

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 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 10:29	50
Carbazole	ND		3.0	1.2	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Chrysene	ND		0.91	0.090	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Dibenz(a,h)anthracene	ND		0.91	0.42	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Dibenzofuran	ND		3.0	0.79	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Diethyl phthalate	ND		4.2	1.9	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Dimethyl phthalate	ND		4.2	0.85	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Di-n-butyl phthalate	ND		4.2	3.1	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Di-n-octyl phthalate	ND		4.2	1.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Fluoranthene	0.27	J	0.91	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Fluorene	ND		0.91	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Hexachlorobenzene	ND		0.91	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Hexachlorobutadiene	ND		3.0	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Hexachlorocyclopentadiene	ND		20	3.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Hexachloroethane	ND		3.0	0.55	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Indeno[1,2,3-cd]pyrene	ND		0.91	0.45	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Isophorone	ND		3.0	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
N-Nitrosodi-n-propylamine	ND		3.0	0.67	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
N-Nitrosodiphenylamine	ND		3.0	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Naphthalene	0.21	J	0.91	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Nitrobenzene	ND		6.1	0.79	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Pentachlorophenol	ND		9.1	3.5	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Phenanthrene	0.36	J	0.91	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Phenol	ND		3.0	0.48	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
Pyrene	0.26	J	0.91	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
3 & 4 Methylphenol	ND		24	1.8	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50
2-Butoxyethanol	52		4.2	4.0	mg/Kg	☼	03/28/23 10:04	03/30/23 10:29	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	98		46 - 137	03/28/23 10:04	03/30/23 10:29	50
Phenol-d5 (Surr)	84		26 - 120	03/28/23 10:04	03/30/23 10:29	50
Nitrobenzene-d5 (Surr)	51		25 - 120	03/28/23 10:04	03/30/23 10:29	50
2-Fluorophenol (Surr)	67		20 - 120	03/28/23 10:04	03/30/23 10:29	50
2-Fluorobiphenyl (Surr)	79		34 - 120	03/28/23 10:04	03/30/23 10:29	50
2,4,6-Tribromophenol (Surr)	87		10 - 120	03/28/23 10:04	03/30/23 10:29	50

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 15:31	1
Barium	0.56	B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:31	1
Cadmium	0.0044	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:31	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:31	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:31	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:31	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:31	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 13:22	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

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	83.0		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	17.0		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-SP2-09 (9-10')

Lab Sample ID: 240-182548-9

Date Collected: 03/24/23 13:25

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.7

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		0.0040	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,1,2,2-Tetrachloroethane	ND		0.0040	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0040	0.0010	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,1,2-Trichloroethane	ND		0.0040	0.00090	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,1-Dichloroethane	ND		0.0040	0.00055	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,1-Dichloroethene	ND		0.0040	0.0015	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,2,4-Trichlorobenzene	ND		0.0040	0.0020	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,2-Dibromo-3-Chloropropane	ND		0.0080	0.0029	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Ethylene Dibromide	ND		0.0040	0.00061	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,2-Dichlorobenzene	ND		0.0040	0.00089	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,2-Dichloroethane	ND		0.0040	0.00062	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,2-Dichloropropane	ND		0.0040	0.00068	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,3-Dichlorobenzene	ND		0.0040	0.00065	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
1,4-Dichlorobenzene	ND		0.0040	0.00070	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
2-Butanone (MEK)	0.0063	J	0.016	0.0028	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
2-Hexanone	ND		0.016	0.0033	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
4-Methyl-2-pentanone (MIBK)	ND		0.016	0.0030	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Acetone	0.018	J B **	0.020	0.017	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Benzene	ND		0.0040	0.00056	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Dichlorobromomethane	ND		0.0040	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Bromoform	ND		0.0040	0.0019	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Bromomethane	ND		0.0040	0.0033	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Carbon disulfide	ND		0.0040	0.00093	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Carbon tetrachloride	ND		0.0040	0.0026	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Chlorobenzene	ND		0.0040	0.00073	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Chloroethane	ND		0.0040	0.0022	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Chloroform	ND		0.0040	0.00063	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Chloromethane	ND		0.0040	0.0018	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
cis-1,2-Dichloroethene	ND		0.0040	0.0012	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
cis-1,3-Dichloropropene	ND		0.0040	0.0023	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Cyclohexane	ND		0.0080	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Chlorodibromomethane	ND		0.0040	0.0022	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Dichlorodifluoromethane	ND		0.0040	0.00075	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Ethylbenzene	ND		0.0040	0.00084	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Isopropylbenzene	ND		0.0040	0.0015	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Methyl acetate	ND		0.020	0.0027	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Methyl tert-butyl ether	ND		0.0040	0.0016	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Methylcyclohexane	ND		0.0080	0.00098	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Methylene Chloride	ND		0.020	0.0096	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Styrene	ND		0.0040	0.00092	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Tetrachloroethene	ND		0.0040	0.00058	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Toluene	ND		0.0040	0.00062	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
trans-1,2-Dichloroethene	ND		0.0040	0.0011	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
trans-1,3-Dichloropropene	ND		0.0040	0.0030	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Trichloroethene	ND		0.0040	0.00050	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Trichlorofluoromethane	ND		0.0040	0.0021	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Vinyl chloride	0.24	E	0.0040	0.0014	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1
Vinyl chloride	ND		0.21	0.11	mg/Kg	✱	03/27/23 18:16	03/30/23 17:21	1
Xylenes, Total	ND		0.0080	0.0013	mg/Kg	✱	03/26/23 12:51	03/29/23 12:54	1

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Lab Sample ID: 240-182548-9

Date Collected: 03/24/23 13:25

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butyl acrylate	17	E	0.040	0.015	mg/Kg	☼	03/26/23 12:51	03/29/23 12:54	1
Butyl acrylate	ND		2.1	1.2	mg/Kg	☼	03/27/23 18:16	03/30/23 17:21	1
Methyl acrylate	0.066		0.0080	0.0025	mg/Kg	☼	03/26/23 12:51	03/29/23 12:54	1
2-Ethylhexyl acrylate	ND		0.040	0.019	mg/Kg	☼	03/26/23 12:51	03/29/23 12:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	77		56 - 125				03/26/23 12:51	03/29/23 12:54	1
Toluene-d8 (Surr)	77		56 - 125				03/27/23 18:16	03/30/23 17:21	1
Dibromofluoromethane (Surr)	87		41 - 138				03/26/23 12:51	03/29/23 12:54	1
Dibromofluoromethane (Surr)	79		41 - 138				03/27/23 18:16	03/30/23 17:21	1
4-Bromofluorobenzene (Surr)	79		41 - 143				03/26/23 12:51	03/29/23 12:54	1
4-Bromofluorobenzene (Surr)	65		41 - 143				03/27/23 18:16	03/30/23 17:21	1
1,2-Dichloroethane-d4 (Surr)	88		58 - 125				03/26/23 12:51	03/29/23 12:54	1
1,2-Dichloroethane-d4 (Surr)	75		58 - 125				03/27/23 18:16	03/30/23 17:21	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 13:53	4
bis (2-chloroisopropyl) ether	ND		0.46	0.046	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,4,5-Trichlorophenol	ND		0.69	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,4,6-Trichlorophenol	ND		0.69	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,4-Dichlorophenol	ND		0.69	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,4-Dimethylphenol	ND		0.69	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,4-Dinitrophenol	ND		1.5	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,4-Dinitrotoluene	ND		0.93	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2,6-Dinitrotoluene	ND		0.93	0.26	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Chloronaphthalene	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Chlorophenol	ND		0.23	0.046	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Methylnaphthalene	0.096		0.069	0.0091	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Methylphenol	ND		0.93	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Nitroaniline	ND		0.93	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Nitrophenol	ND		0.23	0.060	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
3,3'-Dichlorobenzidine	ND		0.46	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
3-Nitroaniline	ND		0.93	0.23	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4,6-Dinitro-2-methylphenol	ND		1.5	0.37	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4-Bromophenyl phenyl ether	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4-Chloro-3-methylphenol	ND		0.69	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4-Chloroaniline	ND		0.69	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4-Chlorophenyl phenyl ether	ND		0.23	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4-Nitroaniline	ND		0.93	0.28	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
4-Nitrophenol	ND		1.5	0.43	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Acenaphthene	ND		0.069	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Acenaphthylene	0.11		0.069	0.019	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Acetophenone	ND		0.46	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Anthracene	0.025	J	0.069	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Atrazine	ND		0.93	0.17	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Benzaldehyde	ND		0.46	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Benzo[a]anthracene	0.14		0.069	0.016	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Benzo[a]pyrene	0.36		0.069	0.043	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Benzo[b]fluoranthene	0.36		0.069	0.030	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4

