC-SB1450-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-22	WC-SB1905-ABSORBENTS	TCLP	Solid	7470A	566212
LB 240-566126/1-C	Method Blank	TCLP	Solid	7470A	566212
MB 240-566212/2-A	Method Blank	Total/NA	Solid	7470A	566212
LCS 240-566212/3-A	Lab Control Sample	Total/NA	Solid	7470A	566212
240-182202-18 MS	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566212
240-182202-18 MSD	WC-SB2418-ABSORBENTS	TCLP	Solid	7470A	566212

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QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

General Chemistry

Analysis Batch: 566074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	Moisture	566080
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Moisture	566080
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	Moisture	566080
240-182202-12 DU	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Moisture	566080

Composite Batch: 566080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-11	WC-S. TRACK-DEEP-COMP (01-05)	Total/NA	Solid	Composite	
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Composite	
240-182202-17	WC-COMP-SOIL + DEBRIS	Total/NA	Solid	Composite	
240-182202-12 DU	WC-S. TRACK-DEEP-COMP (06-10)	Total/NA	Solid	Composite	

Analysis Batch: 566207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-1	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	Moisture	
240-182202-2	WC-S. TRACK-DEEP-02 (6-8')	Total/NA	Solid	Moisture	
240-182202-3	WC-S. TRACK-DEEP-03 (8-10')	Total/NA	Solid	Moisture	
240-182202-4	WC-S. TRACK-DEEP-04 (6-8')	Total/NA	Solid	Moisture	
240-182202-5	WC-S. TRACK-DEEP-05 (4-6')	Total/NA	Solid	Moisture	
240-182202-6	WC-S. TRACK-DEEP-06 (4-6')	Total/NA	Solid	Moisture	
240-182202-7	WC-S. TRACK-DEEP-07 (4-6')	Total/NA	Solid	Moisture	
240-182202-8	WC-S. TRACK-DEEP-08 (2-4')	Total/NA	Solid	Moisture	
240-182202-9	WC-S. TRACK-DEEP-09 (2-4')	Total/NA	Solid	Moisture	
240-182202-10	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	Moisture	
240-182202-13	WC-SB1188-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-14	WC-AMU112-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-15	WC-SB2655-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-16	WC-SB2455-SOIL + DEBRIS	Total/NA	Solid	Moisture	
240-182202-1 DU	WC-S. TRACK-DEEP-01 (8-10')	Total/NA	Solid	Moisture	
240-182202-10 DU	WC-S. TRACK-DEEP-10 (4-6')	Total/NA	Solid	Moisture	

Organic Prep

Analysis Batch: 566094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182202-18	WC-SB2418-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-19	WC-SB1833-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-20	WC-SB2446-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-21	WC-SB1450-ABSORBENTS	Total/NA	Solid	Part Size Red	
240-182202-22	WC-SB1905-ABSORBENTS	Total/NA	Solid	Part Size Red	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:41
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:34
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-01 (8-10')

Lab Sample ID: 240-182202-1

Date Collected: 03/18/23 09:01

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 10:48
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		40	566576	MRU	EET CAN	03/24/23 11:10

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:45
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:36
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-02 (6-8')

Lab Sample ID: 240-182202-2

Date Collected: 03/18/23 09:10

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 21:06
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 14:23
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		10	566576	MRU	EET CAN	03/24/23 13:04

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:50
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:38
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-03 (8-10')

Lab Sample ID: 240-182202-3

Date Collected: 03/18/23 09:39

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566108	LAM	EET CAN	03/20/23 14:08
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 23:37
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		20	566576	MRU	EET CAN	03/24/23 12:41

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:55
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:41
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-04 (6-8')

Lab Sample ID: 240-182202-4

Date Collected: 03/18/23 09:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566108	LAM	EET CAN	03/20/23 14:08
Total/NA	Analysis	8260D		10	566260	TJL2	EET CAN	03/22/23 05:06
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		50	566576	MRU	EET CAN	03/24/23 12:19

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:59
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:48
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-05 (4-6')

Lab Sample ID: 240-182202-5

Date Collected: 03/18/23 11:08

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 21:31
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		4	566576	MRU	EET CAN	03/24/23 13:27

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:04
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:50
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-06 (4-6')

Lab Sample ID: 240-182202-6

Date Collected: 03/18/23 11:15

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 11:09
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 14:13

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:08
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:52
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-07 (4-6')

Lab Sample ID: 240-182202-7

Date Collected: 03/18/23 11:33

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 76.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 11:30
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 16:07

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:21
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:54
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-08 (2-4')

Lab Sample ID: 240-182202-8

Date Collected: 03/18/23 11:40

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 21:57
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 14:35

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:25
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:56
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-09 (2-4')

Lab Sample ID: 240-182202-9

Date Collected: 03/18/23 11:51

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 78.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 12:13
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 13:50

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:30
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 16:58
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-S. TRACK-DEEP-10 (4-6')

Lab Sample ID: 240-182202-10

Date Collected: 03/18/23 12:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 14:00
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 16:30

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566129	DRJ	EET CAN	03/20/23 17:20 - 03/21/23 09:25 ¹
TCLP	Analysis	8260D		1	566367	AJS	EET CAN	03/22/23 16:16
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566221	SDE	EET CAN	03/21/23 12:03
TCLP	Analysis	8270E		1	566449	MRU	EET CAN	03/23/23 15:15
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566222	SDE	EET CAN	03/21/23 12:08
TCLP	Analysis	8081B		1	566344	BPM	EET CAN	03/22/23 14:07
TCLP	Leach	1311			356514	UNWS	ELLE	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	8151A			356959	K2IL	ELLE	03/23/23 21:15
TCLP	Analysis	8151A		1	356976	UAMZ	ELLE	03/24/23 08:39
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54

Client Sample ID: WC-S. TRACK-DEEP-COMP (01-05)

Lab Sample ID: 240-182202-11

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 80.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54
Total/NA	Prep	3546			566161	BMB	EET CAN	03/21/23 08:36
Total/NA	Analysis	8082A		1	566139	LSH	EET CAN	03/21/23 16:42
Total/NA	Prep	HRMS-Soxtherm			358137	UJSZ	ELLE	03/28/23 09:37
Total/NA	Analysis	8290A		1	358629	DZ6A	ELLE	03/29/23 22:49

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566129	DRJ	EET CAN	03/20/23 17:20 - 03/21/23 09:25 ¹
TCLP	Analysis	8260D		1	566367	AJS	EET CAN	03/22/23 16:39
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566221	SDE	EET CAN	03/21/23 12:03
TCLP	Analysis	8270E		1	566449	MRU	EET CAN	03/23/23 15:38
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566222	SDE	EET CAN	03/21/23 12:08
TCLP	Analysis	8081B		1	566344	BPM	EET CAN	03/22/23 14:39

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			356514	UNWS	ELLE	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	8151A			356959	K2IL	ELLE	03/23/23 21:15
TCLP	Analysis	8151A		1	356976	UAMZ	ELLE	03/24/23 09:07
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54

Client Sample ID: WC-S. TRACK-DEEP-COMP (06-10)

Lab Sample ID: 240-182202-12

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 79.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54
Total/NA	Prep	3546			566161	BMB	EET CAN	03/21/23 08:36
Total/NA	Analysis	8082A		1	566139	LSH	EET CAN	03/21/23 16:59
Total/NA	Prep	HRMS-Soxtherm			358137	UJSZ	ELLE	03/28/23 09:37
Total/NA	Analysis	8290A		1	358629	DZ6A	ELLE	03/29/23 23:38

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:35
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:00
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-SB1188-SOIL + DEBRIS

Lab Sample ID: 240-182202-13

Date Collected: 03/18/23 13:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 60.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566249	CS	EET CAN	03/21/23 22:22
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 18:24

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:39
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:02
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-AMU112-SOIL + DEBRIS

Lab Sample ID: 240-182202-14

Date Collected: 03/18/23 14:05

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 82.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 12:56
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 16:52

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:44
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:04
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-SB2655-SOIL + DEBRIS

Lab Sample ID: 240-182202-15

Date Collected: 03/18/23 14:35

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 13:17
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		2	566576	MRU	EET CAN	03/24/23 17:15

Lab Chronicle

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:48
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:06
Total/NA	Analysis	Moisture		1	566207	MS	EET CAN	03/21/23 11:05

Client Sample ID: WC-SB2455-SOIL + DEBRIS

Lab Sample ID: 240-182202-16

Date Collected: 03/18/23 14:20

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 85.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566125	LAM	EET CAN	03/19/23 13:00
Total/NA	Analysis	8260D		1	566133	TJL2	EET CAN	03/21/23 13:38
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 18:47

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566129	DRJ	EET CAN	03/20/23 17:20 - 03/21/23 09:25 ¹
TCLP	Analysis	8260D		1	566367	AJS	EET CAN	03/22/23 17:02
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566221	SDE	EET CAN	03/21/23 12:03
TCLP	Analysis	8270E		1	566449	MRU	EET CAN	03/23/23 16:00
TCLP	Composite	Composite			566084	DRJ	EET CAN	03/20/23 11:54
TCLP	Leach	1311			566127	DRJ	EET CAN	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	3510C			566222	SDE	EET CAN	03/21/23 12:08
TCLP	Analysis	8081B		1	566344	BPM	EET CAN	03/22/23 14:54
TCLP	Leach	1311			356514	UNWS	ELLE	03/20/23 16:45 - 03/21/23 08:50 ¹
TCLP	Prep	8151A			356959	K2IL	ELLE	03/23/23 21:15
TCLP	Analysis	8151A		1	356976	UAMZ	ELLE	03/24/23 09:35
Total/NA	Analysis	Moisture		1	566074	GH	EET CAN	03/20/23 11:50
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-COMP-SOIL + DEBRIS

Lab Sample ID: 240-182202-17

Date Collected: 03/18/23 00:00

Matrix: Solid

Date Received: 03/18/23 18:42

Percent Solids: 61.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566080	DRJ	EET CAN	03/20/23 11:54
Total/NA	Prep	3546			566161	BMB	EET CAN	03/21/23 08:36
Total/NA	Analysis	8082A		1	566139	LSH	EET CAN	03/21/23 17:15
Total/NA	Prep	HRMS-Soxtherm			358137	UJSZ	ELLE	03/28/23 09:37
Total/NA	Analysis	8290A		1	358629	DZ6A	ELLE	03/30/23 00:26

Client Sample ID: WC-SB2418-ABSORBENTS

Lab Sample ID: 240-182202-18

Date Collected: 03/18/23 14:45

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		1	566725	TJL2	EET CAN	03/25/23 12:44
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 15:21
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 17:11
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 18:05
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Client Sample ID: WC-SB1833-ABSORBENTS

Lab Sample ID: 240-182202-19

Date Collected: 03/18/23 15:00

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		1	566725	TJL2	EET CAN	03/25/23 13:06
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 14:58
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:53
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:13
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Client Sample ID: WC-SB2446-ABSORBENTS

Lab Sample ID: 240-182202-20

Date Collected: 03/18/23 15:10

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		1	566725	TJL2	EET CAN	03/25/23 13:27
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		1	566576	MRU	EET CAN	03/24/23 15:44
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 18:58
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:15
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Client Sample ID: WC-SB1450-ABSORBENTS

Lab Sample ID: 240-182202-21

Date Collected: 03/18/23 15:25

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		20	566934	TJL2	EET CAN	03/28/23 08:39
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		5	566576	MRU	EET CAN	03/24/23 17:38
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 19:02
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:17
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 11:00

Client Sample ID: WC-SB1905-ABSORBENTS

Lab Sample ID: 240-182202-22

Date Collected: 03/18/23 15:35

Matrix: Solid

Date Received: 03/18/23 18:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566719	LAM	EET CAN	03/24/23 22:04
Total/NA	Analysis	8260D		4	566934	TJL2	EET CAN	03/28/23 09:00
Total/NA	Prep	3540C			566295	AJ	EET CAN	03/22/23 08:13
Total/NA	Analysis	8270E		4	566576	MRU	EET CAN	03/24/23 18:01
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	3010A			566210	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	6010D		1	566447	KLC	EET CAN	03/22/23 19:15
TCLP	Leach	1311			566126	DRJ	EET CAN	03/20/23 17:40 - 03/21/23 09:45 ¹
TCLP	Prep	7470A			566212	AJC	EET CAN	03/21/23 14:00
TCLP	Analysis	7470A		1	566547	MRL	EET CAN	03/23/23 17:19
Total/NA	Analysis	Part Size Red		1	566094	DRJ	EET CAN	03/20/23 12:54

¹ Completion dates and times are reported or not reported per method requirements or individual lab discretion.

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

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Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Laboratory: Eurofins Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-23 *
Connecticut	State	PH-0590	12-31-23
Florida	NELAP	E87225	06-30-23
Georgia	State	4062	02-28-24
Illinois	NELAP	200004	07-31-23
Iowa	State	421	06-01-23
Kentucky (UST)	State	112225	02-27-23 *
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-23 *
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-23
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	02-28-24
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alaska	State	PA00009	06-30-23
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-23
California	State	2792	11-30-23
Colorado	State	PA00009	06-30-23
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24
Florida	NELAP	E87997	07-02-23
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-23
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-23
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-23
Massachusetts	State	M-PA009	06-30-23
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Canton

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-23
New York	NELAP	10670	04-01-23
North Carolina (DW)	State	42705	07-31-23
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	R-205	08-31-23
Oregon	NELAP	PA200001	09-11-23
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-22-45	08-31-23
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-23
Virginia	NELAP	460182	06-14-23
Washington	State	C457	04-11-23
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-23
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

Chain of Custody Record

644942



Environment Testing America

TAL-9210

Address:

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>Wen Artrup</u>		Site Contact:		Date: <u>3/15/23</u>		COC No: <u>2</u> of <u>2</u> COCs	
Company Name: <u>Arcadis</u>		Tel/Email: <u>NSO Artrup@arcadis.com</u>		Lab Contact:		Carrier:		Sampler:	
City/State/Zip: <u>Blaugfield VA 24065</u>		Analysis Turnaround Time		Perform MS / MSD (Y / N)		Filtered Sample (Y / N)		For Lab Use Only:	
Phone: <u>304-396-9424</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Sample Date		Sample Type (C-Comp, G-Grab)		Walk-in Client:	
Fax:		TAT if different from Below		Sample Time		Matrix		Lab Sampling:	
Project Name: <u>NS E. Pulshine OH Dr. Treatment</u>		<input type="checkbox"/> 2 weeks <u>RUSH</u>		Sample Date		# of Cont.		Job / SDG No.:	
Site: <u>E. Pulshine OH</u>		<input type="checkbox"/> 1 week		Sample Date		Matrix		Sample Specific Notes:	
P.O.#		<input type="checkbox"/> 2 days		Sample Date		Matrix			
		<input type="checkbox"/> 1 day		Sample Date		Matrix			
WC-S.Track-deep-01 (8-10')	3/15/23	9:01	G	S	9				
WC-S.Track-deep-02 (6-8')	3/15/23	9:10	G	S	9				
WC-S.Track-deep-03 (8-10')	3/15/23	9:39	G	S	9				
WC-S.Track-deep-04 (6-8')	3/15/23	9:40	G	S	9				
WC-S.Track-deep-05 (4-6')	3/14/23	11:08	G	S	9				
WC-S.Track-deep-06 (4-6')	3/18/23	11:15	G	S	9				
WC-S.Track-deep-07 (4-6')	3/19/23	11:33	G	S	9				
WC-S.Track-deep-08 (2-4')	3/19/23	11:40	G	S	9				
WC-S.Track-deep-09 (2-4')	3/19/23	11:51	G	S	9				
WC-S.Track-deep-10 (4-6')	3/19/23	12:00	G	S	9				
WC-S.Track-deep-COMP01-05	3/15/23	-	C	S	-				
WC-S.Track-deep-COMP (06-10)	3/15/23	-	C	S	-				