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Matrix: Solid

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Percent Solids: 86.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	0.19		0.069	0.033	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Benzo[k]fluoranthene	0.15		0.069	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Bis(2-chloroethoxy)methane	ND		0.46	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Bis(2-chloroethyl)ether	ND		0.46	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Bis(2-ethylhexyl) phthalate	ND		0.32	0.24	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Butyl benzyl phthalate	ND		0.32	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Caprolactam	ND		1.5	0.35	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Carbazole	ND		0.23	0.088	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Chrysene	0.18		0.069	0.0069	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Dibenz(a,h)anthracene	0.071		0.069	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Dibenzofuran	ND		0.23	0.060	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Diethyl phthalate	ND		0.32	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Dimethyl phthalate	ND		0.32	0.065	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Di-n-butyl phthalate	ND		0.32	0.23	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Di-n-octyl phthalate	ND		0.32	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Fluoranthene	0.16		0.069	0.021	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Fluorene	ND		0.069	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Hexachlorobenzene	ND		0.069	0.013	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Hexachlorobutadiene	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Hexachlorocyclopentadiene	ND		1.5	0.29	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Hexachloroethane	ND		0.23	0.042	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Indeno[1,2,3-cd]pyrene	0.20		0.069	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Isophorone	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
N-Nitrosodi-n-propylamine	ND		0.23	0.051	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
N-Nitrosodiphenylamine	ND		0.23	0.056	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Naphthalene	0.055 J		0.069	0.011	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Nitrobenzene	ND		0.46	0.060	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Pentachlorophenol	ND		0.69	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Phenanthrene	0.11		0.069	0.010	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Phenol	ND		0.23	0.037	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
Pyrene	0.17		0.069	0.0099	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
3 & 4 Methylphenol	ND		1.9	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4
2-Butoxyethanol	3.0		0.32	0.30	mg/Kg	☼	03/28/23 10:04	03/30/23 13:53	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	91		46 - 137	03/28/23 10:04	03/30/23 13:53	4
Phenol-d5 (Surr)	59		26 - 120	03/28/23 10:04	03/30/23 13:53	4
Nitrobenzene-d5 (Surr)	47		25 - 120	03/28/23 10:04	03/30/23 13:53	4
2-Fluorophenol (Surr)	53		20 - 120	03/28/23 10:04	03/30/23 13:53	4
2-Fluorobiphenyl (Surr)	69		34 - 120	03/28/23 10:04	03/30/23 13:53	4
2,4,6-Tribromophenol (Surr)	96		10 - 120	03/28/23 10:04	03/30/23 13:53	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.014	J	0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 15:44	1
Barium	0.11	J B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:44	1
Cadmium	0.0042	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:44	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:44	1
Lead	0.0095	J	0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:44	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:44	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-SP2-09 (9-10')

Lab Sample ID: 240-182548-9

Date Collected: 03/24/23 13:25

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:44	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		03/28/23 14:00	03/29/23 13:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.7		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	13.3		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-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Date Collected: 03/24/23 13:40

Matrix: Solid

Date Received: 03/25/23 18:35

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		0.21	0.064	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,1,2,2-Tetrachloroethane	ND		0.21	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.21	0.055	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,1,2-Trichloroethane	ND		0.21	0.047	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,1-Dichloroethane	ND		0.21	0.040	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,1-Dichloroethene	ND		0.21	0.068	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,2,4-Trichlorobenzene	ND		0.21	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,2-Dibromo-3-Chloropropane	ND		0.41	0.18	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Ethylene Dibromide	ND		0.21	0.065	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,2-Dichlorobenzene	ND		0.21	0.099	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,2-Dichloroethane	ND		0.21	0.039	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,2-Dichloropropane	ND		0.21	0.031	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,3-Dichlorobenzene	ND		0.21	0.038	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
1,4-Dichlorobenzene	ND		0.21	0.045	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
2-Butanone (MEK)	ND		0.83	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
2-Hexanone	ND		0.83	0.22	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
4-Methyl-2-pentanone (MIBK)	ND		0.83	0.20	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Acetone	ND		0.83	0.20	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Benzene	0.14	J	0.21	0.035	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Dichlorobromomethane	ND		0.21	0.050	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Bromoform	ND		0.21	0.19	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Bromomethane	ND		0.21	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Carbon disulfide	ND		0.21	0.089	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Carbon tetrachloride	ND		0.21	0.084	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Chlorobenzene	ND		0.21	0.029	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Chloroethane	ND		0.21	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Chloroform	ND		0.21	0.045	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Chloromethane	ND		0.21	0.054	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
cis-1,2-Dichloroethene	ND		0.21	0.033	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
cis-1,3-Dichloropropene	ND		0.21	0.10	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Cyclohexane	ND		0.41	0.13	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Chlorodibromomethane	ND		0.21	0.097	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Dichlorodifluoromethane	ND		0.21	0.044	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Ethylbenzene	ND		0.21	0.039	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Isopropylbenzene	ND		0.21	0.031	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Methyl acetate	0.16	J	1.0	0.14	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Methyl tert-butyl ether	ND		0.21	0.031	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Methylcyclohexane	0.19	J	0.41	0.054	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Methylene Chloride	ND		0.41	0.32	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Styrene	ND		0.21	0.043	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Tetrachloroethene	ND		0.21	0.080	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Toluene	ND		0.21	0.20	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
trans-1,2-Dichloroethene	ND		0.21	0.051	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
trans-1,3-Dichloropropene	ND		0.21	0.087	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Trichloroethene	ND		0.21	0.12	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Trichlorofluoromethane	ND		0.21	0.11	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Vinyl chloride	ND		0.21	0.10	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Xylenes, Total	0.11	J	0.41	0.075	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	1
Butyl acrylate	8.6		2.1	1.1	mg/Kg	✱	03/27/23 18:16	03/28/23 11:08	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-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Date Collected: 03/24/23 13:40

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.41	0.097	mg/Kg	☼	03/27/23 18:16	03/28/23 11:08	1
2-Ethylhexyl acrylate	ND		2.1	1.5	mg/Kg	☼	03/27/23 18:16	03/28/23 11:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	80		56 - 125				03/27/23 18:16	03/28/23 11:08	1
Dibromofluoromethane (Surr)	75		41 - 138				03/27/23 18:16	03/28/23 11:08	1
4-Bromofluorobenzene (Surr)	80		41 - 143				03/27/23 18:16	03/28/23 11:08	1
1,2-Dichloroethane-d4 (Surr)	81		58 - 125				03/27/23 18:16	03/28/23 11:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	0.31	J	0.59	0.20	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
bis (2-chloroisopropyl) ether	ND		1.2	0.12	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,4,5-Trichlorophenol	ND		1.8	0.81	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,4,6-Trichlorophenol	ND	F1	1.8	0.75	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,4-Dichlorophenol	ND		1.8	0.52	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,4-Dimethylphenol	ND		1.8	0.47	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,4-Dinitrophenol	ND		3.9	1.7	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,4-Dinitrotoluene	ND		2.3	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2,6-Dinitrotoluene	ND		2.3	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Chloronaphthalene	ND		0.59	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Chlorophenol	ND		0.59	0.12	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Methylnaphthalene	1.4	F1	0.18	0.023	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Methylphenol	ND		2.3	0.36	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Nitroaniline	ND		2.3	0.47	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Nitrophenol	ND		0.59	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
3,3'-Dichlorobenzidine	ND		1.2	0.50	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
3-Nitroaniline	ND		2.3	0.58	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4,6-Dinitro-2-methylphenol	ND		3.9	0.94	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4-Bromophenyl phenyl ether	ND		0.59	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4-Chloro-3-methylphenol	ND		1.8	0.53	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4-Chloroaniline	ND	F1	1.8	0.35	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4-Chlorophenyl phenyl ether	ND		0.59	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4-Nitroaniline	ND		2.3	0.70	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
4-Nitrophenol	ND		3.9	1.1	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Acenaphthene	0.23		0.18	0.034	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Acenaphthylene	0.078	J	0.18	0.047	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Acetophenone	ND		1.2	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Anthracene	0.32		0.18	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Atrazine	ND		2.3	0.42	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Benzaldehyde	ND		1.2	0.27	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Benzo[a]anthracene	2.8	F1	0.18	0.040	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Benzo[a]pyrene	2.2	F1	0.18	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Benzo[b]fluoranthene	2.3	F1	0.18	0.076	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Benzo[g,h,i]perylene	1.3	F1	0.18	0.083	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Benzo[k]fluoranthene	1.0	F1	0.18	0.081	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Bis(2-chloroethoxy)methane	ND		1.2	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Bis(2-chloroethyl)ether	ND		1.2	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Bis(2-ethylhexyl) phthalate	ND		0.82	0.60	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Butyl benzyl phthalate	ND		0.82	0.26	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10

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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-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Date Collected: 03/24/23 13:40

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		3.9	0.88	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Carbazole	0.25	J	0.59	0.22	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Chrysene	3.0	F1	0.18	0.017	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Dibenz(a,h)anthracene	0.34		0.18	0.081	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Dibenzofuran	1.0		0.59	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Diethyl phthalate	ND		0.82	0.36	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Dimethyl phthalate	ND		0.82	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Di-n-butyl phthalate	ND		0.82	0.59	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Di-n-octyl phthalate	ND		0.82	0.33	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Fluoranthene	5.2		0.18	0.052	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Fluorene	0.18		0.18	0.032	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Hexachlorobenzene	ND		0.18	0.033	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Hexachlorobutadiene	ND		0.59	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Hexachlorocyclopentadiene	ND	F1	3.9	0.73	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Hexachloroethane	ND		0.59	0.11	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Indeno[1,2,3-cd]pyrene	1.1	F1	0.18	0.086	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Isophorone	ND		0.59	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
N-Nitrosodi-n-propylamine	ND		0.59	0.13	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
N-Nitrosodiphenylamine	ND		0.59	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Naphthalene	1.1		0.18	0.028	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Nitrobenzene	ND		1.2	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Pentachlorophenol	ND		1.8	0.68	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Phenanthrene	2.3	F1	0.18	0.026	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Phenol	ND		0.59	0.094	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
Pyrene	4.6		0.18	0.025	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
3 & 4 Methylphenol	ND		4.7	0.34	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10
2-Butoxyethanol	8.5		0.82	0.77	mg/Kg	☼	03/28/23 10:04	03/30/23 10:51	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	81		46 - 137	03/28/23 10:04	03/30/23 10:51	10
Phenol-d5 (Surr)	64		26 - 120	03/28/23 10:04	03/30/23 10:51	10
Nitrobenzene-d5 (Surr)	52		25 - 120	03/28/23 10:04	03/30/23 10:51	10
2-Fluorophenol (Surr)	55		20 - 120	03/28/23 10:04	03/30/23 10:51	10
2-Fluorobiphenyl (Surr)	72		34 - 120	03/28/23 10:04	03/30/23 10:51	10
2,4,6-Tribromophenol (Surr)	89		10 - 120	03/28/23 10:04	03/30/23 10:51	10

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 15:48	1
Barium	0.35	J B	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 15:48	1
Cadmium	0.0013	J	0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 15:48	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 15:48	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 15:48	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 15:48	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 15:48	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		03/28/23 14:00	03/29/23 13:31	1

Client Sample Results

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

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Date Collected: 03/24/23 13:40

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	86.5		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	13.5		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-COMP01-05

Lab Sample ID: 240-182548-11

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.5

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			03/28/23 14:03	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/28/23 14:03	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/28/23 14:03	1
Benzene	ND		0.025	0.00042	mg/L			03/28/23 14:03	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/28/23 14:03	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/28/23 14:03	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/28/23 14:03	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/28/23 14:03	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/28/23 14:03	1
Chloroform	ND		0.025	0.00047	mg/L			03/28/23 14:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		80 - 120					03/28/23 14:03	1
Dibromofluoromethane (Surr)	102		71 - 121					03/28/23 14:03	1
4-Bromofluorobenzene (Surr)	94		80 - 120					03/28/23 14:03	1
1,2-Dichloroethane-d4 (Surr)	107		76 - 120					03/28/23 14:03	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		03/28/23 13:24	03/29/23 15:58	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/28/23 13:24	03/29/23 15:58	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/28/23 13:24	03/29/23 15:58	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/28/23 13:24	03/29/23 15:58	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/28/23 13:24	03/29/23 15:58	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/28/23 13:24	03/29/23 15:58	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/28/23 13:24	03/29/23 15:58	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/28/23 13:24	03/29/23 15:58	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/28/23 13:24	03/29/23 15:58	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/28/23 13:24	03/29/23 15:58	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/28/23 13:24	03/29/23 15:58	1
Pyridine	ND		0.0040	0.00036	mg/L		03/28/23 13:24	03/29/23 15:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	89		46 - 137				03/28/23 13:24	03/29/23 15:58	1
Phenol-d5 (Surr)	58		26 - 120				03/28/23 13:24	03/29/23 15:58	1
Nitrobenzene-d5 (Surr)	69		24 - 120				03/28/23 13:24	03/29/23 15:58	1
2-Fluorophenol (Surr)	65		19 - 120				03/28/23 13:24	03/29/23 15:58	1
2-Fluorobiphenyl (Surr)	81		33 - 120				03/28/23 13:24	03/29/23 15:58	1
2,4,6-Tribromophenol (Surr)	64		10 - 120				03/28/23 13:24	03/29/23 15:58	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		03/28/23 13:28	03/29/23 11:12	1
Endrin	ND		0.00050	0.0000065	mg/L		03/28/23 13:28	03/29/23 11:12	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/28/23 13:28	03/29/23 11:12	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/28/23 13:28	03/29/23 11:12	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/28/23 13:28	03/29/23 11:12	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/28/23 13:28	03/29/23 11:12	1
Toxaphene	ND		0.020	0.000058	mg/L		03/28/23 13:28	03/29/23 11:12	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-COMP01-05

Lab Sample ID: 240-182548-11

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	73		10 - 145	03/28/23 13:28	03/29/23 11:12	1
DCB Decachlorobiphenyl	75		10 - 145	03/28/23 13:28	03/29/23 11:12	1
Tetrachloro-m-xylene	73		10 - 123	03/28/23 13:28	03/29/23 11:12	1
Tetrachloro-m-xylene	80		10 - 123	03/28/23 13:28	03/29/23 11:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		57	29	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1221	ND		57	34	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1232	ND		57	24	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1242	ND		57	22	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1248	ND		57	19	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1254	ND		57	24	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1260	ND		57	24	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1262	ND		57	25	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1
Aroclor-1268	ND		57	18	ug/Kg	✱	03/29/23 09:04	03/29/23 15:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	81		10 - 149	03/29/23 09:04	03/29/23 15:58	1
DCB Decachlorobiphenyl	78		10 - 174	03/29/23 09:04	03/29/23 15:58	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		03/29/23 19:00	03/30/23 17:21	1
2,4-D	ND		0.050	0.016	mg/L		03/29/23 19:00	03/30/23 17:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	03/29/23 19:00	03/30/23 17:21	1
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	03/29/23 19:00	03/30/23 17:21	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	73	B	5.8	0.043	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,4,6,7,8-HpCDF	220	B	5.8	0.037	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,4,7,8-HxCDD	4.3	J	5.8	0.017	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,4,7,8-HxCDF	60	B	5.8	0.28	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,4,7,8,9-HpCDF	44	B	5.8	0.049	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,6,7,8-HxCDD	7.5		5.8	0.018	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,6,7,8-HxCDF	47		5.8	0.29	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,7,8-PeCDD	4.4	J I B	5.8	0.014	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,7,8-PeCDF	20		5.8	0.29	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,7,8,9-HxCDD	5.9	B	5.8	0.017	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
1,2,3,7,8,9-HxCDF	14	B	5.8	0.35	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
2,3,4,6,7,8-HxCDF	27	B	5.8	0.31	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
2,3,4,7,8-PeCDF	23	B	5.8	0.22	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
2,3,7,8-TCDD	0.90	J B	1.2	0.0097	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
2,3,7,8-TCDF	6.9		1.2	0.14	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
OCDD	290	B	12	0.041	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
OCDF	380	B	12	0.036	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
Total HxCDD	80	B	5.8	0.017	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1
Total HxCDF	320	I B	5.8	0.31	ng/Kg	✱	04/03/23 12:06	04/05/23 03:25	1