240-182202 Chain of Custody

LAB TO GENERATE 5-pt COMPOSITE

LAB TO GENERATE 5-pt COMPOSITE

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. WD43

Special Instructions/QC Requirements & Comments:

Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C):	Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: <u>Mphille Clayton</u>	Company: <u>Arcadis</u>	Date/Time: <u>3/15/23 1000</u>	Received by: <u>Wen Artrup</u>	Company: <u>Arcadis</u>	Date/Time: <u>3-18-23 17:22</u>
Relinquished by: <u>Wen Artrup</u>	Company: <u>ETNC</u>	Date/Time: <u>3/18/23 1842</u>	Received by: <u>Wen Artrup</u>	Company: <u>ETNC</u>	Date/Time: <u>3-18-23 1842</u>
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:



Chain of Custody Record

644941



Environment Testing
America

Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: JASON ARTRIP		Site Contact:		Carrier:		Date: 3-13-23		COC No: 1 of 1					
Company Name: Arcadis		Tel/Email: Jason.Artrip@arcadis.com		Lab Contact:		Carrier:		Date: 3-13-23		COC No: 1 of 1					
Address: 111-D Sanders Lane		Analysis Turnaround Time		Performs MS/MSD (Y/N)		Carrier:		Date: 3-13-23		COC No: 1 of 1					
City/State/Zip: Bluefield VA 24605		CALENDAR DAYS		Filtered Sample (Y/N)		Carrier:		Date: 3-13-23		COC No: 1 of 1					
Phone: 304-3916-9424		WORKING DAYS		Matrix		Carrier:		Date: 3-13-23		COC No: 1 of 1					
Fax:		TAT if different from Below		# of Cont.		Carrier:		Date: 3-13-23		COC No: 1 of 1					
Project Name: N5 East Paleshore OH decont		2 weeks		Sample Type (C=Comp, G=Grab)		Carrier:		Date: 3-13-23		COC No: 1 of 1					
Site: East Paleshore OH		1 week		Sample Time		Carrier:		Date: 3-13-23		COC No: 1 of 1					
PO # 24030745		2 days		Sample Date		Carrier:		Date: 3-13-23		COC No: 1 of 1					
		1 day				Carrier:		Date: 3-13-23		COC No: 1 of 1					
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Performs MS/MSD (Y/N)	Total VOC	TCRP Metals	TCRP PCBs	TCRP VOC	TCRP SVOC	TCRP PEST/HERBS	Dioxins/Furans	Sample Specific Notes:
WC-SB1188 - Soil + Debris	3/10/23	1335	G	S	9	N	N	X	X	X	X	X	X	X	
WC-APMU117 - Soil + Debris	3/10/23	1405	G	S	9	N	N	X	X	X	X	X	X	X	
WC-SB2655 - Soil + Debris	3/10/23	1435	G	S	9	N	N	X	X	X	X	X	X	X	
WC-SB2455 - Soil + Debris	3/10/23	1420	G	S	9	N	N	X	X	X	X	X	X	X	
WC-Comp - Soil + Debris	3/18/23	-	C	S	X	N	N	X	X	X	X	X	X	X	
WC-SB2418 - Absorbents	3/10/23	1445	G	SW	2	N	N	X	X	X	X	X	X	X	
WC-SB1833 - Absorbents	3/10/23	1500	G	W	2	N	N	X	X	X	X	X	X	X	
WC-SB2446 - Absorbents	3/10/23	1510	G	W	2	N	N	X	X	X	X	X	X	X	
WC-SB1450 - Absorbents	3/10/23	1525	G	W	2	N	N	X	X	X	X	X	X	X	
WC-SB1405 - Absorbents	3/10/23	1535	G	W	2	N	N	X	X	X	X	X	X	X	
<p>Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other</p> <p>Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. 14043</p> <p><input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown</p> <p>Special Instructions/QC Requirements & Comments:</p>															
<p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months</p>															
<p>Received by: Jason Umbreit Date/Time: 3/18/23 17:22</p> <p>Received by: Jason Umbreit Date/Time: 3/18/23 18:42</p> <p>Received in Laboratory by: Jason Umbreit Date/Time: 3-18-23 1842</p>															



Eurofins - Canton Sample Receipt Form/Narrative Login # : _____
Barberton Facility

Client Arcaadis Site Name NSRR-ER Cooler unpacked by: Jane
Cooler Received on 3-18-23 Opened on 3-20-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____


Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

Eurofins Cooler # EC Foam Box Client Cooler Box _____ Other _____
Packing material used: Bubble Wrap Foam Plastic Bag ~~None~~ Other the
COOLANT: Wet Ice Blue Ice Dry Ice Water None 3-20-23

1. Cooler temperature upon receipt See Multiple Cooler Form
IR GUN # IR-13 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-16 (CF -0.1 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
IR GUN # IR-17 (CF -0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity lea Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC293086
14. Were VOAs on the COC? Yes No NA
15. Were air bubbles >6 mm in any VOA vials? Yes No NA  ← Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No NA
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No NA

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page Samples processed by: _____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)				Sampler: DelMonico, Michael	Lab PM: DelMonico, Michael	Carrier Tracking No(s):	COC No: 240-165212.1		
Client Contact: Shipping/Receiving				Phone:	E-Mail: Michael.DelMonico@et.eurofinsus.com	State of Origin: Ohio	Page: Page 1 of 1		
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):			Job #: 240-182202-1		
Address: 2425 New Holland Pike,		Due Date Requested: 3/27/2023		Analysis Requested				Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
City: Lancaster		TAT Requested (days):							
State, Zip: PA, 17601		PO #:							
Phone: 717-656-2300(Tel)		WO #:							
Email:		Project #: 24030745							
Project Name: NSEP - Privileged & Confidential		SSOW#:		Field Filtered Sample (Yes or No)		Total Number of Containers			
Site:		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Perform MS/MSD (Yes or No)		8290A/HRMS_Soxtim_P 8290 17 + Totals			
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	8151A/1311_T TCLP Analyte List		Special Instructions/Note:		
				Preservation Code:					
WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11)		3/18/23	Eastern	Solid	X	X	1		
WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12)		3/18/23	Eastern	Solid	X	X	1		
WC-COMP-SOIL + DEBRIS (240-182202-17)		3/18/23	Eastern	Solid	X	X	1		
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.									
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:				Date:	Time:	Method of Shipment:			
Relinquished by:		Date/Time:		Company:	Received by:		Date/Time:	Company:	
Relinquished by:		Date/Time:		Company:	Received by:		Date/Time:	Company:	
Relinquished by:		Date/Time:		Company:	Received by:		Date/Time:	Company:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					
△ Yes △ No				0.5					



Eurofins Canton

180 S. Van Buren Avenue
 Barberton, OH 44203
 Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record



Client Information (Sub Contract Lab)				Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:							
Client Contact: Shipping/Receiving				Phone:	DelMonico, Michael	E-Mail:	240-165255.1							
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):			Page: Page 1 of 1							
Address: 2425 New Holland Pike,				Due Date Requested: 3/27/2023	Analysis Requested			Job #: 240-182202-1						
City: Lancaster				TAT Requested (days):				Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8280A/HRMS_Soxtim_P 8280 17 + Totals				
State, Zip: PA, 17601				PO #:							8151A/1311_T TCLP Analyte List	8151A/8151A_AP TCLP Analyte List	Total Number of containers	
Phone: 717-656-2300(Tel)				WO #:										Special Instructions/Note:
Email:				Project #: 24030745										
Project Name: NS East Palestine				SSOW#:	Preservation Codes:									
Site:				Matrix (W=water, S=solid, O=wastef/ol, BT=Tissue, A=Air)		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)								
Sample Identification - Client ID (Lab ID)				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Preservation Code:							
WC-S. TRACK-DEEP-COMP (01-05) (240-182202-11)				3/18/23	Eastern	Solid	X	X	X	1				
WC-S. TRACK-DEEP-COMP (06-10) (240-182202-12)				3/18/23	Eastern	Solid	X	X	X	1				
WC-COMP-SOIL + DEBRIS (240-182202-17)				3/18/23	Eastern	Solid	X	X	X	1				
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.				Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Unconfirmed				Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2						
Empty Kit Relinquished by:				Date:				Time:						
Relinquished by: <i>Rachel Harold</i>				Date/Time: <i>3/22/23 1315</i>				Company: <i>BETN</i>						
Relinquished by:				Date/Time:				Company:						
Relinquished by:				Date/Time:				Company:						
Custody Seals Intact: Δ Yes Δ No				Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <i>2.4</i>						

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Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-182202-1

Login Number: 182202

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 03/21/23 10:52 AM

Creator: Ballard, Megan

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

Isotope Dilution Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182202-1

Method: 8290A - Dioxins and Furans (HRGC/HRMS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		OCDF (40-135)	OCDD (40-135)	TCDF (40-135)	TCDD (40-135)	PeCF (40-135)	13CHxCF (40-135)	HxCF (40-135)	13CHxCD (40-135)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	100	104	72	77	75	74	75	78
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	91	95	66	72	73	71	69	73
240-182202-17	WC-COMP-SOIL + DEBRIS	66	70	48	54	53	50	49	55
LCS 410-358137/2-A	Lab Control Sample	129	133	88	93	100	93	91	98
MB 410-358137/1-A	Method Blank	109	113	84	91	88	91	90	97

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PeCDF (40-135)	PeCDD (40-135)	HxDF (40-135)	HxDD (40-135)	HpCDF2 (40-135)	HxCDF (40-135)	HxCDD (40-135)	HpCDF (40-135)
240-182202-11	WC-S. TRACK-DEEP-COMP (0	73	72	78	78	81	75	75	75
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	72	72	72	75	75	70	71	71
240-182202-17	WC-COMP-SOIL + DEBRIS	53	54	54	57	54	53	55	52
LCS 410-358137/2-A	Lab Control Sample	96	98	98	102	103	94	98	92
MB 410-358137/1-A	Method Blank	86	88	98	96	93	92	93	93

Lab Sample ID	Client Sample ID	HpCDD (40-135)
		240-182202-11
240-182202-12	WC-S. TRACK-DEEP-COMP (06-10)	78
240-182202-17	WC-COMP-SOIL + DEBRIS	60
LCS 410-358137/2-A	Lab Control Sample	103
MB 410-358137/1-A	Method Blank	100

Surrogate Legend

- OCDF = 13C-OCDF
- OCDD = 13C-OCDD
- TCDF = 13C-2,3,7,8-TCDF
- TCDD = 13C-2,3,7,8-TCDD
- PeCF = 13C-2,3,4,7,8-PeCDF
- 13CHxCF = 13C-2,3,4,6,7,8-HxCDF
- HxCF = 13C-1,2,3,7,8,9-HxCDF
- 13CHxCD = 13C-1,2,3,7,8,9-HxCDD
- PeCDF = 13C-1,2,3,7,8-PeCDF
- PeCDD = 13C-1,2,3,7,8-PeCDD
- HxDF = 13C-1,2,3,6,7,8-HxCDF
- HxDD = 13C-1,2,3,6,7,8-HxCDD
- HpCDF2 = 13C-1,2,3,4,7,8,9-HpCDF
- HxCDF = 13C-1,2,3,4,7,8-HxCDF
- HxCDD = 13C-1,2,3,4,7,8-HxCDD
- HpCDF = 13C-1,2,3,4,6,7,8-HpCDF
- HpCDD = 13C-1,2,3,4,6,7,8-HpCDD

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ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

Generated 4/5/2023 4:23:30 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182548-1

Eurofins Canton

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Authorized for release by
Michael DeMonico, Project Manager I
Michael.DeMonico@et.eurofinsus.com
(330)497-9396



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
H	Sample was prepped or analyzed beyond the specified holding time
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Dioxin

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent

Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

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Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Job ID: 240-182548-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182548-1

Comments

No additional comments.

Receipt

The samples were received on 3/25/2023 6:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.3° C, 2.2° C and 2.7° C.

GC/MS VOA

Method 5035: The following sample(s) were received in pre-weighed containers with a label that was added in the field, which would cause a slight low bias in the final results. WC-S. TRACK-SP2-01 (2-3') (240-182548-1), WC-S. TRACK-SP2-02 (2-3') (240-182548-2), WC-S. TRACK-SP2-03 (4-5') (240-182548-3), WC-S. TRACK-SP2-04 (4-5') (240-182548-4), WC-S. TRACK-SP2-05 (6-7') (240-182548-5), WC-S. TRACK-SP2-06 (2-3') (240-182548-6), WC-S. TRACK-SP2-07 (3-4') (240-182548-7), WC-S. TRACK-SP2-08 (7-8') (240-182548-8), WC-S. TRACK-SP2-09 (9-10') (240-182548-9), WC-S. TRACK-SP2-10 (5-6') (240-182548-10), (240-182548-A-10 MS) and (240-182548-A-10 MSD).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-566934 recovered above the upper control limit for: Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-567081 recovered above the upper control limit for 1,1,2,2-Tetrachloroethane, Bromomethane, Chloroethane, Dichlorodifluoromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8260D: The laboratory control sample (LCS) for preparation batch 240-567049 and 240-566928 and analytical batch 240-567081 recovered outside control limits for the following analyte: Acetone. Acetone has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

Method 8260D: The method blank for preparation batch 240-567049 and 240-566928 and analytical batch 240-567081 contained Acetone above the reporting limit (RL). This compound is considered a common laboratory contaminant. The associated samples were not re-extracted and/or re-analyzed because the concentration of the common lab contaminant in the method blank was less than 5 times the RL.

Method 8260D: Surrogate recovery for the following sample was outside of acceptance limits: WC-S. TRACK-SP2-01 (2-3') (240-182548-1). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-567084 was outside the method criteria for the following analytes: 1,2-Dibromo-3-Chloropropane and Dichloro-difluoromethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes are considered estimated.

Method 8260D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-567049 and analytical batch 240-567084.

Method 8260D: The laboratory control sample (LCS) for preparation batch 240-567049 and analytical batch 240-567084 recovered outside control limits for the following analyte: Acetone. These analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The following sample was preserved via freezing on 3-26-23 at 12:51: WC-S. TRACK-SP2-01 (2-3') (240-182548-1), WC-S. TRACK-SP2-02 (2-3') (240-182548-2) and WC-S. TRACK-SP2-05 (6-7') (240-182548-5). This is outside the 48 hour time frame required by the method.

Method 8260D: The method blank for 240-567049 contained Acetone above the reporting limit (RL). This compound is considered a

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Job ID: 240-182548-1 (Continued)

Laboratory: Eurofins Canton (Continued)

common laboratory contaminant. The associated sample was not re-extracted and/or re-analyzed because the concentration of the common lab contaminant in the method blank was less than 5 times the RL.