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-COMP01-05

Lab Sample ID: 240-182548-11

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.5

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

Analyte	Result	Qualifier	RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
Total HpCDD	150	B	5.8	0.043	ng/Kg	☼	04/03/23 12:06	04/05/23 03:25	1
Total HpCDF	360	B	5.8	0.043	ng/Kg	☼	04/03/23 12:06	04/05/23 03:25	1
Total PeCDD	43	IB	5.8	0.014	ng/Kg	☼	04/03/23 12:06	04/05/23 03:25	1
Total PeCDF	260	IB	5.8	0.25	ng/Kg	☼	04/03/23 12:06	04/05/23 03:25	1
Total TCDD	20	IB	1.2	0.0097	ng/Kg	☼	04/03/23 12:06	04/05/23 03:25	1
Total TCDF	170	IB	1.2	0.14	ng/Kg	☼	04/03/23 12:06	04/05/23 03:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-OCDF	75		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-OCDD	74		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-2,3,7,8-TCDF	83		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-2,3,7,8-TCDD	76		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-2,3,4,7,8-PeCDF	77		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-2,3,4,6,7,8-HxCDF	73		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,7,8,9-HxCDF	71		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,7,8,9-HxCDD	71		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,7,8-PeCDD	75		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,7,8-PeCDD	70		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,6,7,8-HxCDF	83		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,6,7,8-HxCDD	71		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,4,7,8,9-HpCDF	73		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,4,7,8-HxCDF	88		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,4,7,8-HxCDD	70		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,4,6,7,8-HpCDF	72		40 - 135	04/03/23 12:06	04/05/23 03:25	1
13C-1,2,3,4,6,7,8-HpCDD	71		40 - 135	04/03/23 12:06	04/05/23 03:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.5		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	15.5		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-COMP06-10

Lab Sample ID: 240-182548-12

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

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			03/28/23 14:26	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/28/23 14:26	1
2-Butanone (MEK)	ND		0.25	0.0012	mg/L			03/28/23 14:26	1
Benzene	ND		0.025	0.00042	mg/L			03/28/23 14:26	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/28/23 14:26	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/28/23 14:26	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/28/23 14:26	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/28/23 14:26	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/28/23 14:26	1
Chloroform	ND		0.025	0.00047	mg/L			03/28/23 14:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		80 - 120					03/28/23 14:26	1
Dibromofluoromethane (Surr)	100		71 - 121					03/28/23 14:26	1
4-Bromofluorobenzene (Surr)	97		80 - 120					03/28/23 14:26	1
1,2-Dichloroethane-d4 (Surr)	104		76 - 120					03/28/23 14:26	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		03/28/23 13:24	03/29/23 16:24	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/28/23 13:24	03/29/23 16:24	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/28/23 13:24	03/29/23 16:24	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/28/23 13:24	03/29/23 16:24	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/28/23 13:24	03/29/23 16:24	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/28/23 13:24	03/29/23 16:24	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/28/23 13:24	03/29/23 16:24	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/28/23 13:24	03/29/23 16:24	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/28/23 13:24	03/29/23 16:24	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/28/23 13:24	03/29/23 16:24	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/28/23 13:24	03/29/23 16:24	1
Pyridine	ND		0.0040	0.00036	mg/L		03/28/23 13:24	03/29/23 16:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	82		46 - 137				03/28/23 13:24	03/29/23 16:24	1
Phenol-d5 (Surr)	55		26 - 120				03/28/23 13:24	03/29/23 16:24	1
Nitrobenzene-d5 (Surr)	64		24 - 120				03/28/23 13:24	03/29/23 16:24	1
2-Fluorophenol (Surr)	61		19 - 120				03/28/23 13:24	03/29/23 16:24	1
2-Fluorobiphenyl (Surr)	75		33 - 120				03/28/23 13:24	03/29/23 16:24	1
2,4,6-Tribromophenol (Surr)	59		10 - 120				03/28/23 13:24	03/29/23 16:24	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		03/28/23 13:28	03/29/23 11:43	1
Endrin	ND		0.00050	0.0000065	mg/L		03/28/23 13:28	03/29/23 11:43	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/28/23 13:28	03/29/23 11:43	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/28/23 13:28	03/29/23 11:43	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/28/23 13:28	03/29/23 11:43	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/28/23 13:28	03/29/23 11:43	1
Toxaphene	ND		0.020	0.000058	mg/L		03/28/23 13:28	03/29/23 11:43	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-COMP06-10

Lab Sample ID: 240-182548-12

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.7

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	73		10 - 145	03/28/23 13:28	03/29/23 11:43	1
DCB Decachlorobiphenyl	73		10 - 145	03/28/23 13:28	03/29/23 11:43	1
Tetrachloro-m-xylene	67		10 - 123	03/28/23 13:28	03/29/23 11:43	1
Tetrachloro-m-xylene	72		10 - 123	03/28/23 13:28	03/29/23 11:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	ND		59	29	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1221	ND		59	35	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1232	ND		59	25	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1242	ND		59	22	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1248	ND		59	20	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1254	ND		59	25	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1260	ND		59	25	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1262	ND		59	26	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1
Aroclor-1268	ND		59	19	ug/Kg	✱	03/29/23 09:04	03/29/23 16:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	91		10 - 149	03/29/23 09:04	03/29/23 16:14	1
DCB Decachlorobiphenyl	87		10 - 174	03/29/23 09:04	03/29/23 16:14	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		03/29/23 19:00	03/30/23 17:55	1
2,4-D	ND		0.050	0.016	mg/L		03/29/23 19:00	03/30/23 17:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	61		26 - 136	03/29/23 19:00	03/30/23 17:55	1
2,4-Dichlorophenylacetic acid (Surr)	63		26 - 136	03/29/23 19:00	03/30/23 17:55	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	35	B	5.8	0.061	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,4,6,7,8-HpCDF	65	B	5.8	0.042	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,4,7,8-HxCDD	1.5	J	5.8	0.043	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,4,7,8-HxCDF	18	B	5.8	0.16	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,4,7,8,9-HpCDF	13	B	5.8	0.056	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,6,7,8-HxCDD	2.6	J	5.8	0.046	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,6,7,8-HxCDF	13		5.8	0.15	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,7,8-PeCDD	1.7	J I B	5.8	0.038	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,7,8-PeCDF	5.9		5.8	0.12	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,7,8,9-HxCDD	2.1	J B	5.8	0.042	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
1,2,3,7,8,9-HxCDF	4.0	J B	5.8	0.18	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
2,3,4,6,7,8-HxCDF	8.8	B	5.8	0.14	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
2,3,4,7,8-PeCDF	9.1	B	5.8	0.093	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
2,3,7,8-TCDD	0.57	J B	1.2	0.018	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
2,3,7,8-TCDF	2.1		1.2	0.074	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
OCDD	200	B	12	0.080	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
OCDF	100	B	12	0.053	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
Total HxCDD	32	B	5.8	0.044	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	1
Total HxCDF	110	I B	5.8	0.16	ng/Kg	✱	04/03/23 12:06	04/05/23 04:14	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-COMP06-10

Lab Sample ID: 240-182548-12

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

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 HpCDD	81	B	5.8	0.061	ng/Kg	☼	04/03/23 12:06	04/05/23 04:14	1
Total HpCDF	110	B	5.8	0.049	ng/Kg	☼	04/03/23 12:06	04/05/23 04:14	1
Total PeCDD	20	IB	5.8	0.038	ng/Kg	☼	04/03/23 12:06	04/05/23 04:14	1
Total PeCDF	100	IB	5.8	0.11	ng/Kg	☼	04/03/23 12:06	04/05/23 04:14	1
Total TCDD	12	IB	1.2	0.018	ng/Kg	☼	04/03/23 12:06	04/05/23 04:14	1
Total TCDF	48	IB	1.2	0.074	ng/Kg	☼	04/03/23 12:06	04/05/23 04:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-OCDF	78		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-OCDD	79		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-2,3,7,8-TCDF	67		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-2,3,7,8-TCDD	67		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-2,3,4,7,8-PeCDF	67		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-2,3,4,6,7,8-HxCDF	75		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,7,8,9-HxCDF	75		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,7,8,9-HxCDD	76		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,7,8-PeCDD	66		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,7,8-PeCDD	63		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,6,7,8-HxCDF	77		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,6,7,8-HxCDD	73		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,4,7,8,9-HpCDF	76		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,4,7,8-HxCDF	74		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,4,7,8-HxCDD	72		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,4,6,7,8-HpCDF	75		40 - 135				04/03/23 12:06	04/05/23 04:14	1
13C-1,2,3,4,6,7,8-HpCDD	74		40 - 135				04/03/23 12:06	04/05/23 04:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	84.7		0.1	0.1	%			03/28/23 14:26	1
Percent Moisture (EPA Moisture)	15.3		0.1	0.1	%			03/28/23 14:26	1

Surrogate Summary

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

Job ID: 240-182548-1

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)
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	123	105	132	129 S1+
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	120	106	129	125
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	76	79	70	84
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	80	70	74	69
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	78	76	70	80
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	78	88	61	89
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	81	79	80	85
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	123	96	123	116
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	77	71	72	75
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	84	76	86	83
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	77	87	79	88
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	77	79	65	75
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	80	75	80	81
240-182548-10 MS	WC-S. TRACK-SP2-10 (5-6')	79	78	78	76
240-182548-10 MSD	WC-S. TRACK-SP2-10 (5-6')	78	78	79	78
LCS 240-566928/2-A	Lab Control Sample	85	78	75	78
LCS 240-567081/4	Lab Control Sample	122	109	120	118
LCS 240-567084/7	Lab Control Sample	80	82	74	81
MB 240-566928/1-A	Method Blank	80	78	70	83
MB 240-567049/1-A	Method Blank	120	101	122	118
MB 240-567049/2-A	Method Blank	74	88	61	87

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 240-566958/10	Lab Control Sample	96	90	88	94

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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	102	102	94	107
240-182548-12	WC-S. TRACK-SP2-COMP06-10	100	100	97	104
LB 240-566896/1-A MB	Method Blank	106	104	94	113

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Surrogate Summary

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

Job ID: 240-182548-1

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)
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	103	59	50	56	65	95
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	135	109	76	88	114	102
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	99	70	48	55	75	122 S1+
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	93	72	57	60	78	100
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	87	62	42	49	71	85
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	99	77	54	66	83	109
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	90	70	54	60	79	80
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	98	84	51	67	79	87
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	91	59	47	53	69	96
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	81	64	52	55	72	89
240-182548-10 MS	WC-S. TRACK-SP2-10 (5-6')	98	73	57	61	83	110
240-182548-10 MSD	WC-S. TRACK-SP2-10 (5-6')	98	85	76	80	90	116
LCS 240-566998/2-A	Lab Control Sample	116	78	72	77	84	112
MB 240-566998/1-A	Method Blank	122	78	75	72	89	54

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 240-567046/5-A	Lab Control Sample	90	59	77	69	80	72
MB 240-567046/4-A	Method Blank	99	63	75	71	89	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)

Surrogate Summary

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

Job ID: 240-182548-1

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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	89	58	69	65	81	64
240-182548-12	WC-S. TRACK-SP2-COMP06-10	82	55	64	61	75	59
240-182548-12 MS	WC-S. TRACK-SP2-COMP06-10	89	63	71	71	76	71

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 240-567051/5-A	Lab Control Sample	80	85	74	85
MB 240-567051/4-A	Method Blank	76	78	69	79

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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	73	75	73	80
240-182548-11 MS	WC-S. TRACK-SP2-COMP01-05	82	82	66	72
240-182548-12	WC-S. TRACK-SP2-COMP06-10	73	73	67	72

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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	81	78
240-182548-12	WC-S. TRACK-SP2-COMP06-10	91	87
LCS 240-567137/2-A	Lab Control Sample	118	129
MB 240-567137/1-A	Method Blank	117	130

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Surrogate Summary

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

Job ID: 240-182548-1

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 410-358880/2-A	Lab Control Sample	73	77
MB 410-358880/1-A	Method Blank	65	65

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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	63	63
240-182548-12	WC-S. TRACK-SP2-COMP06-10	61	63

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid (Surr)

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-566928/1-A
Matrix: Solid
Analysis Batch: 566934

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566928

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.25	0.078	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,1,2,2-Tetrachloroethane	ND		0.25	0.15	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.25	0.067	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,1,2-Trichloroethane	ND		0.25	0.057	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,1-Dichloroethane	ND		0.25	0.048	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,1-Dichloroethene	ND		0.25	0.082	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,2,4-Trichlorobenzene	ND		0.25	0.13	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,2-Dibromo-3-Chloropropane	ND		0.50	0.22	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Ethylene Dibromide	ND		0.25	0.079	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,2-Dichlorobenzene	ND		0.25	0.12	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,2-Dichloroethane	ND		0.25	0.047	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,2-Dichloropropane	ND		0.25	0.037	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,3-Dichlorobenzene	ND		0.25	0.046	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
1,4-Dichlorobenzene	ND		0.25	0.055	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
2-Butanone (MEK)	ND		1.0	0.16	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
2-Hexanone	ND		1.0	0.26	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
4-Methyl-2-pentanone (MIBK)	ND		1.0	0.24	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Acetone	ND		1.0	0.24	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Benzene	ND		0.25	0.042	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Dichlorobromomethane	ND		0.25	0.061	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Bromoform	ND		0.25	0.23	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Bromomethane	ND		0.25	0.17	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Carbon disulfide	ND		0.25	0.11	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Carbon tetrachloride	ND		0.25	0.10	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Chlorobenzene	ND		0.25	0.035	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Chloroethane	ND		0.25	0.15	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Chloroform	ND		0.25	0.054	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Chloromethane	ND		0.25	0.066	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
cis-1,2-Dichloroethene	ND		0.25	0.040	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
cis-1,3-Dichloropropene	ND		0.25	0.12	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Cyclohexane	ND		0.50	0.16	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Chlorodibromomethane	ND		0.25	0.12	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Dichlorodifluoromethane	ND		0.25	0.053	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Ethylbenzene	ND		0.25	0.047	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Isopropylbenzene	ND		0.25	0.038	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Methyl acetate	ND		1.3	0.17	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Methyl tert-butyl ether	ND		0.25	0.037	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Methylcyclohexane	ND		0.50	0.066	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Methylene Chloride	ND		0.50	0.38	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Styrene	ND		0.25	0.052	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Tetrachloroethene	ND		0.25	0.097	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Toluene	ND		0.25	0.24	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
trans-1,2-Dichloroethene	ND		0.25	0.062	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
trans-1,3-Dichloropropene	ND		0.25	0.11	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Trichloroethene	ND		0.25	0.14	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Trichlorofluoromethane	ND		0.25	0.14	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Vinyl chloride	ND		0.25	0.12	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Xylenes, Total	ND		0.50	0.091	mg/Kg		03/27/23 18:16	03/28/23 07:56	1

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-566928/1-A

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566928

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Butyl acrylate	ND		2.5	1.4	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Methyl acrylate	ND		0.50	0.12	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
2-Ethylhexyl acrylate	ND		2.5	1.9	mg/Kg		03/27/23 18:16	03/28/23 07:56	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
%Recovery	Qualifier								
Toluene-d8 (Surr)	80		56 - 125				03/27/23 18:16	03/28/23 07:56	1
Dibromofluoromethane (Surr)	78		41 - 138				03/27/23 18:16	03/28/23 07:56	1
4-Bromofluorobenzene (Surr)	70		41 - 143				03/27/23 18:16	03/28/23 07:56	1
1,2-Dichloroethane-d4 (Surr)	83		58 - 125				03/27/23 18:16	03/28/23 07:56	1