Method 8260D: A MS/MSD was prepared for batch 240-566928, but was analyzed in a different analytical batch: WC-S. TRACK-SP2-03 (4-5') (240-182548-3) and WC-S. TRACK-SP2-09 (9-10') (240-182548-9).

Method 8260D: This sample had a reanalysis that had different results than the original analysis. This is most likely due to non-homogeneity in the sample. Both runs are reported: WC-S. TRACK-SP2-09 (9-10') (240-182548-9)

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-567279 was outside the method criteria for the following analytes: 1,2-Dibromo-3-Chloropropane; 1,2-Dichloropropane; Chloromethane; Methyl tert-butyl ether; and trans-1,3-Dichloropropene. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analytes are considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The following samples were diluted to bring the concentration of target analytes within the calibration range: WC-S. TRACK-SP2-01 (2-3') (240-182548-1), WC-S. TRACK-SP2-02 (2-3') (240-182548-2), WC-S. TRACK-SP2-03 (4-5') (240-182548-3), WC-S. TRACK-SP2-04 (4-5') (240-182548-4), WC-S. TRACK-SP2-05 (6-7') (240-182548-5), WC-S. TRACK-SP2-06 (2-3') (240-182548-6), WC-S. TRACK-SP2-07 (3-4') (240-182548-7), WC-S. TRACK-SP2-08 (7-8') (240-182548-8), WC-S. TRACK-SP2-09 (9-10') (240-182548-9), WC-S. TRACK-SP2-10 (5-6') (240-182548-10), (240-182548-G-10-C MS) and (240-182548-G-10-D MSD). Elevated reporting limits (RLs) are provided.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-567268 recovered above the upper control limit for 2-Nitrophenol. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The following samples are impacted: WC-S. TRACK-SP2-01 (2-3') (240-182548-1), WC-S. TRACK-SP2-02 (2-3') (240-182548-2), WC-S. TRACK-SP2-03 (4-5') (240-182548-3), WC-S. TRACK-SP2-04 (4-5') (240-182548-4), WC-S. TRACK-SP2-05 (6-7') (240-182548-5), WC-S. TRACK-SP2-06 (2-3') (240-182548-6), WC-S. TRACK-SP2-07 (3-4') (240-182548-7), WC-S. TRACK-SP2-08 (7-8') (240-182548-8), WC-S. TRACK-SP2-09 (9-10') (240-182548-9) and WC-S. TRACK-SP2-10 (5-6') (240-182548-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8082A: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WC-S. TRACK-SP2-COMP01-05 (240-182548-11) and WC-S. TRACK-SP2-COMP06-10 (240-182548-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Dioxin

Method 8290A: Any peak area that is the result of interferences from poly-chlorinated diphenyl ethers observed in the sample has been removed from the calculated results prior to reporting the data for totals.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Job ID: 240-182548-1 (Continued)

Laboratory: Eurofins Canton (Continued)

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Dioxin Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Method Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8081B	Organochlorine Pesticides (GC)	SW846	EET CAN
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET CAN
8151A	Herbicides (GC)	SW846	ELLE
8290A	Dioxins and Furans (HRGC/HRMS)	SW846	ELLE
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
Moisture	Percent Moisture	EPA	EET CAN
1311	TCLP Extraction	SW846	EET CAN
1311	TCLP Extraction	SW846	ELLE
3010A	Preparation, Total Metals	SW846	EET CAN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAN
3540C	Soxhlet Extraction	SW846	EET CAN
3546	Microwave Extraction	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
5035	Closed System Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN
8151A	Extraction (Herbicides)	SW846	ELLE
Composite	Sample Compositing	None	EET CAN
HRMS-Soxtherm	Soxtherm Extraction	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAN = Eurofins Canton, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	Solid	03/24/23 11:00	03/25/23 18:35
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	Solid	03/24/23 11:11	03/25/23 18:35
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Solid	03/24/23 11:22	03/25/23 18:35
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	Solid	03/24/23 11:38	03/25/23 18:35
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	Solid	03/24/23 11:50	03/25/23 18:35
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Solid	03/24/23 12:05	03/25/23 18:35
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	Solid	03/24/23 12:13	03/25/23 18:35
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	Solid	03/24/23 13:00	03/25/23 18:35
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Solid	03/24/23 13:25	03/25/23 18:35
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	Solid	03/24/23 13:40	03/25/23 18:35
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Solid	03/24/23 00:00	03/25/23 18:35
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Solid	03/24/23 00:00	03/25/23 18:35



Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-01 (2-3')

Lab Sample ID: 240-182548-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0081	J H	0.016	0.0029	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.054	H *+ B	0.021	0.017	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.0040	J H	0.0041	0.00057	mg/Kg	1	✳	8260D	Total/NA
Carbon disulfide	0.00096	J H	0.0041	0.00096	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.024	J	0.034	0.0045	mg/Kg	2	✳	8270E	Total/NA
Benzo[a]anthracene	0.013	J	0.034	0.0078	mg/Kg	2	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.027	J	0.034	0.015	mg/Kg	2	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.026	J	0.034	0.016	mg/Kg	2	✳	8270E	Total/NA
Chrysene	0.017	J	0.034	0.0034	mg/Kg	2	✳	8270E	Total/NA
Fluoranthene	0.022	J	0.034	0.010	mg/Kg	2	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.019	J	0.034	0.017	mg/Kg	2	✳	8270E	Total/NA
Naphthalene	0.013	J	0.034	0.0055	mg/Kg	2	✳	8270E	Total/NA
Phenanthrene	0.040		0.034	0.0051	mg/Kg	2	✳	8270E	Total/NA
Pyrene	0.029	J	0.034	0.0049	mg/Kg	2	✳	8270E	Total/NA
2-Butoxyethanol	1.2		0.16	0.15	mg/Kg	2	✳	8270E	Total/NA
Arsenic	0.0085	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.16	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0022	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-02 (2-3')

Lab Sample ID: 240-182548-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0037	J H	0.019	0.0034	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.022	J H B *+	0.024	0.020	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	0.074	H	0.048	0.019	mg/Kg	1	✳	8260D	Total/NA
Methyl acrylate	0.0053	J H	0.0096	0.0030	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.79	J	0.90	0.12	mg/Kg	50	✳	8270E	Total/NA
Benzo[a]anthracene	0.39	J	0.90	0.20	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.66	J	0.90	0.39	mg/Kg	50	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.41	J	0.90	0.41	mg/Kg	50	✳	8270E	Total/NA
Chrysene	0.53	J	0.90	0.089	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	0.75	J	0.90	0.27	mg/Kg	50	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.51	J	0.90	0.44	mg/Kg	50	✳	8270E	Total/NA
Naphthalene	0.55	J	0.90	0.14	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	0.95		0.90	0.13	mg/Kg	50	✳	8270E	Total/NA
Pyrene	0.67	J	0.90	0.13	mg/Kg	50	✳	8270E	Total/NA
2-Butoxyethanol	59		4.2	3.9	mg/Kg	50	✳	8270E	Total/NA
Arsenic	0.013	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.18	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0024	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0034	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-03 (4-5')

Lab Sample ID: 240-182548-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.86	J	1.5	0.37	mg/Kg	1	✳	8260D	Total/NA
Benzene	0.17	J	0.38	0.064	mg/Kg	1	✳	8260D	Total/NA
Cyclohexane	2.2		0.76	0.25	mg/Kg	1	✳	8260D	Total/NA
Ethylbenzene	0.18	J	0.38	0.071	mg/Kg	1	✳	8260D	Total/NA
Isopropylbenzene	0.063	J	0.38	0.058	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.43	J	1.9	0.26	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	7.4		0.76	0.10	mg/Kg	1	✳	8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-03 (4-5') (Continued)

Lab Sample ID: 240-182548-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.79		0.38	0.36	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.38		0.38	0.19	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	2.6		0.76	0.14	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	2300		380	210	mg/Kg	100	✳	8260D	Total/NA
Methyl acrylate	2.7		0.76	0.18	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.21	J	0.25	0.084	mg/Kg	4	✳	8270E	Total/NA
2-Methylnaphthalene	1.1		0.074	0.0097	mg/Kg	4	✳	8270E	Total/NA
Acenaphthene	0.12		0.074	0.014	mg/Kg	4	✳	8270E	Total/NA
Acenaphthylene	0.036	J	0.074	0.020	mg/Kg	4	✳	8270E	Total/NA
Anthracene	0.096		0.074	0.012	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	0.28		0.074	0.017	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.20		0.074	0.046	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.28		0.074	0.032	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.19		0.074	0.035	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.10		0.074	0.034	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.45		0.074	0.0074	mg/Kg	4	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.065	J	0.074	0.034	mg/Kg	4	✳	8270E	Total/NA
Dibenzofuran	0.80		0.25	0.064	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.65		0.074	0.022	mg/Kg	4	✳	8270E	Total/NA
Fluorene	0.12		0.074	0.014	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.13		0.074	0.036	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.79		0.074	0.012	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	1.7		0.074	0.011	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.57		0.074	0.011	mg/Kg	4	✳	8270E	Total/NA
2-Butoxyethanol	6.4		0.35	0.32	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.0094	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.30	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0018	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-04 (4-5')

Lab Sample ID: 240-182548-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.12		0.070	0.0091	mg/Kg	4	✳	8270E	Total/NA
Acenaphthene	0.021	J	0.070	0.013	mg/Kg	4	✳	8270E	Total/NA
Anthracene	0.034	J	0.070	0.011	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	0.10		0.070	0.016	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.087		0.070	0.044	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.14		0.070	0.030	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.083		0.070	0.033	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.044	J	0.070	0.032	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.16		0.070	0.0069	mg/Kg	4	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.046	J	0.070	0.032	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.19		0.070	0.021	mg/Kg	4	✳	8270E	Total/NA
Fluorene	0.058	J	0.070	0.013	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.081		0.070	0.034	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.14		0.070	0.011	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	0.24		0.070	0.010	mg/Kg	4	✳	8270E	Total/NA
Phenol	0.038	J	0.23	0.037	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.16		0.070	0.010	mg/Kg	4	✳	8270E	Total/NA
2-Butoxyethanol	2.4		0.33	0.31	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.0082	J	0.050	0.0041	mg/L	1		6010D	TCLP

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-04 (4-5') (Continued)

Lab Sample ID: 240-182548-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.50	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0037	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0073	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0023	J B	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-05 (6-7')

Lab Sample ID: 240-182548-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.017	J H B **	0.018	0.015	mg/Kg	1	*	8260D	Total/NA
Benzene	0.0017	J H	0.0035	0.00049	mg/Kg	1	*	8260D	Total/NA
Vinyl chloride	0.0029	J H	0.0035	0.0012	mg/Kg	1	*	8260D	Total/NA
2-Methylnaphthalene	0.18		0.070	0.0092	mg/Kg	4	*	8270E	Total/NA
Acenaphthene	0.028	J	0.070	0.013	mg/Kg	4	*	8270E	Total/NA
Acenaphthylene	0.021	J	0.070	0.019	mg/Kg	4	*	8270E	Total/NA
Anthracene	0.052	J	0.070	0.011	mg/Kg	4	*	8270E	Total/NA
Benzo[a]anthracene	0.22		0.070	0.016	mg/Kg	4	*	8270E	Total/NA
Benzo[a]pyrene	0.20		0.070	0.044	mg/Kg	4	*	8270E	Total/NA
Benzo[b]fluoranthene	0.25		0.070	0.030	mg/Kg	4	*	8270E	Total/NA
Benzo[g,h,i]perylene	0.14		0.070	0.033	mg/Kg	4	*	8270E	Total/NA
Benzo[k]fluoranthene	0.10		0.070	0.032	mg/Kg	4	*	8270E	Total/NA
Chrysene	0.25		0.070	0.0070	mg/Kg	4	*	8270E	Total/NA
Dibenz(a,h)anthracene	0.057	J	0.070	0.032	mg/Kg	4	*	8270E	Total/NA
Dibenzofuran	0.092	J	0.23	0.061	mg/Kg	4	*	8270E	Total/NA
Fluoranthene	0.47		0.070	0.021	mg/Kg	4	*	8270E	Total/NA
Fluorene	0.029	J	0.070	0.013	mg/Kg	4	*	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.12		0.070	0.034	mg/Kg	4	*	8270E	Total/NA
Naphthalene	0.093		0.070	0.011	mg/Kg	4	*	8270E	Total/NA
Phenanthrene	0.26		0.070	0.010	mg/Kg	4	*	8270E	Total/NA
Pyrene	0.41		0.070	0.010	mg/Kg	4	*	8270E	Total/NA
2-Butoxyethanol	2.9		0.33	0.31	mg/Kg	4	*	8270E	Total/NA
Arsenic	0.0092	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.34	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0038	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0059	J	0.050	0.0028	mg/L	1		6010D	TCLP
Silver	0.0023	J B	0.050	0.00062	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-06 (2-3')

Lab Sample ID: 240-182548-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.049	J	0.24	0.040	mg/Kg	1	*	8260D	Total/NA
Methylcyclohexane	0.34	J	0.48	0.063	mg/Kg	1	*	8260D	Total/NA
Vinyl chloride	0.15	J	0.24	0.12	mg/Kg	1	*	8260D	Total/NA
Xylenes, Total	0.13	J	0.48	0.087	mg/Kg	1	*	8260D	Total/NA
Butyl acrylate	320		48	26	mg/Kg	20	*	8260D	Total/NA
Methyl acrylate	3.4		0.48	0.11	mg/Kg	1	*	8260D	Total/NA
2-Methylnaphthalene	0.29		0.089	0.012	mg/Kg	5	*	8270E	Total/NA
Acenaphthene	0.027	J	0.089	0.017	mg/Kg	5	*	8270E	Total/NA
Anthracene	0.038	J	0.089	0.014	mg/Kg	5	*	8270E	Total/NA
Benzaldehyde	0.14	J	0.59	0.14	mg/Kg	5	*	8270E	Total/NA
Benzo[a]anthracene	0.12		0.089	0.020	mg/Kg	5	*	8270E	Total/NA
Benzo[a]pyrene	0.098		0.089	0.055	mg/Kg	5	*	8270E	Total/NA
Benzo[b]fluoranthene	0.17		0.089	0.038	mg/Kg	5	*	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-06 (2-3') (Continued)

Lab Sample ID: 240-182548-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[g,h,i]perylene	0.081	J	0.089	0.042	mg/Kg	5	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.071	J	0.089	0.041	mg/Kg	5	✳	8270E	Total/NA
Chrysene	0.14		0.089	0.0088	mg/Kg	5	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.051	J	0.089	0.041	mg/Kg	5	✳	8270E	Total/NA
Dibenzofuran	0.11	J	0.30	0.077	mg/Kg	5	✳	8270E	Total/NA
Fluoranthene	0.26		0.089	0.026	mg/Kg	5	✳	8270E	Total/NA
Fluorene	0.030	J	0.089	0.016	mg/Kg	5	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.086	J	0.089	0.044	mg/Kg	5	✳	8270E	Total/NA
Naphthalene	0.18		0.089	0.014	mg/Kg	5	✳	8270E	Total/NA
Phenanthrene	0.25		0.089	0.013	mg/Kg	5	✳	8270E	Total/NA
Pyrene	0.24		0.089	0.013	mg/Kg	5	✳	8270E	Total/NA
2-Butoxyethanol	4.7		0.41	0.39	mg/Kg	5	✳	8270E	Total/NA
Arsenic	0.012	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.21	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0022	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-07 (3-4')