Lab Sample ID: LCS 240-566928/2-A

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 566928

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				
1,1,1-Trichloroethane	1.25	1.18		mg/Kg		95	74 - 136
1,1,2,2-Tetrachloroethane	1.25	1.01		mg/Kg		81	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	1.25	1.56		mg/Kg		125	64 - 148
1,1,2-Trichloroethane	1.25	1.23		mg/Kg		98	79 - 120
1,1-Dichloroethane	1.25	1.20		mg/Kg		96	74 - 121
1,1-Dichloroethene	1.25	1.37		mg/Kg		110	68 - 141
1,2,4-Trichlorobenzene	1.25	1.02		mg/Kg		82	58 - 132
1,2-Dibromo-3-Chloropropane	1.25	0.745		mg/Kg		60	52 - 133
Ethylene Dibromide	1.25	1.14		mg/Kg		91	80 - 121
1,2-Dichlorobenzene	1.25	1.14		mg/Kg		91	73 - 120
1,2-Dichloroethane	1.25	1.19		mg/Kg		95	71 - 123
1,2-Dichloropropane	1.25	1.18		mg/Kg		94	76 - 126
1,3-Dichlorobenzene	1.25	1.14		mg/Kg		91	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		94	65 - 142
4-Methyl-2-pentanone (MIBK)	2.50	2.16		mg/Kg		86	62 - 142
Acetone	2.50	3.34		mg/Kg		134	58 - 160
Benzene	1.25	1.22		mg/Kg		97	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	0.825		mg/Kg		66	10 - 171
Carbon disulfide	1.25	1.07		mg/Kg		86	43 - 152
Carbon tetrachloride	1.25	1.17		mg/Kg		94	64 - 144
Chlorobenzene	1.25	1.15		mg/Kg		92	80 - 120
Chloroethane	1.25	1.13		mg/Kg		90	11 - 164
Chloroform	1.25	1.22		mg/Kg		97	78 - 120
Chloromethane	1.25	0.905		mg/Kg		72	41 - 142
cis-1,2-Dichloroethene	1.25	1.18		mg/Kg		94	78 - 124
cis-1,3-Dichloropropene	1.25	0.948		mg/Kg		76	70 - 133
Cyclohexane	1.25	1.31		mg/Kg		105	65 - 137
Chlorodibromomethane	1.25	0.952		mg/Kg		76	68 - 131
Dichlorodifluoromethane	1.25	0.772		mg/Kg		62	21 - 150

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LCS 240-566928/2-A

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 566928

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	1.25	1.17		mg/Kg		94	80 - 120
Isopropylbenzene	1.25	1.22		mg/Kg		98	80 - 130
Methyl acetate	2.50	2.44		mg/Kg		97	60 - 133
Methyl tert-butyl ether	1.25	1.11		mg/Kg		89	70 - 130
Methylcyclohexane	1.25	1.24		mg/Kg		99	70 - 138
Methylene Chloride	1.25	1.11		mg/Kg		89	71 - 124
Styrene	1.25	1.25		mg/Kg		100	75 - 140
Tetrachloroethene	1.25	1.18		mg/Kg		95	76 - 127
Toluene	1.25	1.24		mg/Kg		99	80 - 120
trans-1,2-Dichloroethene	1.25	1.25		mg/Kg		100	76 - 130
trans-1,3-Dichloropropene	1.25	0.906		mg/Kg		72	61 - 121
Trichloroethene	1.25	1.11		mg/Kg		89	74 - 130
Trichlorofluoromethane	1.25	1.22		mg/Kg		98	50 - 154
Vinyl chloride	1.25	1.12		mg/Kg		89	49 - 146
Xylenes, Total	2.50	2.46		mg/Kg		98	80 - 122
m-Xylene & p-Xylene	1.25	1.19		mg/Kg		95	80 - 122
o-Xylene	1.25	1.27		mg/Kg		102	80 - 124
Butyl acrylate	5.00	3.96		mg/Kg		79	61 - 120
Methyl acrylate	5.00	4.51		mg/Kg		90	76 - 120
2-Ethylhexyl acrylate	5.00	4.10		mg/Kg		82	57 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	85		56 - 125
Dibromofluoromethane (Surr)	78		41 - 138
4-Bromofluorobenzene (Surr)	75		41 - 143
1,2-Dichloroethane-d4 (Surr)	78		58 - 125

Lab Sample ID: 240-182548-10 MS

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Prep Type: Total/NA

Prep Batch: 566928

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
1,1,1-Trichloroethane	ND		1.03	0.957		mg/Kg	⊛	93	46 - 144
1,1,1,2-Tetrachloroethane	ND		1.03	0.856		mg/Kg	⊛	83	26 - 159
1,1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.03	1.12		mg/Kg	⊛	108	35 - 164
1,1,1,2-Trichloroethane	ND		1.03	0.978		mg/Kg	⊛	95	26 - 149
1,1-Dichloroethane	ND		1.03	0.984		mg/Kg	⊛	95	46 - 135
1,1-Dichloroethene	ND		1.03	1.04		mg/Kg	⊛	100	44 - 160
1,2,4-Trichlorobenzene	ND		1.03	0.688		mg/Kg	⊛	67	10 - 120
1,2-Dibromo-3-Chloropropane	ND		1.03	0.548		mg/Kg	⊛	53	12 - 144
Ethylene Dibromide	ND		1.03	0.931		mg/Kg	⊛	90	31 - 142
1,2-Dichlorobenzene	ND		1.03	0.844		mg/Kg	⊛	82	10 - 126
1,2-Dichloroethane	ND		1.03	0.972		mg/Kg	⊛	94	40 - 132
1,2-Dichloropropane	ND		1.03	0.980		mg/Kg	⊛	95	45 - 133
1,3-Dichlorobenzene	ND		1.03	0.809		mg/Kg	⊛	78	10 - 131
1,4-Dichlorobenzene	ND		1.03	0.863		mg/Kg	⊛	84	10 - 129
2-Butanone (MEK)	ND		2.06	2.34		mg/Kg	⊛	113	30 - 157
2-Hexanone	ND		2.06	1.91		mg/Kg	⊛	93	20 - 166

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MS

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566934

Prep Batch: 566928

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
4-Methyl-2-pentanone (MIBK)	ND		2.06	1.76		mg/Kg	⊛	85	31 - 159
Acetone	ND		2.06	2.53		mg/Kg	⊛	123	35 - 167
Benzene	0.14	J	1.03	1.14		mg/Kg	⊛	97	39 - 134
Dichlorobromomethane	ND		1.03	0.873		mg/Kg	⊛	85	32 - 146
Bromoform	ND		1.03	0.820		mg/Kg	⊛	79	12 - 144
Bromomethane	ND		1.03	0.735		mg/Kg	⊛	71	10 - 161
Carbon disulfide	ND		1.03	0.853		mg/Kg	⊛	83	24 - 153
Carbon tetrachloride	ND		1.03	0.936		mg/Kg	⊛	91	37 - 145
Chlorobenzene	ND		1.03	0.954		mg/Kg	⊛	92	18 - 134
Chloroethane	ND		1.03	0.911		mg/Kg	⊛	88	14 - 159
Chloroform	ND		1.03	0.994		mg/Kg	⊛	96	43 - 134
Chloromethane	ND		1.03	0.727		mg/Kg	⊛	70	32 - 151
cis-1,2-Dichloroethene	ND		1.03	0.978		mg/Kg	⊛	95	48 - 132
cis-1,3-Dichloropropene	ND		1.03	0.796		mg/Kg	⊛	77	23 - 139
Cyclohexane	ND		1.03	1.10		mg/Kg	⊛	107	31 - 147
Chlorodibromomethane	ND		1.03	0.798		mg/Kg	⊛	77	25 - 143
Dichlorodifluoromethane	ND		1.03	0.626		mg/Kg	⊛	61	16 - 157
Ethylbenzene	ND		1.03	1.02		mg/Kg	⊛	99	17 - 137
Isopropylbenzene	ND		1.03	1.03		mg/Kg	⊛	99	10 - 146
Methyl acetate	0.16	J	2.06	2.12		mg/Kg	⊛	95	13 - 164
Methyl tert-butyl ether	ND		1.03	0.898		mg/Kg	⊛	87	55 - 134
Methylcyclohexane	0.19	J	1.03	1.17		mg/Kg	⊛	95	20 - 153
Methylene Chloride	ND		1.03	0.918		mg/Kg	⊛	89	38 - 145
Styrene	ND		1.03	1.07		mg/Kg	⊛	103	10 - 149
Tetrachloroethene	ND		1.03	0.934		mg/Kg	⊛	91	19 - 147
Toluene	ND		1.03	0.991		mg/Kg	⊛	96	30 - 137
trans-1,2-Dichloroethene	ND		1.03	0.977		mg/Kg	⊛	95	41 - 145
trans-1,3-Dichloropropene	ND		1.03	0.737		mg/Kg	⊛	71	19 - 130
Trichloroethene	ND		1.03	0.923		mg/Kg	⊛	89	21 - 158
Trichlorofluoromethane	ND		1.03	0.983		mg/Kg	⊛	95	36 - 161
Vinyl chloride	ND		1.03	0.884		mg/Kg	⊛	86	32 - 163
Xylenes, Total	0.11	J	2.06	2.12		mg/Kg	⊛	97	17 - 138
m-Xylene & p-Xylene	0.051	J	1.03	1.02		mg/Kg	⊛	94	10 - 141
o-Xylene	0.063	J	1.03	1.10		mg/Kg	⊛	101	18 - 139
Butyl acrylate	8.6		4.13	12.3		mg/Kg	⊛	89	10 - 150
Methyl acrylate	ND		4.13	3.90		mg/Kg	⊛	94	10 - 150
2-Ethylhexyl acrylate	ND		4.13	3.85		mg/Kg	⊛	93	10 - 150