Lab Sample ID: 240-182548-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.16		0.069	0.0091	mg/Kg	4	✳	8270E	Total/NA
Acenaphthene	0.020	J	0.069	0.013	mg/Kg	4	✳	8270E	Total/NA
Anthracene	0.051	J	0.069	0.011	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	0.17		0.069	0.016	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.16		0.069	0.043	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.21		0.069	0.030	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.092		0.069	0.033	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.073		0.069	0.032	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.21		0.069	0.0069	mg/Kg	4	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.047	J	0.069	0.032	mg/Kg	4	✳	8270E	Total/NA
Dibenzofuran	0.069	J	0.23	0.060	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.37		0.069	0.021	mg/Kg	4	✳	8270E	Total/NA
Fluorene	0.028	J	0.069	0.013	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.090		0.069	0.034	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.11		0.069	0.011	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	0.24		0.069	0.010	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.32		0.069	0.0099	mg/Kg	4	✳	8270E	Total/NA
2-Butoxyethanol	2.8		0.32	0.30	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.012	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.53	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0030	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-08 (7-8')

Lab Sample ID: 240-182548-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.18	J	0.28	0.047	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	1.1	J	1.4	0.19	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.31	J	0.91	0.12	mg/Kg	50	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.47	J	0.91	0.39	mg/Kg	50	✳	8270E	Total/NA
Fluoranthene	0.27	J	0.91	0.27	mg/Kg	50	✳	8270E	Total/NA
Naphthalene	0.21	J	0.91	0.15	mg/Kg	50	✳	8270E	Total/NA
Phenanthrene	0.36	J	0.91	0.14	mg/Kg	50	✳	8270E	Total/NA
Pyrene	0.26	J	0.91	0.13	mg/Kg	50	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-08 (7-8') (Continued)

Lab Sample ID: 240-182548-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butoxyethanol	52		4.2	4.0	mg/Kg	50	✳	8270E	Total/NA
Arsenic	0.0082	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.56	B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0044	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-09 (9-10')

Lab Sample ID: 240-182548-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0063	J	0.016	0.0028	mg/Kg	1	✳	8260D	Total/NA
Acetone	0.018	J B *+	0.020	0.017	mg/Kg	1	✳	8260D	Total/NA
Vinyl chloride	0.24	E	0.0040	0.0014	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	17	E	0.040	0.015	mg/Kg	1	✳	8260D	Total/NA
Methyl acrylate	0.066		0.0080	0.0025	mg/Kg	1	✳	8260D	Total/NA
2-Methylnaphthalene	0.096		0.069	0.0091	mg/Kg	4	✳	8270E	Total/NA
Acenaphthylene	0.11		0.069	0.019	mg/Kg	4	✳	8270E	Total/NA
Anthracene	0.025	J	0.069	0.011	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]anthracene	0.14		0.069	0.016	mg/Kg	4	✳	8270E	Total/NA
Benzo[a]pyrene	0.36		0.069	0.043	mg/Kg	4	✳	8270E	Total/NA
Benzo[b]fluoranthene	0.36		0.069	0.030	mg/Kg	4	✳	8270E	Total/NA
Benzo[g,h,i]perylene	0.19		0.069	0.033	mg/Kg	4	✳	8270E	Total/NA
Benzo[k]fluoranthene	0.15		0.069	0.032	mg/Kg	4	✳	8270E	Total/NA
Chrysene	0.18		0.069	0.0069	mg/Kg	4	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.071		0.069	0.032	mg/Kg	4	✳	8270E	Total/NA
Fluoranthene	0.16		0.069	0.021	mg/Kg	4	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.20		0.069	0.034	mg/Kg	4	✳	8270E	Total/NA
Naphthalene	0.055	J	0.069	0.011	mg/Kg	4	✳	8270E	Total/NA
Phenanthrene	0.11		0.069	0.010	mg/Kg	4	✳	8270E	Total/NA
Pyrene	0.17		0.069	0.0099	mg/Kg	4	✳	8270E	Total/NA
2-Butoxyethanol	3.0		0.32	0.30	mg/Kg	4	✳	8270E	Total/NA
Arsenic	0.014	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.11	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0042	J	0.050	0.00020	mg/L	1		6010D	TCLP
Lead	0.0095	J	0.050	0.0028	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.14	J	0.21	0.035	mg/Kg	1	✳	8260D	Total/NA
Methyl acetate	0.16	J	1.0	0.14	mg/Kg	1	✳	8260D	Total/NA
Methylcyclohexane	0.19	J	0.41	0.054	mg/Kg	1	✳	8260D	Total/NA
Xylenes, Total	0.11	J	0.41	0.075	mg/Kg	1	✳	8260D	Total/NA
Butyl acrylate	8.6		2.1	1.1	mg/Kg	1	✳	8260D	Total/NA
1,1'-Biphenyl	0.31	J	0.59	0.20	mg/Kg	10	✳	8270E	Total/NA
2-Methylnaphthalene	1.4	F1	0.18	0.023	mg/Kg	10	✳	8270E	Total/NA
Acenaphthene	0.23		0.18	0.034	mg/Kg	10	✳	8270E	Total/NA
Acenaphthylene	0.078	J	0.18	0.047	mg/Kg	10	✳	8270E	Total/NA
Anthracene	0.32		0.18	0.028	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]anthracene	2.8	F1	0.18	0.040	mg/Kg	10	✳	8270E	Total/NA
Benzo[a]pyrene	2.2	F1	0.18	0.11	mg/Kg	10	✳	8270E	Total/NA
Benzo[b]fluoranthene	2.3	F1	0.18	0.076	mg/Kg	10	✳	8270E	Total/NA
Benzo[g,h,i]perylene	1.3	F1	0.18	0.083	mg/Kg	10	✳	8270E	Total/NA
Benzo[k]fluoranthene	1.0	F1	0.18	0.081	mg/Kg	10	✳	8270E	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-10 (5-6') (Continued)

Lab Sample ID: 240-182548-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbazole	0.25	J	0.59	0.22	mg/Kg	10	✳	8270E	Total/NA
Chrysene	3.0	F1	0.18	0.017	mg/Kg	10	✳	8270E	Total/NA
Dibenz(a,h)anthracene	0.34		0.18	0.081	mg/Kg	10	✳	8270E	Total/NA
Dibenzofuran	1.0		0.59	0.15	mg/Kg	10	✳	8270E	Total/NA
Fluoranthene	5.2		0.18	0.052	mg/Kg	10	✳	8270E	Total/NA
Fluorene	0.18		0.18	0.032	mg/Kg	10	✳	8270E	Total/NA
Indeno[1,2,3-cd]pyrene	1.1	F1	0.18	0.086	mg/Kg	10	✳	8270E	Total/NA
Naphthalene	1.1		0.18	0.028	mg/Kg	10	✳	8270E	Total/NA
Phenanthrene	2.3	F1	0.18	0.026	mg/Kg	10	✳	8270E	Total/NA
Pyrene	4.6		0.18	0.025	mg/Kg	10	✳	8270E	Total/NA
2-Butoxyethanol	8.5		0.82	0.77	mg/Kg	10	✳	8270E	Total/NA
Arsenic	0.013	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.35	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0013	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: WC-S. TRACK-SP2-COMP01-05

Lab Sample ID: 240-182548-11

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	73	B	5.8	0.043	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	220	B	5.8	0.037	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	4.3	J	5.8	0.017	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	60	B	5.8	0.28	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	44	B	5.8	0.049	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDD	7.5		5.8	0.018	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	47		5.8	0.29	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	4.4	J B	5.8	0.014	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	20		5.8	0.29	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	5.9	B	5.8	0.017	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	14	B	5.8	0.35	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	27	B	5.8	0.31	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	23	B	5.8	0.22	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	0.90	J B	1.2	0.0097	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	6.9		1.2	0.14	ng/Kg	1	✳	8290A	Total/NA
OCDD	290	B	12	0.041	ng/Kg	1	✳	8290A	Total/NA
OCDF	380	B	12	0.036	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	80	B	5.8	0.017	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	320	I B	5.8	0.31	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	150	B	5.8	0.043	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	360	B	5.8	0.043	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	43	I B	5.8	0.014	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	260	I B	5.8	0.25	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	20	I B	1.2	0.0097	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	170	I B	1.2	0.14	ng/Kg	1	✳	8290A	Total/NA

Client Sample ID: WC-S. TRACK-SP2-COMP06-10

Lab Sample ID: 240-182548-12

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,4,6,7,8-HpCDD	35	B	5.8	0.061	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,6,7,8-HpCDF	65	B	5.8	0.042	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDD	1.5	J	5.8	0.043	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8-HxCDF	18	B	5.8	0.16	ng/Kg	1	✳	8290A	Total/NA
1,2,3,4,7,8,9-HpCDF	13	B	5.8	0.056	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-COMP06-10 (Continued)

Lab Sample ID: 240-182548-12

Analyte	Result	Qualifier	RL	EDL	Unit	Dil Fac	D	Method	Prep Type
1,2,3,6,7,8-HxCDD	2.6	J	5.8	0.046	ng/Kg	1	✳	8290A	Total/NA
1,2,3,6,7,8-HxCDF	13		5.8	0.15	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDD	1.7	J B	5.8	0.038	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8-PeCDF	5.9		5.8	0.12	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDD	2.1	J B	5.8	0.042	ng/Kg	1	✳	8290A	Total/NA
1,2,3,7,8,9-HxCDF	4.0	J B	5.8	0.18	ng/Kg	1	✳	8290A	Total/NA
2,3,4,6,7,8-HxCDF	8.8	B	5.8	0.14	ng/Kg	1	✳	8290A	Total/NA
2,3,4,7,8-PeCDF	9.1	B	5.8	0.093	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDD	0.57	J B	1.2	0.018	ng/Kg	1	✳	8290A	Total/NA
2,3,7,8-TCDF	2.1		1.2	0.074	ng/Kg	1	✳	8290A	Total/NA
OCDD	200	B	12	0.080	ng/Kg	1	✳	8290A	Total/NA
OCDF	100	B	12	0.053	ng/Kg	1	✳	8290A	Total/NA
Total HxCDD	32	B	5.8	0.044	ng/Kg	1	✳	8290A	Total/NA
Total HxCDF	110	I B	5.8	0.16	ng/Kg	1	✳	8290A	Total/NA
Total HpCDD	81	B	5.8	0.061	ng/Kg	1	✳	8290A	Total/NA
Total HpCDF	110	B	5.8	0.049	ng/Kg	1	✳	8290A	Total/NA
Total PeCDD	20	I B	5.8	0.038	ng/Kg	1	✳	8290A	Total/NA
Total PeCDF	100	I B	5.8	0.11	ng/Kg	1	✳	8290A	Total/NA
Total TCDD	12	I B	1.2	0.018	ng/Kg	1	✳	8290A	Total/NA
Total TCDF	48	I B	1.2	0.074	ng/Kg	1	✳	8290A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-01 (2-3')

Lab Sample ID: 240-182548-1

Date Collected: 03/24/23 11:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	0.0041	0.0015	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,1,2,2-Tetrachloroethane	ND	H	0.0041	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	H	0.0041	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,1,2-Trichloroethane	ND	H	0.0041	0.00093	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,1-Dichloroethane	ND	H	0.0041	0.00057	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,1-Dichloroethene	ND	H	0.0041	0.0015	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,2,4-Trichlorobenzene	ND	H	0.0041	0.0021	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,2-Dibromo-3-Chloropropane	ND	H	0.0082	0.0030	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Ethylene Dibromide	ND	H	0.0041	0.00063	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,2-Dichlorobenzene	ND	H	0.0041	0.00091	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,2-Dichloroethane	ND	H	0.0041	0.00064	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,2-Dichloropropane	ND	H	0.0041	0.00070	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,3-Dichlorobenzene	ND	H	0.0041	0.00067	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
1,4-Dichlorobenzene	ND	H	0.0041	0.00073	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
2-Butanone (MEK)	0.0081	J H	0.016	0.0029	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
2-Hexanone	ND	H	0.016	0.0034	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
4-Methyl-2-pentanone (MIBK)	ND	H	0.016	0.0031	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Acetone	0.054	H * B	0.021	0.017	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Benzene	0.0040	J H	0.0041	0.00057	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Dichlorobromomethane	ND	H	0.0041	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Bromoform	ND	H	0.0041	0.0020	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Bromomethane	ND	H	0.0041	0.0034	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Carbon disulfide	0.00096	J H	0.0041	0.00096	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Carbon tetrachloride	ND	H	0.0041	0.0027	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Chlorobenzene	ND	H	0.0041	0.00075	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Chloroethane	ND	H	0.0041	0.0023	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Chloroform	ND	H	0.0041	0.00065	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Chloromethane	ND	H	0.0041	0.0019	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
cis-1,2-Dichloroethene	ND	H	0.0041	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
cis-1,3-Dichloropropene	ND	H	0.0041	0.0024	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Cyclohexane	ND	H	0.0082	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Chlorodibromomethane	ND	H	0.0041	0.0023	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Dichlorodifluoromethane	ND	H	0.0041	0.00078	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Ethylbenzene	ND	H	0.0041	0.00086	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Isopropylbenzene	ND	H	0.0041	0.0016	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Methyl acetate	ND	H	0.021	0.0028	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Methyl tert-butyl ether	ND	H	0.0041	0.0016	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Methylcyclohexane	ND	H	0.0082	0.0010	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Methylene Chloride	ND	H	0.021	0.0099	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Styrene	ND	H	0.0041	0.00095	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Tetrachloroethene	ND	H	0.0041	0.00060	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Toluene	ND	H	0.0041	0.00064	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
trans-1,2-Dichloroethene	ND	H	0.0041	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
trans-1,3-Dichloropropene	ND	H	0.0041	0.0031	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Trichloroethene	ND	H	0.0041	0.00052	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Trichlorofluoromethane	ND	H	0.0041	0.0022	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Vinyl chloride	ND	H	0.0041	0.0015	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Xylenes, Total	ND	H	0.0082	0.0013	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1
Butyl acrylate	ND	H	0.041	0.016	mg/Kg	✱	03/26/23 12:51	03/29/23 02:22	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-01 (2-3')

Lab Sample ID: 240-182548-1

Date Collected: 03/24/23 11:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.3