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	79		56 - 125
Dibromofluoromethane (Surr)	78		41 - 138
4-Bromofluorobenzene (Surr)	78		41 - 143
1,2-Dichloroethane-d4 (Surr)	76		58 - 125

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MSD

Matrix: Solid

Analysis Batch: 566934

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Prep Type: Total/NA

Prep Batch: 566928

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1,1-Trichloroethane	ND		1.03	0.810		mg/Kg	☼	78	46 - 144	17	37
1,1,1,2-Tetrachloroethane	ND		1.03	0.817		mg/Kg	☼	79	26 - 159	5	40
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.03	0.836		mg/Kg	☼	81	35 - 164	29	37
1,1,2-Trichloroethane	ND		1.03	0.909		mg/Kg	☼	88	26 - 149	7	40
1,1-Dichloroethane	ND		1.03	0.901		mg/Kg	☼	87	46 - 135	9	36
1,1-Dichloroethene	ND		1.03	0.860		mg/Kg	☼	83	44 - 160	19	37
1,2,4-Trichlorobenzene	ND		1.03	0.715		mg/Kg	☼	69	10 - 120	4	40
1,2-Dibromo-3-Chloropropane	ND		1.03	0.607		mg/Kg	☼	59	12 - 144	10	40
Ethylene Dibromide	ND		1.03	0.785		mg/Kg	☼	76	31 - 142	17	40
1,2-Dichlorobenzene	ND		1.03	0.796		mg/Kg	☼	77	10 - 126	6	40
1,2-Dichloroethane	ND		1.03	0.916		mg/Kg	☼	89	40 - 132	6	35
1,2-Dichloropropane	ND		1.03	0.905		mg/Kg	☼	88	45 - 133	8	37
1,3-Dichlorobenzene	ND		1.03	0.775		mg/Kg	☼	75	10 - 131	4	40
1,4-Dichlorobenzene	ND		1.03	0.799		mg/Kg	☼	77	10 - 129	8	40
2-Butanone (MEK)	ND		2.06	2.18		mg/Kg	☼	105	30 - 157	7	40
2-Hexanone	ND		2.06	1.93		mg/Kg	☼	93	20 - 166	1	40
4-Methyl-2-pentanone (MIBK)	ND		2.06	1.78		mg/Kg	☼	86	31 - 159	1	40
Acetone	ND		2.06	2.36		mg/Kg	☼	115	35 - 167	7	40
Benzene	0.14	J	1.03	1.03		mg/Kg	☼	86	39 - 134	10	40
Dichlorobromomethane	ND		1.03	0.789		mg/Kg	☼	76	32 - 146	10	39
Bromoform	ND		1.03	0.717		mg/Kg	☼	70	12 - 144	13	40
Bromomethane	ND		1.03	0.656		mg/Kg	☼	64	10 - 161	11	40
Carbon disulfide	ND		1.03	0.720		mg/Kg	☼	70	24 - 153	17	40
Carbon tetrachloride	ND		1.03	0.784		mg/Kg	☼	76	37 - 145	18	38
Chlorobenzene	ND		1.03	0.863		mg/Kg	☼	84	18 - 134	10	40
Chloroethane	ND		1.03	0.788		mg/Kg	☼	76	14 - 159	15	40
Chloroform	ND		1.03	0.889		mg/Kg	☼	86	43 - 134	11	36
Chloromethane	ND		1.03	0.658		mg/Kg	☼	64	32 - 151	10	38
cis-1,2-Dichloroethene	ND		1.03	0.884		mg/Kg	☼	86	48 - 132	10	37
cis-1,3-Dichloropropene	ND		1.03	0.738		mg/Kg	☼	71	23 - 139	8	39
Cyclohexane	ND		1.03	0.814		mg/Kg	☼	79	31 - 147	30	39
Chlorodibromomethane	ND		1.03	0.673		mg/Kg	☼	65	25 - 143	17	40
Dichlorodifluoromethane	ND		1.03	0.528		mg/Kg	☼	51	16 - 157	17	40
Ethylbenzene	ND		1.03	0.867		mg/Kg	☼	84	17 - 137	17	40
Isopropylbenzene	ND		1.03	0.890		mg/Kg	☼	86	10 - 146	14	40
Methyl acetate	0.16	J	2.06	1.96		mg/Kg	☼	87	13 - 164	8	40
Methyl tert-butyl ether	ND		1.03	0.923		mg/Kg	☼	89	55 - 134	3	37
Methylcyclohexane	0.19	J	1.03	0.876		mg/Kg	☼	66	20 - 153	29	40
Methylene Chloride	ND		1.03	0.851		mg/Kg	☼	82	38 - 145	8	40
Styrene	ND		1.03	0.979		mg/Kg	☼	95	10 - 149	9	40
Tetrachloroethene	ND		1.03	0.755		mg/Kg	☼	73	19 - 147	21	40
Toluene	ND		1.03	0.870		mg/Kg	☼	84	30 - 137	13	40
trans-1,2-Dichloroethene	ND		1.03	0.962		mg/Kg	☼	93	41 - 145	2	37
trans-1,3-Dichloropropene	ND		1.03	0.659		mg/Kg	☼	64	19 - 130	11	40
Trichloroethene	ND		1.03	0.819		mg/Kg	☼	79	21 - 158	12	40
Trichlorofluoromethane	ND		1.03	0.897		mg/Kg	☼	87	36 - 161	9	40
Vinyl chloride	ND		1.03	0.818		mg/Kg	☼	79	32 - 163	8	38
Xylenes, Total	0.11	J	2.06	1.92		mg/Kg	☼	88	17 - 138	10	40

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MSD

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566934

Prep Batch: 566928

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
m-Xylene & p-Xylene	0.051	J	1.03	0.922		mg/Kg	☼	84	10 - 141	10	40
o-Xylene	0.063	J	1.03	1.00		mg/Kg	☼	91	18 - 139	9	40
Butyl acrylate	8.6		4.13	12.5		mg/Kg	☼	95	10 - 150	2	30
Methyl acrylate	ND		4.13	3.87		mg/Kg	☼	94	10 - 150	1	30
2-Ethylhexyl acrylate	ND		4.13	4.48		mg/Kg	☼	108	10 - 150	15	30

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	78		56 - 125
Dibromofluoromethane (Surr)	78		41 - 138
4-Bromofluorobenzene (Surr)	79		41 - 143
1,2-Dichloroethane-d4 (Surr)	78		58 - 125