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND	H	0.0082	0.0025	mg/Kg	☼	03/26/23 12:51	03/29/23 02:22	1
2-Ethylhexyl acrylate	ND	H	0.041	0.019	mg/Kg	☼	03/26/23 12:51	03/29/23 02:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	123		56 - 125				03/26/23 12:51	03/29/23 02:22	1
Dibromofluoromethane (Surr)	105		41 - 138				03/26/23 12:51	03/29/23 02:22	1
4-Bromofluorobenzene (Surr)	132		41 - 143				03/26/23 12:51	03/29/23 02:22	1
1,2-Dichloroethane-d4 (Surr)	129	S1+	58 - 125				03/26/23 12:51	03/29/23 02:22	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.11	0.039	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
bis (2-chloroisopropyl) ether	ND		0.23	0.023	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,4,5-Trichlorophenol	ND		0.34	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,4,6-Trichlorophenol	ND		0.34	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,4-Dichlorophenol	ND		0.34	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,4-Dimethylphenol	ND		0.34	0.092	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,4-Dinitrophenol	ND		0.76	0.33	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,4-Dinitrotoluene	ND		0.46	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2,6-Dinitrotoluene	ND		0.46	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Chloronaphthalene	ND		0.11	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Chlorophenol	ND		0.11	0.023	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Methylnaphthalene	0.024	J	0.034	0.0045	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Methylphenol	ND		0.46	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Nitroaniline	ND		0.46	0.092	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Nitrophenol	ND		0.11	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
3,3'-Dichlorobenzidine	ND		0.23	0.099	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
3-Nitroaniline	ND		0.46	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4,6-Dinitro-2-methylphenol	ND		0.76	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4-Bromophenyl phenyl ether	ND		0.11	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4-Chloro-3-methylphenol	ND		0.34	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4-Chloroaniline	ND		0.34	0.069	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4-Chlorophenyl phenyl ether	ND		0.11	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4-Nitroaniline	ND		0.46	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
4-Nitrophenol	ND		0.76	0.22	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Acenaphthene	ND		0.034	0.0066	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Acenaphthylene	ND		0.034	0.0092	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Acetophenone	ND		0.23	0.025	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Anthracene	ND		0.034	0.0055	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Atrazine	ND		0.46	0.083	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Benzaldehyde	ND		0.23	0.053	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Benzo[a]anthracene	0.013	J	0.034	0.0078	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Benzo[a]pyrene	ND		0.034	0.021	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Benzo[b]fluoranthene	0.027	J	0.034	0.015	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Benzo[g,h,i]perylene	0.026	J	0.034	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Benzo[k]fluoranthene	ND		0.034	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Bis(2-chloroethoxy)methane	ND		0.23	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Bis(2-chloroethyl)ether	ND		0.23	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Bis(2-ethylhexyl) phthalate	ND		0.16	0.12	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Butyl benzyl phthalate	ND		0.16	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-01 (2-3')

Lab Sample ID: 240-182548-1

Date Collected: 03/24/23 11:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.3

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		0.76	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Carbazole	ND		0.11	0.044	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Chrysene	0.017	J	0.034	0.0034	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Dibenz(a,h)anthracene	ND		0.034	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Dibenzofuran	ND		0.11	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Diethyl phthalate	ND		0.16	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Dimethyl phthalate	ND		0.16	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Di-n-butyl phthalate	ND		0.16	0.12	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Di-n-octyl phthalate	ND		0.16	0.064	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Fluoranthene	0.022	J	0.034	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Fluorene	ND		0.034	0.0063	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Hexachlorobenzene	ND		0.034	0.0065	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Hexachlorobutadiene	ND		0.11	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Hexachlorocyclopentadiene	ND		0.76	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Hexachloroethane	ND		0.11	0.021	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Indeno[1,2,3-cd]pyrene	0.019	J	0.034	0.017	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Isophorone	ND		0.11	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
N-Nitrosodi-n-propylamine	ND		0.11	0.025	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
N-Nitrosodiphenylamine	ND		0.11	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Naphthalene	0.013	J	0.034	0.0055	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Nitrobenzene	ND		0.23	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Pentachlorophenol	ND		0.34	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Phenanthrene	0.040		0.034	0.0051	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Phenol	ND		0.11	0.018	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
Pyrene	0.029	J	0.034	0.0049	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
3 & 4 Methylphenol	ND		0.92	0.067	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2
2-Butoxyethanol	1.2		0.16	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 09:43	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	103		46 - 137	03/28/23 10:04	03/30/23 09:43	2
Phenol-d5 (Surr)	59		26 - 120	03/28/23 10:04	03/30/23 09:43	2
Nitrobenzene-d5 (Surr)	50		25 - 120	03/28/23 10:04	03/30/23 09:43	2
2-Fluorophenol (Surr)	56		20 - 120	03/28/23 10:04	03/30/23 09:43	2
2-Fluorobiphenyl (Surr)	65		34 - 120	03/28/23 10:04	03/30/23 09:43	2
2,4,6-Tribromophenol (Surr)	95		10 - 120	03/28/23 10:04	03/30/23 09:43	2

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0085	J	0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 14:58	1
Barium	0.16	J B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 14:58	1
Cadmium	0.0022	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 14:58	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 14:58	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 14:58	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 14:58	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 14:58	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:07	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-01 (2-3')

Lab Sample ID: 240-182548-1

Date Collected: 03/24/23 11:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.3		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	13.7		0.1	0.1	%			03/28/23 14:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-02 (2-3')

Lab Sample ID: 240-182548-2

Date Collected: 03/24/23 11:11

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 83.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	0.0048	0.0017	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,1,2,2-Tetrachloroethane	ND	H	0.0048	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	H	0.0048	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,1,2-Trichloroethane	ND	H	0.0048	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,1-Dichloroethane	ND	H	0.0048	0.00066	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,1-Dichloroethene	ND	H	0.0048	0.0017	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,2,4-Trichlorobenzene	ND	H	0.0048	0.0024	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,2-Dibromo-3-Chloropropane	ND	H	0.0096	0.0035	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Ethylene Dibromide	ND	H	0.0048	0.00074	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,2-Dichlorobenzene	ND	H	0.0048	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,2-Dichloroethane	ND	H	0.0048	0.00074	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,2-Dichloropropane	ND	H	0.0048	0.00082	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,3-Dichlorobenzene	ND	H	0.0048	0.00078	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
1,4-Dichlorobenzene	ND	H	0.0048	0.00085	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
2-Butanone (MEK)	0.0037	J H	0.019	0.0034	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
2-Hexanone	ND	H	0.019	0.0039	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
4-Methyl-2-pentanone (MIBK)	ND	H	0.019	0.0036	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Acetone	0.022	J H B **	0.024	0.020	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Benzene	ND	H	0.0048	0.00067	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Dichlorobromomethane	ND	H	0.0048	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Bromoform	ND	H	0.0048	0.0023	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Bromomethane	ND	H	0.0048	0.0040	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Carbon disulfide	ND	H	0.0048	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Carbon tetrachloride	ND	H	0.0048	0.0031	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Chlorobenzene	ND	H	0.0048	0.00088	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Chloroethane	ND	H	0.0048	0.0026	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Chloroform	ND	H	0.0048	0.00076	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Chloromethane	ND	H	0.0048	0.0022	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
cis-1,2-Dichloroethene	ND	H	0.0048	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
cis-1,3-Dichloropropene	ND	H	0.0048	0.0028	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Cyclohexane	ND	H	0.0096	0.0013	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Chlorodibromomethane	ND	H	0.0048	0.0027	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Dichlorodifluoromethane	ND	H	0.0048	0.00090	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Ethylbenzene	ND	H	0.0048	0.0010	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Isopropylbenzene	ND	H	0.0048	0.0018	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Methyl acetate	ND	H	0.024	0.0033	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Methyl tert-butyl ether	ND	H	0.0048	0.0019	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Methylcyclohexane	ND	H	0.0096	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Methylene Chloride	ND	H	0.024	0.012	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Styrene	ND	H	0.0048	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Tetrachloroethene	ND	H	0.0048	0.00070	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Toluene	ND	H	0.0048	0.00074	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
trans-1,2-Dichloroethene	ND	H	0.0048	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
trans-1,3-Dichloropropene	ND	H	0.0048	0.0036	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Trichloroethene	ND	H	0.0048	0.00061	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Trichlorofluoromethane	ND	H	0.0048	0.0026	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Vinyl chloride	ND	H	0.0048	0.0017	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Xylenes, Total	ND	H	0.0096	0.0015	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1
Butyl acrylate	0.074	H	0.048	0.019	mg/Kg	✱	03/26/23 12:51	03/29/23 02:47	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-02 (2-3')

Lab Sample ID: 240-182548-2

Date Collected: 03/24/23 11:11

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 83.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	0.0053	J H	0.0096	0.0030	mg/Kg	☼	03/26/23 12:51	03/29/23 02:47	1
2-Ethylhexyl acrylate	ND	H	0.048	0.023	mg/Kg	☼	03/26/23 12:51	03/29/23 02:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	120		56 - 125				03/26/23 12:51	03/29/23 02:47	1
Dibromofluoromethane (Surr)	106		41 - 138				03/26/23 12:51	03/29/23 02:47	1
4-Bromofluorobenzene (Surr)	129		41 - 143				03/26/23 12:51	03/29/23 02:47	1
1,2-Dichloroethane-d4 (Surr)	125		58 - 125				03/26/23 12:51	03/29/23 02:47	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.0	1.0	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
bis (2-chloroisopropyl) ether	ND		6.0	0.60	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,4,5-Trichlorophenol	ND		9.0	4.1	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,4,6-Trichlorophenol	ND		9.0	3.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,4-Dichlorophenol	ND		9.0	2.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,4-Dimethylphenol	ND		9.0	2.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,4-Dinitrophenol	ND		20	8.5	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,4-Dinitrotoluene	ND		12	3.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2,6-Dinitrotoluene	ND		12	3.3	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Chloronaphthalene	ND		3.0	0.84	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Chlorophenol	ND		3.0	0.60	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Methylnaphthalene	0.79	J	0.90	0.12	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Methylphenol	ND		12	1.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Nitroaniline	ND		12	2.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Nitrophenol	ND		3.0	0.78	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
3,3'-Dichlorobenzidine	ND		6.0	2.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
3-Nitroaniline	ND		12	2.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4,6-Dinitro-2-methylphenol	ND		20	4.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4-Bromophenyl phenyl ether	ND		3.0	0.84	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4-Chloro-3-methylphenol	ND		9.0	2.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4-Chloroaniline	ND		9.0	1.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4-Chlorophenyl phenyl ether	ND		3.0	0.84	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4-Nitroaniline	ND		12	3.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
4-Nitrophenol	ND		20	5.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Acenaphthene	ND		0.90	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Acenaphthylene	ND		0.90	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Acetophenone	ND		6.0	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Anthracene	ND		0.90	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Atrazine	ND		12	2.1	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Benzaldehyde	ND		6.0	1.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Benzo[a]anthracene	0.39	J	0.90	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Benzo[a]pyrene	ND		0.90	0.56	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Benzo[b]fluoranthene	0.66	J	0.90	0.39	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Benzo[g,h,i]perylene	ND		0.90	0.42	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Benzo[k]fluoranthene	0.41	J	0.90	0.41	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Bis(2-chloroethoxy)methane	ND		6.0	0.72	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Bis(2-chloroethyl)ether	ND		6.0	0.72	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Bis(2-ethylhexyl) phthalate	ND		4.2	3.0	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Butyl benzyl phthalate	ND		4.2	1.3	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-02 (2-3')

Lab Sample ID: 240-182548-2

Date Collected: 03/24/23 11:11

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 83.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		20	4.5	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Carbazole	ND		3.0	1.1	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Chrysene	0.53	J	0.90	0.089	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Dibenz(a,h)anthracene	ND		0.90	0.41	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Dibenzofuran	ND		3.0	0.78	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Diethyl phthalate	ND		4.2	1.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Dimethyl phthalate	ND		4.2	0.84	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Di-n-butyl phthalate	ND		4.2	3.0	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Di-n-octyl phthalate	ND		4.2	1.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Fluoranthene	0.75	J	0.90	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Fluorene	ND		0.90	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Hexachlorobenzene	ND		0.90	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Hexachlorobutadiene	ND		3.0	0.72	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Hexachlorocyclopentadiene	ND		20	3.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Hexachloroethane	ND		3.0	0.54	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Indeno[1,2,3-cd]pyrene	0.51	J	0.90	0.44	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Isophorone	ND		3.0	0.72	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
N-Nitrosodi-n-propylamine	ND		3.0	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
N-Nitrosodiphenylamine	ND		3.0	0.72	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Naphthalene	0.55	J	0.90	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Nitrobenzene	ND		6.0	0.78	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Pentachlorophenol	ND		9.0	3.5	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Phenanthrene	0.95		0.90	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Phenol	ND		3.0	0.48	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
Pyrene	0.67	J	0.90	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
3 & 4 Methylphenol	ND		24	1.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50
2-Butoxyethanol	59		4.2	3.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:06	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	135		46 - 137	03/28/23 10:04	03/30/23 10:06	50
Phenol-d5 (Surr)	109		26 - 120	03/28/23 10:04	03/30/23 10:06	50
Nitrobenzene-d5 (Surr)	76		25 - 120	03/28/23 10:04	03/30/23 10:06	50
2-Fluorophenol (Surr)	88		20 - 120	03/28/23 10:04	03/30/23 10:06	50
2-Fluorobiphenyl (Surr)	114		34 - 120	03/28/23 10:04	03/30/23 10:06	50
2,4,6-Tribromophenol (Surr)	102		10 - 120	03/28/23 10:04	03/30/23 10:06	50

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.013	J	0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:03	1
Barium	0.18	J B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:03	1
Cadmium	0.0024	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:03	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:03	1
Lead	0.0034	J	0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:03	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:03	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:03	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:10	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-02 (2-3')

Lab Sample ID: 240-182548-2

Date Collected: 03/24/23 11:11

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 83.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.8		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	16.2		0.1	0.1	%			03/28/23 14:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-03 (4-5')

Lab Sample ID: 240-182548-3

Date Collected: 03/24/23 11:22

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 81.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.38	0.12	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,1,2,2-Tetrachloroethane	ND		0.38	0.23	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.38	0.10	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,1,2-Trichloroethane	ND		0.38	0.087	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,1-Dichloroethane	ND		0.38	0.073	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,1-Dichloroethene	ND		0.38	0.12	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,2,4-Trichlorobenzene	ND		0.38	0.20	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,2-Dibromo-3-Chloropropane	ND		0.76	0.34	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Ethylene Dibromide	ND		0.38	0.12	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,2-Dichlorobenzene	ND		0.38	0.18	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,2-Dichloroethane	ND		0.38	0.071	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,2-Dichloropropane	ND		0.38	0.056	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,3-Dichlorobenzene	ND		0.38	0.070	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
1,4-Dichlorobenzene	ND		0.38	0.084	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
2-Butanone (MEK)	ND		1.5	0.24	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
2-Hexanone	ND		1.5	0.40	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
4-Methyl-2-pentanone (MIBK)	ND		1.5	0.36	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Acetone	0.86	J	1.5	0.37	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Benzene	0.17	J	0.38	0.064	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Dichlorobromomethane	ND		0.38	0.093	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Bromoform	ND		0.38	0.35	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Bromomethane	ND		0.38	0.25	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Carbon disulfide	ND		0.38	0.16	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Carbon tetrachloride	ND		0.38	0.16	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Chlorobenzene	ND		0.38	0.053	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Chloroethane	ND		0.38	0.23	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Chloroform	ND		0.38	0.082	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Chloromethane	ND		0.38	0.10	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
cis-1,2-Dichloroethene	ND		0.38	0.061	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
cis-1,3-Dichloropropene	ND		0.38	0.19	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Cyclohexane	2.2		0.76	0.25	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Chlorodibromomethane	ND		0.38	0.18	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Dichlorodifluoromethane	ND		0.38	0.081	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Ethylbenzene	0.18	J	0.38	0.071	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Isopropylbenzene	0.063	J	0.38	0.058	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Methyl acetate	0.43	J	1.9	0.26	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Methyl tert-butyl ether	ND		0.38	0.056	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Methylcyclohexane	7.4		0.76	0.10	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Methylene Chloride	ND		0.76	0.58	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Styrene	ND		0.38	0.079	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Tetrachloroethene	ND		0.38	0.15	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Toluene	0.79		0.38	0.36	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
trans-1,2-Dichloroethene	ND		0.38	0.094	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
trans-1,3-Dichloropropene	ND		0.38	0.16	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Trichloroethene	ND		0.38	0.22	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Trichlorofluoromethane	ND		0.38	0.21	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Vinyl chloride	0.38		0.38	0.19	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Xylenes, Total	2.6		0.76	0.14	mg/Kg	✱	03/27/23 18:16	03/30/23 19:08	1
Butyl acrylate	2300		380	210	mg/Kg	✱	03/27/23 18:16	03/28/23 10:25	100

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-03 (4-5')

Lab Sample ID: 240-182548-3

Date Collected: 03/24/23 11:22

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 81.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	2.7		0.76	0.18	mg/Kg	☼	03/27/23 18:16	03/30/23 19:08	1
2-Ethylhexyl acrylate	ND		3.8	2.8	mg/Kg	☼	03/27/23 18:16	03/30/23 19:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	76		56 - 125				03/27/23 18:16	03/28/23 10:25	100
Toluene-d8 (Surr)	80		56 - 125				03/27/23 18:16	03/30/23 19:08	1
Dibromofluoromethane (Surr)	79		41 - 138				03/27/23 18:16	03/28/23 10:25	100
Dibromofluoromethane (Surr)	70		41 - 138				03/27/23 18:16	03/30/23 19:08	1
4-Bromofluorobenzene (Surr)	70		41 - 143				03/27/23 18:16	03/28/23 10:25	100
4-Bromofluorobenzene (Surr)	74		41 - 143				03/27/23 18:16	03/30/23 19:08	1
1,2-Dichloroethane-d4 (Surr)	84		58 - 125				03/27/23 18:16	03/28/23 10:25	100
1,2-Dichloroethane-d4 (Surr)	69		58 - 125				03/27/23 18:16	03/30/23 19:08	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.21	J	0.25	0.084	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
bis (2-chloroisopropyl) ether	ND		0.49	0.049	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,4,5-Trichlorophenol	ND		0.74	0.34	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,4,6-Trichlorophenol	ND		0.74	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,4-Dichlorophenol	ND		0.74	0.22	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,4-Dimethylphenol	ND		0.74	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,4-Dinitrophenol	ND		1.6	0.70	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,4-Dinitrotoluene	ND		0.99	0.31	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2,6-Dinitrotoluene	ND		0.99	0.28	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Chloronaphthalene	ND		0.25	0.069	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Chlorophenol	ND		0.25	0.049	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Methylnaphthalene	1.1		0.074	0.0097	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Methylphenol	ND		0.99	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Nitroaniline	ND		0.99	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Nitrophenol	ND		0.25	0.064	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
3,3'-Dichlorobenzidine	ND		0.49	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
3-Nitroaniline	ND		0.99	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4,6-Dinitro-2-methylphenol	ND		1.6	0.40	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4-Bromophenyl phenyl ether	ND		0.25	0.069	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4-Chloro-3-methylphenol	ND		0.74	0.22	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4-Chloroaniline	ND		0.74	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4-Chlorophenyl phenyl ether	ND		0.25	0.069	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4-Nitroaniline	ND		0.99	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
4-Nitrophenol	ND		1.6	0.46	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Acenaphthene	0.12		0.074	0.014	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Acenaphthylene	0.036	J	0.074	0.020	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Acetophenone	ND		0.49	0.054	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Anthracene	0.096		0.074	0.012	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Atrazine	ND		0.99	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Benzaldehyde	ND		0.49	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Benzo[a]anthracene	0.28		0.074	0.017	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Benzo[a]pyrene	0.20		0.074	0.046	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Benzo[b]fluoranthene	0.28		0.074	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Benzo[g,h,i]perylene	0.19		0.074	0.035	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Benzo[k]fluoranthene	0.10		0.074	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-03 (4-5')

Lab Sample ID: 240-182548-3

Date Collected: 03/24/23 11:22

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 81.0

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.49	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Bis(2-chloroethyl)ether	ND		0.49	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Bis(2-ethylhexyl) phthalate	ND		0.35	0.25	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Butyl benzyl phthalate	ND		0.35	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Caprolactam	ND		1.6	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Carbazole	ND		0.25	0.094	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Chrysene	0.45		0.074	0.0074	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Dibenz(a,h)anthracene	0.065	J	0.074	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Dibenzofuran	0.80		0.25	0.064	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Diethyl phthalate	ND		0.35	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Dimethyl phthalate	ND		0.35	0.069	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Di-n-butyl phthalate	ND		0.35	0.25	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Di-n-octyl phthalate	ND		0.35	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Fluoranthene	0.65		0.074	0.022	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Fluorene	0.12		0.074	0.014	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Hexachlorobenzene	ND		0.074	0.014	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Hexachlorobutadiene	ND		0.25	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Hexachlorocyclopentadiene	ND		1.6	0.31	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Hexachloroethane	ND		0.25	0.044	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Indeno[1,2,3-cd]pyrene	0.13		0.074	0.036	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Isophorone	ND		0.25	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
N-Nitrosodi-n-propylamine	ND		0.25	0.054	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
N-Nitrosodiphenylamine	ND		0.25	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Naphthalene	0.79		0.074	0.012	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Nitrobenzene	ND		0.49	0.064	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Pentachlorophenol	ND		0.74	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Phenanthrene	1.7		0.074	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Phenol	ND		0.25	0.040	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
Pyrene	0.57		0.074	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
3 & 4 Methylphenol	ND		2.0	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4
2-Butoxyethanol	6.4		0.35	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 12:22	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		46 - 137	03/28/23 10:04	03/30/23 12:22	4
Phenol-d5 (Surr)	70		26 - 120	03/28/23 10:04	03/30/23 12:22	4
Nitrobenzene-d5 (Surr)	48		25 - 120	03/28/23 10:04	03/30/23 12:22	4
2-Fluorophenol (Surr)	55		20 - 120	03/28/23 10:04	03/30/23 12:22	4
2-Fluorobiphenyl (Surr)	75		34 - 120	03/28/23 10:04	03/30/23 12:22	4
2,4,6-Tribromophenol (Surr)	122	S1+	10 - 120	03/28/23 10:04	03/30/23 12:22	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0094	J	0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:08	1
Barium	0.30	J B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:08	1
Cadmium	0.0018	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:08	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:08	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:08	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:08	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-03 (4-5')

Lab Sample ID: 240-182548-3

Date Collected: 03/24/23 11:22

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 81.0

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	81.0		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	19.0		0.1	0.1	%			03/28/23 14:26	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-04 (4-5')

Lab Sample ID: 240-182548-4

Date Collected: 03/24/23 11:38

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.29	0.089	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,1,2,2-Tetrachloroethane	ND		0.29	0.17	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.29	0.076	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,1,2-Trichloroethane	ND		0.29	0.065	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,1-Dichloroethane	ND		0.29	0.055	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,1-Dichloroethene	ND		0.29	0.094	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,2,4-Trichlorobenzene	ND		0.29	0.15	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,2-Dibromo-3-Chloropropane	ND		0.57	0.25	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Ethylene Dibromide	ND		0.29	0.090	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,2-Dichlorobenzene	ND		0.29	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,2-Dichloroethane	ND		0.29	0.054	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,2-Dichloropropane	ND		0.29	0.042	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,3-Dichlorobenzene	ND		0.29	0.052	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
1,4-Dichlorobenzene	ND		0.29	0.063	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
2-Butanone (MEK)	ND		1.1	0.18	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
2-Hexanone	ND		1.1	0.30	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
4-Methyl-2-pentanone (MIBK)	ND		1.1	0.27	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Acetone	ND		1.1	0.28	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Benzene	ND		0.29	0.048	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Dichlorobromomethane	ND		0.29	0.069	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Bromoform	ND		0.29	0.26	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Bromomethane	ND		0.29	0.19	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Carbon disulfide	ND		0.29	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Carbon tetrachloride	ND		0.29	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Chlorobenzene	ND		0.29	0.040	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Chloroethane	ND		0.29	0.17	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Chloroform	ND		0.29	0.062	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Chloromethane	ND		0.29	0.075	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
cis-1,2-Dichloroethene	ND		0.29	0.046	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
cis-1,3-Dichloropropene	ND		0.29	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Cyclohexane	ND		0.57	0.19	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Chlorodibromomethane	ND		0.29	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Dichlorodifluoromethane	ND		0.29	0.060	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Ethylbenzene	ND		0.29	0.054	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Isopropylbenzene	ND		0.29	0.043	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Methyl acetate	ND		1.4	0.19	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Methyl tert-butyl ether	ND		0.29	0.042	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Methylcyclohexane	ND		0.57	0.075	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Methylene Chloride	ND		0.57	0.44	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Styrene	ND		0.29	0.059	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Tetrachloroethene	ND		0.29	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Toluene	ND		0.29	0.27	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
trans-1,2-Dichloroethene	ND		0.29	0.071	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
trans-1,3-Dichloropropene	ND		0.29	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Trichloroethene	ND		0.29	0.16	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Trichlorofluoromethane	ND		0.29	0.16	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Vinyl chloride	ND		0.29	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Xylenes, Total	ND		0.57	0.10	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1
Butyl acrylate	ND		2.9	1.5	mg/Kg	✱	03/27/23 18:16	03/28/23 12:11	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-04 (4-5')

Lab Sample ID: 240-182548-4

Date Collected: 03/24/23 11:38

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.8

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.57	0.13	mg/Kg	☼	03/27/23 18:16	03/28/23 12:11	1
2-Ethylhexyl acrylate	ND		2.9	2.1	mg/Kg	☼	03/27/23 18:16	03/28/23 12:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125				03/27/23 18:16	03/28/23 12:11	1
Dibromofluoromethane (Surr)	76		41 - 138				03/27/23 18:16	03/28/23 12:11	1
4-Bromofluorobenzene (Surr)	70		41 - 143				03/27/23 18:16	03/28/23 12:11	1
1,2-Dichloroethane-d4 (Surr)	80		58 - 125				03/27/23 18:16	03/28/23 12:11	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.23	0.079	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
bis (2-chloroisopropyl) ether	ND		0.47	0.047	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,4,5-Trichlorophenol	ND		0.70	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,4,6-Trichlorophenol	ND		0.70	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,4-Dichlorophenol	ND		0.70	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,4-Dimethylphenol	ND		0.70	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,4-Dinitrophenol	ND		1.5	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,4-Dinitrotoluene	ND		0.93	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2,6-Dinitrotoluene	ND		0.93	0.26	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Chloronaphthalene	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Chlorophenol	ND		0.23	0.047	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Methylnaphthalene	0.12		0.070	0.0091	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Methylphenol	ND		0.93	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Nitroaniline	ND		0.93	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Nitrophenol	ND		0.23	0.061	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
3,3'-Dichlorobenzidine	ND		0.47	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
3-Nitroaniline	ND		0.93	0.23	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4,6-Dinitro-2-methylphenol	ND		1.5	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4-Bromophenyl phenyl ether	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4-Chloro-3-methylphenol	ND		0.70	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4-Chloroaniline	ND		0.70	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4-Chlorophenyl phenyl ether	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4-Nitroaniline	ND		0.93	0.28	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
4-Nitrophenol	ND		1.5	0.44	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Acenaphthene	0.021	J	0.070	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Acenaphthylene	ND		0.070	0.019	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Acetophenone	ND		0.47	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Anthracene	0.034	J	0.070	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Atrazine	ND		0.93	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Benzaldehyde	ND		0.47	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Benzo[a]anthracene	0.10		0.070	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Benzo[a]pyrene	0.087		0.070	0.044	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Benzo[b]fluoranthene	0.14		0.070	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Benzo[g,h,i]perylene	0.083		0.070	0.033	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Benzo[k]fluoranthene	0.044	J	0.070	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Bis(2-chloroethoxy)methane	ND		0.47	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Bis(2-chloroethyl)ether	ND		0.47	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Bis(2-ethylhexyl) phthalate	ND		0.33	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Butyl benzyl phthalate	ND		0.33	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-04 (4-5')

Lab Sample ID: 240-182548-4

Date Collected: 03/24/23 11:38

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.8

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		1.5	0.35	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Carbazole	ND		0.23	0.089	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Chrysene	0.16		0.070	0.0069	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Dibenz(a,h)anthracene	0.046	J	0.070	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Dibenzofuran	ND		0.23	0.061	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Diethyl phthalate	ND		0.33	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Dimethyl phthalate	ND		0.33	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Di-n-butyl phthalate	ND		0.33	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Di-n-octyl phthalate	ND		0.33	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Fluoranthene	0.19		0.070	0.021	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Fluorene	0.058	J	0.070	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Hexachlorobenzene	ND		0.070	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Hexachlorobutadiene	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Hexachlorocyclopentadiene	ND		1.5	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Hexachloroethane	ND		0.23	0.042	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Indeno[1,2,3-cd]pyrene	0.081		0.070	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Isophorone	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
N-Nitrosodi-n-propylamine	ND		0.23	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
N-Nitrosodiphenylamine	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Naphthalene	0.14		0.070	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Nitrobenzene	ND		0.47	0.061	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Pentachlorophenol	ND		0.70	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Phenanthrene	0.24		0.070	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Phenol	0.038	J	0.23	0.037	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
Pyrene	0.16		0.070	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
3 & 4 Methylphenol	ND		1.9	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4
2-Butoxyethanol	2.4		0.33	0.31	mg/Kg	☼	03/28/23 10:04	03/30/23 12:45	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	93		46 - 137	03/28/23 10:04	03/30/23 12:45	4
Phenol-d5 (Surr)	72		26 - 120	03/28/23 10:04	03/30/23 12:45	4
Nitrobenzene-d5 (Surr)	57		25 - 120	03/28/23 10:04	03/30/23 12:45	4
2-Fluorophenol (Surr)	60		20 - 120	03/28/23 10:04	03/30/23 12:45	4
2-Fluorobiphenyl (Surr)	78		34 - 120	03/28/23 10:04	03/30/23 12:45	4
2,4,6-Tribromophenol (Surr)	100		10 - 120	03/28/23 10:04	03/30/23 12:45	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0082	J	0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:12	1
Barium	0.50	B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:12	1
Cadmium	0.0037	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:12	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:12	1
Lead	0.0073	J	0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:12	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:12	1
Silver	0.0023	J B	0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:12	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:14	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-04 (4-5')

Lab Sample ID: 240-182548-4

Date Collected: 03/24/23 11:38

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.8		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	15.2		0.1	0.1	%			03/28/23 14:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-05 (6-7')

Lab Sample ID: 240-182548-5

Date Collected: 03/24/23 11:50

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 85.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND	H	0.0035	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,1,2,2-Tetrachloroethane	ND	H	0.0035	0.0010	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	H	0.0035	0.00090	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,1,2-Trichloroethane	ND	H	0.0035	0.00079	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,1-Dichloroethane	ND	H	0.0035	0.00049	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,1-Dichloroethene	ND	H	0.0035	0.0013	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,2,4-Trichlorobenzene	ND	H	0.0035	0.0018	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,2-Dibromo-3-Chloropropane	ND	H	0.0070	0.0025	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Ethylene Dibromide	ND	H	0.0035	0.00054	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,2-Dichlorobenzene	ND	H	0.0035	0.00078	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,2-Dichloroethane	ND	H	0.0035	0.00054	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,2-Dichloropropane	ND	H	0.0035	0.00060	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,3-Dichlorobenzene	ND	H	0.0035	0.00057	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
1,4-Dichlorobenzene	ND	H	0.0035	0.00062	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
2-Butanone (MEK)	ND	H	0.014	0.0025	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
2-Hexanone	ND	H	0.014	0.0029	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
4-Methyl-2-pentanone (MIBK)	ND	H	0.014	0.0026	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Acetone	0.017	J H B **	0.018	0.015	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Benzene	0.0017	J H	0.0035	0.00049	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Dichlorobromomethane	ND	H	0.0035	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Bromoform	ND	H	0.0035	0.0017	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Bromomethane	ND	H	0.0035	0.0029	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Carbon disulfide	ND	H	0.0035	0.00082	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Carbon tetrachloride	ND	H	0.0035	0.0023	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Chlorobenzene	ND	H	0.0035	0.00064	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Chloroethane	ND	H	0.0035	0.0019	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Chloroform	ND	H	0.0035	0.00055	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Chloromethane	ND	H	0.0035	0.0016	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
cis-1,2-Dichloroethene	ND	H	0.0035	0.0010	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
cis-1,3-Dichloropropene	ND	H	0.0035	0.0020	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Cyclohexane	ND	H	0.0070	0.00096	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Chlorodibromomethane	ND	H	0.0035	0.0020	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Dichlorodifluoromethane	ND	H	0.0035	0.00066	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Ethylbenzene	ND	H	0.0035	0.00073	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Isopropylbenzene	ND	H	0.0035	0.0013	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Methyl acetate	ND	H	0.018	0.0024	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Methyl tert-butyl ether	ND	H	0.0035	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Methylcyclohexane	ND	H	0.0070	0.00086	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Methylene Chloride	ND	H	0.018	0.0084	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Styrene	ND	H	0.0035	0.00081	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Tetrachloroethene	ND	H	0.0035	0.00051	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Toluene	ND	H	0.0035	0.00054	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
trans-1,2-Dichloroethene	ND	H	0.0035	0.0010	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
trans-1,3-Dichloropropene	ND	H	0.0035	0.0026	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Trichloroethene	ND	H	0.0035	0.00044	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Trichlorofluoromethane	ND	H	0.0035	0.0019	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Vinyl chloride	0.0029	J H	0.0035	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Xylenes, Total	ND	H	0.0070	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1
Butyl acrylate	ND	H	0.035	0.014	mg/Kg	✱	03/26/23 12:51	03/29/23 12:33	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-05 (6-7')

Lab Sample ID: 240-182548-5

Date Collected: 03/24/23 11:50

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 85.7

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND	H	0.0070	0.0022	mg/Kg	☼	03/26/23 12:51	03/29/23 12:33	1
2-Ethylhexyl acrylate	ND	H	0.035	0.017	mg/Kg	☼	03/26/23 12:51	03/29/23 12:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	78		56 - 125				03/26/23 12:51	03/29/23 12:33	1
Dibromofluoromethane (Surr)	88		41 - 138				03/26/23 12:51	03/29/23 12:33	1
4-Bromofluorobenzene (Surr)	61		41 - 143				03/26/23 12:51	03/29/23 12:33	1
1,2-Dichloroethane-d4 (Surr)	89		58 - 125				03/26/23 12:51	03/29/23 12:33	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.23	0.080	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
bis (2-chloroisopropyl) ether	ND		0.47	0.047	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,4,5-Trichlorophenol	ND		0.70	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,4,6-Trichlorophenol	ND		0.70	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,4-Dichlorophenol	ND		0.70	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,4-Dimethylphenol	ND		0.70	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,4-Dinitrophenol	ND		1.5	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,4-Dinitrotoluene	ND		0.94	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2,6-Dinitrotoluene	ND		0.94	0.26	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Chloronaphthalene	ND		0.23	0.066	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Chlorophenol	ND		0.23	0.047	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Methylnaphthalene	0.18		0.070	0.0092	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Methylphenol	ND		0.94	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Nitroaniline	ND		0.94	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Nitrophenol	ND		0.23	0.061	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
3,3'-Dichlorobenzidine	ND		0.47	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
3-Nitroaniline	ND		0.94	0.23	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4,6-Dinitro-2-methylphenol	ND		1.5	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4-Bromophenyl phenyl ether	ND		0.23	0.066	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4-Chloro-3-methylphenol	ND		0.70	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4-Chloroaniline	ND		0.70	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4-Chlorophenyl phenyl ether	ND		0.23	0.066	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4-Nitroaniline	ND		0.94	0.28	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
4-Nitrophenol	ND		1.5	0.44	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Acenaphthene	0.028	J	0.070	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Acenaphthylene	0.021	J	0.070	0.019	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Acetophenone	ND		0.47	0.052	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Anthracene	0.052	J	0.070	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Atrazine	ND		0.94	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Benzaldehyde	ND		0.47	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Benzo[a]anthracene	0.22		0.070	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Benzo[a]pyrene	0.20		0.070	0.044	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Benzo[b]fluoranthene	0.25		0.070	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Benzo[g,h,i]perylene	0.14		0.070	0.033	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Benzo[k]fluoranthene	0.10		0.070	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Bis(2-chloroethoxy)methane	ND		0.47	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Bis(2-chloroethyl)ether	ND		0.47	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Bis(2-ethylhexyl) phthalate	ND		0.33	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Butyl benzyl phthalate	ND		0.33	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4

Eurofins Canton

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-05 (6-7')

Lab Sample ID: 240-182548-5

Date Collected: 03/24/23 11:50

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 85.7

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		1.5	0.35	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Carbazole	ND		0.23	0.089	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Chrysene	0.25		0.070	0.0070	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Dibenz(a,h)anthracene	0.057 J		0.070	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Dibenzofuran	0.092 J		0.23	0.061	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Diethyl phthalate	ND		0.33	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Dimethyl phthalate	ND		0.33	0.066	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Di-n-butyl phthalate	ND		0.33	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Di-n-octyl phthalate	ND		0.33	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Fluoranthene	0.47		0.070	0.021	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Fluorene	0.029 J		0.070	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Hexachlorobenzene	ND		0.070	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Hexachlorobutadiene	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Hexachlorocyclopentadiene	ND		1.5	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Hexachloroethane	ND		0.23	0.042	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Indeno[1,2,3-cd]pyrene	0.12		0.070	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Isophorone	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
N-Nitrosodi-n-propylamine	ND		0.23	0.052	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
N-Nitrosodiphenylamine	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Naphthalene	0.093		0.070	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Nitrobenzene	ND		0.47	0.061	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Pentachlorophenol	ND		0.70	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Phenanthrene	0.26		0.070	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Phenol	ND		0.23	0.037	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
Pyrene	0.41		0.070	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
3 & 4 Methylphenol	ND		1.9	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4
2-Butoxyethanol	2.9		0.33	0.31	mg/Kg	☼	03/28/23 10:04	03/30/23 13:08	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	87		46 - 137	03/28/23 10:04	03/30/23 13:08	4
Phenol-d5 (Surr)	62		26 - 120	03/28/23 10:04	03/30/23 13:08	4
Nitrobenzene-d5 (Surr)	42		25 - 120	03/28/23 10:04	03/30/23 13:08	4
2-Fluorophenol (Surr)	49		20 - 120	03/28/23 10:04	03/30/23 13:08	4
2-Fluorobiphenyl (Surr)	71		34 - 120	03/28/23 10:04	03/30/23 13:08	4
2,4,6-Tribromophenol (Surr)	85		10 - 120	03/28/23 10:04	03/30/23 13:08	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0092 J		0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:17	1
Barium	0.34 J B		0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:17	1
Cadmium	0.0038 J		0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:17	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:17	1
Lead	0.0059 J		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:17	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:17	1
Silver	0.0023 J B		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:17	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:16	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-05 (6-7')

Lab Sample ID: 240-182548-5

Date Collected: 03/24/23 11:50

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 85.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.7		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	14.3		0.1	0.1	%			03/28/23 14:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-06 (2-3')

Lab Sample ID: 240-182548-6

Date Collected: 03/24/23 12:05

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.24	0.074	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,1,2,2-Tetrachloroethane	ND		0.24	0.14	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.24	0.064	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,1,2-Trichloroethane	ND		0.24	0.054	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,1-Dichloroethane	ND		0.24	0.046	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,1-Dichloroethene	ND		0.24	0.078	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,2,4-Trichlorobenzene	ND		0.24	0.13	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,2-Dibromo-3-Chloropropane	ND		0.48	0.21	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Ethylene Dibromide	ND		0.24	0.075	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,2-Dichlorobenzene	ND		0.24	0.11	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,2-Dichloroethane	ND		0.24	0.045	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,2-Dichloropropane	ND		0.24	0.035	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,3-Dichlorobenzene	ND		0.24	0.044	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
1,4-Dichlorobenzene	ND		0.24	0.052	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
2-Butanone (MEK)	ND		0.95	0.15	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
2-Hexanone	ND		0.95	0.25	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
4-Methyl-2-pentanone (MIBK)	ND		0.95	0.23	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Acetone	ND		0.95	0.23	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Benzene	0.049	J	0.24	0.040	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Dichlorobromomethane	ND		0.24	0.058	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Bromoform	ND		0.24	0.22	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Bromomethane	ND		0.24	0.16	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Carbon disulfide	ND		0.24	0.10	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Carbon tetrachloride	ND		0.24	0.097	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Chlorobenzene	ND		0.24	0.033	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Chloroethane	ND		0.24	0.14	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Chloroform	ND		0.24	0.051	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Chloromethane	ND		0.24	0.063	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
cis-1,2-Dichloroethene	ND		0.24	0.038	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
cis-1,3-Dichloropropene	ND		0.24	0.12	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Cyclohexane	ND		0.48	0.16	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Chlorodibromomethane	ND		0.24	0.11	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Dichlorodifluoromethane	ND		0.24	0.050	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Ethylbenzene	ND		0.24	0.045	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Isopropylbenzene	ND		0.24	0.036	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Methyl acetate	ND		1.2	0.16	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Methyl tert-butyl ether	ND		0.24	0.035	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Methylcyclohexane	0.34	J	0.48	0.063	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Methylene Chloride	ND		0.48	0.36	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Styrene	ND		0.24	0.049	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Tetrachloroethene	ND		0.24	0.092	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Toluene	ND		0.24	0.23	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
trans-1,2-Dichloroethene	ND		0.24	0.059	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
trans-1,3-Dichloropropene	ND		0.24	0.10	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Trichloroethene	ND		0.24	0.14	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Trichlorofluoromethane	ND		0.24	0.13	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Vinyl chloride	0.15	J	0.24	0.12	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Xylenes, Total	0.13	J	0.48	0.087	mg/Kg	✱	03/27/23 18:16	03/29/23 08:39	1
Butyl acrylate	320		48	26	mg/Kg	✱	03/27/23 18:16	03/28/23 10:46	20

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-06 (2-3')

Lab Sample ID: 240-182548-6

Date Collected: 03/24/23 12:05

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.6

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	3.4		0.48	0.11	mg/Kg	☼	03/27/23 18:16	03/29/23 08:39	1
2-Ethylhexyl acrylate	ND		2.4	1.8	mg/Kg	☼	03/27/23 18:16	03/29/23 08:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	81		56 - 125				03/27/23 18:16	03/28/23 10:46	20
Toluene-d8 (Surr)	123		56 - 125				03/27/23 18:16	03/29/23 08:39	1
Dibromofluoromethane (Surr)	79		41 - 138				03/27/23 18:16	03/28/23 10:46	20
Dibromofluoromethane (Surr)	96		41 - 138				03/27/23 18:16	03/29/23 08:39	1
4-Bromofluorobenzene (Surr)	80		41 - 143				03/27/23 18:16	03/28/23 10:46	20
4-Bromofluorobenzene (Surr)	123		41 - 143				03/27/23 18:16	03/29/23 08:39	1
1,2-Dichloroethane-d4 (Surr)	85		58 - 125				03/27/23 18:16	03/28/23 10:46	20
1,2-Dichloroethane-d4 (Surr)	116		58 - 125				03/27/23 18:16	03/29/23 08:39	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.30	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
bis (2-chloroisopropyl) ether	ND		0.59	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,4,5-Trichlorophenol	ND		0.89	0.41	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,4,6-Trichlorophenol	ND		0.89	0.38	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,4-Dichlorophenol	ND		0.89	0.26	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,4-Dimethylphenol	ND		0.89	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,4-Dinitrophenol	ND		2.0	0.84	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,4-Dinitrotoluene	ND		1.2	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2,6-Dinitrotoluene	ND		1.2	0.33	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Chloronaphthalene	ND		0.30	0.083	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Chlorophenol	ND		0.30	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Methylnaphthalene	0.29		0.089	0.012	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Methylphenol	ND		1.2	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Nitroaniline	ND		1.2	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Nitrophenol	ND		0.30	0.077	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
3,3'-Dichlorobenzidine	ND		0.59	0.25	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
3-Nitroaniline	ND		1.2	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4,6-Dinitro-2-methylphenol	ND		2.0	0.47	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4-Bromophenyl phenyl ether	ND		0.30	0.083	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4-Chloro-3-methylphenol	ND		0.89	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4-Chloroaniline	ND		0.89	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4-Chlorophenyl phenyl ether	ND		0.30	0.083	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4-Nitroaniline	ND		1.2	0.35	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
4-Nitrophenol	ND		2.0	0.56	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Acenaphthene	0.027	J	0.089	0.017	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Acenaphthylene	ND		0.089	0.024	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Acetophenone	ND		0.59	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Anthracene	0.038	J	0.089	0.014	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Atrazine	ND		1.2	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Benzaldehyde	0.14	J	0.59	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Benzo[a]anthracene	0.12		0.089	0.020	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Benzo[a]pyrene	0.098		0.089	0.055	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Benzo[b]fluoranthene	0.17		0.089	0.038	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Benzo[g,h,i]perylene	0.081	J	0.089	0.042	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Benzo[k]fluoranthene	0.071	J	0.089	0.041	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-06 (2-3')

Lab Sample ID: 240-182548-6

Date Collected: 03/24/23 12:05

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.6

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	ND		0.59	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Bis(2-chloroethyl)ether	ND		0.59	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Bis(2-ethylhexyl) phthalate	ND		0.41	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Butyl benzyl phthalate	ND		0.41	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Caprolactam	ND		2.0	0.44	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Carbazole	ND		0.30	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Chrysene	0.14		0.089	0.0088	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Dibenz(a,h)anthracene	0.051 J		0.089	0.041	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Dibenzofuran	0.11 J		0.30	0.077	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Diethyl phthalate	ND		0.41	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Dimethyl phthalate	ND		0.41	0.083	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Di-n-butyl phthalate	ND		0.41	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Di-n-octyl phthalate	ND		0.41	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Fluoranthene	0.26		0.089	0.026	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Fluorene	0.030 J		0.089	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Hexachlorobenzene	ND		0.089	0.017	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Hexachlorobutadiene	ND		0.30	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Hexachlorocyclopentadiene	ND		2.0	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Hexachloroethane	ND		0.30	0.053	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Indeno[1,2,3-cd]pyrene	0.086 J		0.089	0.044	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Isophorone	ND		0.30	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
N-Nitrosodi-n-propylamine	ND		0.30	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
N-Nitrosodiphenylamine	ND		0.30	0.071	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Naphthalene	0.18		0.089	0.014	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Nitrobenzene	ND		0.59	0.077	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Pentachlorophenol	ND		0.89	0.34	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Phenanthrene	0.25		0.089	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Phenol	ND		0.30	0.047	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
Pyrene	0.24		0.089	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
3 & 4 Methylphenol	ND		2.4	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5
2-Butoxyethanol	4.7		0.41	0.39	mg/Kg	☼	03/28/23 10:04	03/30/23 12:00	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	99		46 - 137	03/28/23 10:04	03/30/23 12:00	5
Phenol-d5 (Surr)	77		26 - 120	03/28/23 10:04	03/30/23 12:00	5
Nitrobenzene-d5 (Surr)	54		25 - 120	03/28/23 10:04	03/30/23 12:00	5
2-Fluorophenol (Surr)	66		20 - 120	03/28/23 10:04	03/30/23 12:00	5
2-Fluorobiphenyl (Surr)	83		34 - 120	03/28/23 10:04	03/30/23 12:00	5
2,4,6-Tribromophenol (Surr)	109		10 - 120	03/28/23 10:04	03/30/23 12:00	5

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012 J		0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:21	1
Barium	0.21 J B		0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:21	1
Cadmium	0.0022 J		0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:21	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:21	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:21	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:21	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:21	1

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Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-06 (2-3')

Lab Sample ID: 240-182548-6

Date Collected: 03/24/23 12:05

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.6

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.6		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	15.4		0.1	0.1	%			03/28/23 14:26	1



Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-07 (3-4')

Lab Sample ID: 240-182548-7

Date Collected: 03/24/23 12:13

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.22	0.070	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,1,2,2-Tetrachloroethane	ND		0.22	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.22	0.060	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,1,2-Trichloroethane	ND		0.22	0.051	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,1-Dichloroethane	ND		0.22	0.043	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,1-Dichloroethene	ND		0.22	0.073	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,2,4-Trichlorobenzene	ND		0.22	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,2-Dibromo-3-Chloropropane	ND		0.45	0.20	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Ethylene Dibromide	ND		0.22	0.070	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,2-Dichlorobenzene	ND		0.22	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,2-Dichloroethane	ND		0.22	0.042	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,2-Dichloropropane	ND		0.22	0.033	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,3-Dichlorobenzene	ND		0.22	0.041	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
1,4-Dichlorobenzene	ND		0.22	0.049	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
2-Butanone (MEK)	ND		0.89	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
2-Hexanone	ND		0.89	0.23	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
4-Methyl-2-pentanone (MIBK)	ND		0.89	0.21	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Acetone	ND		0.89	0.22	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Benzene	ND		0.22	0.037	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Dichlorobromomethane	ND		0.22	0.054	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Bromoform	ND		0.22	0.20	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Bromomethane	ND		0.22	0.15	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Carbon disulfide	ND		0.22	0.096	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Carbon tetrachloride	ND		0.22	0.091	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Chlorobenzene	ND		0.22	0.031	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Chloroethane	ND		0.22	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Chloroform	ND		0.22	0.048	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Chloromethane	ND		0.22	0.059	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
cis-1,2-Dichloroethene	ND		0.22	0.036	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
cis-1,3-Dichloropropene	ND		0.22	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Cyclohexane	ND		0.45	0.15	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Chlorodibromomethane	ND		0.22	0.10	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Dichlorodifluoromethane	ND		0.22	0.047	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Ethylbenzene	ND		0.22	0.042	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Isopropylbenzene	ND		0.22	0.034	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Methyl acetate	ND		1.1	0.15	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Methyl tert-butyl ether	ND		0.22	0.033	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Methylcyclohexane	ND		0.45	0.059	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Methylene Chloride	ND		0.45	0.34	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Styrene	ND		0.22	0.046	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Tetrachloroethene	ND		0.22	0.086	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Toluene	ND		0.22	0.21	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
trans-1,2-Dichloroethene	ND		0.22	0.055	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
trans-1,3-Dichloropropene	ND		0.22	0.094	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Trichloroethene	ND		0.22	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Trichlorofluoromethane	ND		0.22	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Vinyl chloride	ND		0.22	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Xylenes, Total	ND		0.45	0.081	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1
Butyl acrylate	ND		2.2	1.2	mg/Kg	✱	03/27/23 18:16	03/28/23 12:33	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-07 (3-4')

Lab Sample ID: 240-182548-7

Date Collected: 03/24/23 12:13

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.4

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.45	0.11	mg/Kg	☼	03/27/23 18:16	03/28/23 12:33	1
2-Ethylhexyl acrylate	ND		2.2	1.7	mg/Kg	☼	03/27/23 18:16	03/28/23 12:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125				03/27/23 18:16	03/28/23 12:33	1
Dibromofluoromethane (Surr)	71		41 - 138				03/27/23 18:16	03/28/23 12:33	1
4-Bromofluorobenzene (Surr)	72		41 - 143				03/27/23 18:16	03/28/23 12:33	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125				03/27/23 18:16	03/28/23 12:33	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.23	0.079	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
bis (2-chloroisopropyl) ether	ND		0.46	0.046	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,4,5-Trichlorophenol	ND		0.69	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,4,6-Trichlorophenol	ND		0.69	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,4-Dichlorophenol	ND		0.69	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,4-Dimethylphenol	ND		0.69	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,4-Dinitrophenol	ND		1.5	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,4-Dinitrotoluene	ND		0.93	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2,6-Dinitrotoluene	ND		0.93	0.26	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Chloronaphthalene	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Chlorophenol	ND		0.23	0.046	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Methylnaphthalene	0.16		0.069	0.0091	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Methylphenol	ND		0.93	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Nitroaniline	ND		0.93	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Nitrophenol	ND		0.23	0.060	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
3,3'-Dichlorobenzidine	ND		0.46	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
3-Nitroaniline	ND		0.93	0.23	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4,6-Dinitro-2-methylphenol	ND		1.5	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4-Bromophenyl phenyl ether	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4-Chloro-3-methylphenol	ND		0.69	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4-Chloroaniline	ND		0.69	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4-Chlorophenyl phenyl ether	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4-Nitroaniline	ND		0.93	0.28	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
4-Nitrophenol	ND		1.5	0.43	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Acenaphthene	0.020	J	0.069	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Acenaphthylene	ND		0.069	0.019	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Acetophenone	ND		0.46	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Anthracene	0.051	J	0.069	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Atrazine	ND		0.93	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Benzaldehyde	ND		0.46	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Benzo[a]anthracene	0.17		0.069	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Benzo[a]pyrene	0.16		0.069	0.043	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Benzo[b]fluoranthene	0.21		0.069	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Benzo[g,h,i]perylene	0.092		0.069	0.033	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Benzo[k]fluoranthene	0.073		0.069	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Bis(2-chloroethoxy)methane	ND		0.46	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Bis(2-chloroethyl)ether	ND		0.46	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Bis(2-ethylhexyl) phthalate	ND		0.32	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Butyl benzyl phthalate	ND		0.32	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-07 (3-4')

Lab Sample ID: 240-182548-7

Date Collected: 03/24/23 12:13

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.4

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		1.5	0.35	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Carbazole	ND		0.23	0.088	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Chrysene	0.21		0.069	0.0069	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Dibenz(a,h)anthracene	0.047 J		0.069	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Dibenzofuran	0.069 J		0.23	0.060	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Diethyl phthalate	ND		0.32	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Dimethyl phthalate	ND		0.32	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Di-n-butyl phthalate	ND		0.32	0.23	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Di-n-octyl phthalate	ND		0.32	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Fluoranthene	0.37		0.069	0.021	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Fluorene	0.028 J		0.069	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Hexachlorobenzene	ND		0.069	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Hexachlorobutadiene	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Hexachlorocyclopentadiene	ND		1.5	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Hexachloroethane	ND		0.23	0.042	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Indeno[1,2,3-cd]pyrene	0.090		0.069	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Isophorone	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
N-Nitrosodi-n-propylamine	ND		0.23	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
N-Nitrosodiphenylamine	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Naphthalene	0.11		0.069	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Nitrobenzene	ND		0.46	0.060	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Pentachlorophenol	ND		0.69	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Phenanthrene	0.24		0.069	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Phenol	ND		0.23	0.037	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
Pyrene	0.32		0.069	0.0099	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
3 & 4 Methylphenol	ND		1.9	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4
2-Butoxyethanol	2.8		0.32	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 13:31	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	90		46 - 137	03/28/23 10:04	03/30/23 13:31	4
Phenol-d5 (Surr)	70		26 - 120	03/28/23 10:04	03/30/23 13:31	4
Nitrobenzene-d5 (Surr)	54		25 - 120	03/28/23 10:04	03/30/23 13:31	4
2-Fluorophenol (Surr)	60		20 - 120	03/28/23 10:04	03/30/23 13:31	4
2-Fluorobiphenyl (Surr)	79		34 - 120	03/28/23 10:04	03/30/23 13:31	4
2,4,6-Tribromophenol (Surr)	80		10 - 120	03/28/23 10:04	03/30/23 13:31	4

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012 J		0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:26	1
Barium	0.53 B		0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:26	1
Cadmium	0.0030 J		0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:26	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:26	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:26	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:26	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:26	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 13:20	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-07 (3-4')

Lab Sample ID: 240-182548-7

Date Collected: 03/24/23 12:13

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.4		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	13.6		0.1	0.1	%			03/28/23 14:26	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-08 (7-8')

Lab Sample ID: 240-182548-8

Date Collected: 03/24/23 13:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 83.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.28	0.087	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,1,2,2-Tetrachloroethane	ND		0.28	0.17	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.28	0.075	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,1,2-Trichloroethane	ND		0.28	0.064	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,1-Dichloroethane	ND		0.28	0.054	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,1-Dichloroethene	ND		0.28	0.092	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,2,4-Trichlorobenzene	ND		0.28	0.15	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,2-Dibromo-3-Chloropropane	ND		0.56	0.25	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Ethylene Dibromide	ND		0.28	0.088	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,2-Dichlorobenzene	ND		0.28	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,2-Dichloroethane	ND		0.28	0.053	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,2-Dichloropropane	ND		0.28	0.041	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,3-Dichlorobenzene	ND		0.28	0.052	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
1,4-Dichlorobenzene	ND		0.28	0.062	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
2-Butanone (MEK)	ND		1.1	0.18	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
2-Hexanone	ND		1.1	0.29	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
4-Methyl-2-pentanone (MIBK)	ND		1.1	0.27	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Acetone	ND		1.1	0.27	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Benzene	0.18	J	0.28	0.047	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Dichlorobromomethane	ND		0.28	0.068	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Bromoform	ND		0.28	0.26	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Bromomethane	ND		0.28	0.19	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Carbon disulfide	ND		0.28	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Carbon tetrachloride	ND		0.28	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Chlorobenzene	ND		0.28	0.039	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Chloroethane	ND		0.28	0.17	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Chloroform	ND		0.28	0.060	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Chloromethane	ND		0.28	0.074	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
cis-1,2-Dichloroethene	ND		0.28	0.045	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
cis-1,3-Dichloropropene	ND		0.28	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Cyclohexane	ND		0.56	0.18	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Chlorodibromomethane	ND		0.28	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Dichlorodifluoromethane	ND		0.28	0.059	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Ethylbenzene	ND		0.28	0.053	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Isopropylbenzene	ND		0.28	0.043	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Methyl acetate	1.1	J	1.4	0.19	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Methyl tert-butyl ether	ND		0.28	0.041	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Methylcyclohexane	ND		0.56	0.074	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Methylene Chloride	ND		0.56	0.43	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Styrene	ND		0.28	0.058	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Tetrachloroethene	ND		0.28	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Toluene	ND		0.28	0.27	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
trans-1,2-Dichloroethene	ND		0.28	0.069	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
trans-1,3-Dichloropropene	ND		0.28	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Trichloroethene	ND		0.28	0.16	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Trichlorofluoromethane	ND		0.28	0.15	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Vinyl chloride	ND		0.28	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Xylenes, Total	ND		0.56	0.10	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1
Butyl acrylate	ND		2.8	1.5	mg/Kg	✱	03/27/23 18:16	03/28/23 12:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS East Palestine

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-08 (7-8')

Lab Sample ID: 240-182548-8

Date Collected: 03/24/23 13:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 83.0

Method: SW846 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.56	0.13	mg/Kg	☼	03/27/23 18:16	03/28/23 12:54	1
2-Ethylhexyl acrylate	ND		2.8	2.1	mg/Kg	☼	03/27/23 18:16	03/28/23 12:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	84		56 - 125				03/27/23 18:16	03/28/23 12:54	1
Dibromofluoromethane (Surr)	76		41 - 138				03/27/23 18:16	03/28/23 12:54	1
4-Bromofluorobenzene (Surr)	86		41 - 143				03/27/23 18:16	03/28/23 12:54	1
1,2-Dichloroethane-d4 (Surr)	83		58 - 125				03/27/23 18:16	03/28/23 12:54	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		3.0	1.0	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
bis (2-chloroisopropyl) ether	ND		6.1	0.61	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,4,5-Trichlorophenol	ND		9.1	4.2	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,4,6-Trichlorophenol	ND		9.1	3.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,4-Dichlorophenol	ND		9.1	2.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,4-Dimethylphenol	ND		9.1	2.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,4-Dinitrophenol	ND		20	8.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,4-Dinitrotoluene	ND		12	3.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2,6-Dinitrotoluene	ND		12	3.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Chloronaphthalene	ND		3.0	0.85	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Chlorophenol	ND		3.0	0.61	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Methylnaphthalene	0.31	J	0.91	0.12	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Methylphenol	ND		12	1.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Nitroaniline	ND		12	2.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Nitrophenol	ND		3.0	0.79	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
3,3'-Dichlorobenzidine	ND		6.1	2.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
3-Nitroaniline	ND		12	3.0	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4,6-Dinitro-2-methylphenol	ND		20	4.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4-Bromophenyl phenyl ether	ND		3.0	0.85	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4-Chloro-3-methylphenol	ND		9.1	2.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4-Chloroaniline	ND		9.1	1.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4-Chlorophenyl phenyl ether	ND		3.0	0.85	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4-Nitroaniline	ND		12	3.6	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
4-Nitrophenol	ND		20	5.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Acenaphthene	ND		0.91	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Acenaphthylene	ND		0.91	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Acetophenone	ND		6.1	0.67	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Anthracene	ND		0.91	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Atrazine	ND		12	2.2	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Benzaldehyde	ND		6.1	1.4	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Benzo[a]anthracene	ND		0.91	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Benzo[a]pyrene	ND		0.91	0.57	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Benzo[b]fluoranthene	0.47	J	0.91	0.39	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Benzo[g,h,i]perylene	ND		0.91	0.43	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Benzo[k]fluoranthene	ND		0.91	0.42	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Bis(2-chloroethoxy)methane	ND		6.1	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Bis(2-chloroethyl)ether	ND		6.1	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Bis(2-ethylhexyl) phthalate	ND		4.2	3.1	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Butyl benzyl phthalate	ND		4.2	1.3	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50

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