Lab Sample ID: LCS 240-566958/10

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 566958

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	Limits
		Result	Qualifier				Limits	
1,1-Dichloroethane	1.00	0.930		mg/L		93	74 - 127	
1,2-Dichloroethane	1.00	0.990		mg/L		99	72 - 120	
2-Butanone (MEK)	2.00	2.01		mg/L		100	68 - 130	
Benzene	1.00	0.957		mg/L		96	80 - 121	
Carbon tetrachloride	1.00	0.880		mg/L		88	69 - 120	
Chlorobenzene	1.00	1.02		mg/L		102	80 - 120	
Chloroform	1.00	0.935		mg/L		93	75 - 120	
Tetrachloroethene	1.00	1.05		mg/L		105	74 - 120	
Trichloroethene	1.00	0.910		mg/L		91	75 - 120	
Vinyl chloride	1.00	0.803		mg/L		80	53 - 147	

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	90		71 - 121
4-Bromofluorobenzene (Surr)	88		80 - 120
1,2-Dichloroethane-d4 (Surr)	94		76 - 120

Lab Sample ID: MB 240-567049/1-A

Client Sample ID: Method Blank

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 567081

Prep Batch: 567049

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 01:57	1

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-567049/1-A

Matrix: Solid

Analysis Batch: 567081

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 567049

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Acetone	0.0429		0.025	0.021	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Butyl acrylate	ND		0.050	0.019	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
Methyl acrylate	ND		0.010	0.0031	mg/Kg		03/28/23 14:04	03/29/23 01:57	1
2-Ethylhexyl acrylate	ND		0.050	0.024	mg/Kg		03/28/23 14:04	03/29/23 01:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	120		56 - 125	03/28/23 14:04	03/29/23 01:57	1
Dibromofluoromethane (Surr)	101		41 - 138	03/28/23 14:04	03/29/23 01:57	1
4-Bromofluorobenzene (Surr)	122		41 - 143	03/28/23 14:04	03/29/23 01:57	1
1,2-Dichloroethane-d4 (Surr)	118		58 - 125	03/28/23 14:04	03/29/23 01:57	1

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-567049/2-A
Matrix: Solid
Analysis Batch: 567084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567049

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Acetone	0.0387		0.025	0.021	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/28/23 14:04	03/29/23 11:50	1

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-567049/2-A

Matrix: Solid

Analysis Batch: 567084

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 567049

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Butyl acrylate	ND		0.050	0.019	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methyl acrylate	ND		0.010	0.0031	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
2-Ethylhexyl acrylate	ND		0.050	0.024	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
%Recovery	Qualifier								
Toluene-d8 (Surr)	74		56 - 125				03/28/23 14:04	03/29/23 11:50	1
Dibromofluoromethane (Surr)	88		41 - 138				03/28/23 14:04	03/29/23 11:50	1
4-Bromofluorobenzene (Surr)	61		41 - 143				03/28/23 14:04	03/29/23 11:50	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125				03/28/23 14:04	03/29/23 11:50	1

Lab Sample ID: LCS 240-567081/4

Matrix: Solid

Analysis Batch: 567081

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	0.0252		mg/Kg		101	74 - 136
1,1,2,2-Tetrachloroethane	0.0250	0.0272		mg/Kg		109	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0219		mg/Kg		88	64 - 148
1,1,2-Trichloroethane	0.0250	0.0264		mg/Kg		106	79 - 120
1,1-Dichloroethane	0.0250	0.0249		mg/Kg		99	74 - 121
1,1-Dichloroethene	0.0250	0.0234		mg/Kg		94	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0201		mg/Kg		80	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0188		mg/Kg		75	52 - 133
Ethylene Dibromide	0.0250	0.0239		mg/Kg		96	80 - 121
1,2-Dichlorobenzene	0.0250	0.0233		mg/Kg		93	73 - 120
1,2-Dichloroethane	0.0250	0.0252		mg/Kg		101	71 - 123
1,2-Dichloropropane	0.0250	0.0255		mg/Kg		102	76 - 126
1,3-Dichlorobenzene	0.0250	0.0233		mg/Kg		93	73 - 120
1,4-Dichlorobenzene	0.0250	0.0233		mg/Kg		93	74 - 120
2-Butanone (MEK)	0.0500	0.0548		mg/Kg		110	63 - 142
2-Hexanone	0.0500	0.0552		mg/Kg		110	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0527		mg/Kg		105	62 - 142
Acetone	0.0500	0.0940	*+	mg/Kg		188	58 - 160
Benzene	0.0250	0.0257		mg/Kg		103	76 - 121
Dichlorobromomethane	0.0250	0.0233		mg/Kg		93	71 - 138
Bromoform	0.0250	0.0181		mg/Kg		73	57 - 140
Bromomethane	0.0250	0.0264		mg/Kg		106	10 - 171
Carbon disulfide	0.0250	0.0225		mg/Kg		90	43 - 152
Carbon tetrachloride	0.0250	0.0215		mg/Kg		86	64 - 144
Chlorobenzene	0.0250	0.0242		mg/Kg		97	80 - 120
Chloroethane	0.0250	0.0282		mg/Kg		113	11 - 164
Chloroform	0.0250	0.0252		mg/Kg		101	78 - 120
Chloromethane	0.0250	0.0216		mg/Kg		86	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0252		mg/Kg		101	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0229		mg/Kg		92	70 - 133
Cyclohexane	0.0250	0.0253		mg/Kg		101	65 - 137
Chlorodibromomethane	0.0250	0.0213		mg/Kg		85	68 - 131
Dichlorodifluoromethane	0.0250	0.0264		mg/Kg		105	21 - 150

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LCS 240-567081/4

Matrix: Solid

Analysis Batch: 567081

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Ethylbenzene	0.0250	0.0245		mg/Kg		98	80 - 120
Isopropylbenzene	0.0250	0.0254		mg/Kg		102	80 - 130
Methyl acetate	0.0500	0.0448		mg/Kg		90	60 - 133
Methyl tert-butyl ether	0.0250	0.0244		mg/Kg		98	70 - 130
Methylcyclohexane	0.0250	0.0254		mg/Kg		101	70 - 138
Methylene Chloride	0.0250	0.0253		mg/Kg		101	71 - 124
Styrene	0.0250	0.0259		mg/Kg		103	75 - 140
Tetrachloroethene	0.0250	0.0240		mg/Kg		96	76 - 127
Toluene	0.0250	0.0264		mg/Kg		106	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0239		mg/Kg		96	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0244		mg/Kg		98	61 - 121
Trichloroethene	0.0250	0.0221		mg/Kg		88	74 - 130
Trichlorofluoromethane	0.0250	0.0230		mg/Kg		92	50 - 154
Vinyl chloride	0.0250	0.0259		mg/Kg		104	49 - 146
Xylenes, Total	0.0500	0.0500		mg/Kg		100	80 - 122
m-Xylene & p-Xylene	0.0250	0.0246		mg/Kg		98	80 - 122
o-Xylene	0.0250	0.0254		mg/Kg		102	80 - 124
Butyl acrylate	0.100	0.104		mg/Kg		104	10 - 120
Methyl acrylate	0.100	0.101		mg/Kg		101	10 - 120
2-Ethylhexyl acrylate	0.100	0.0782		mg/Kg		78	10 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	122		56 - 125
Dibromofluoromethane (Surr)	109		41 - 138
4-Bromofluorobenzene (Surr)	120		41 - 143
1,2-Dichloroethane-d4 (Surr)	118		58 - 125

Lab Sample ID: LCS 240-567084/7

Matrix: Solid

Analysis Batch: 567084

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	0.0264		mg/Kg		106	74 - 136
1,1,1,2-Tetrachloroethane	0.0250	0.0244		mg/Kg		98	66 - 129
1,1,1,2-Trichloro-1,1,2-trifluoroethane	0.0250	0.0297		mg/Kg		119	64 - 148
1,1,2-Trichloroethane	0.0250	0.0260		mg/Kg		104	79 - 120
1,1-Dichloroethane	0.0250	0.0239		mg/Kg		96	74 - 121
1,1-Dichloroethene	0.0250	0.0265		mg/Kg		106	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0232		mg/Kg		93	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0194		mg/Kg		78	52 - 133
Ethylene Dibromide	0.0250	0.0247		mg/Kg		99	80 - 121
1,2-Dichlorobenzene	0.0250	0.0252		mg/Kg		101	73 - 120
1,2-Dichloroethane	0.0250	0.0250		mg/Kg		100	71 - 123
1,2-Dichloropropane	0.0250	0.0236		mg/Kg		95	76 - 126
1,3-Dichlorobenzene	0.0250	0.0245		mg/Kg		98	73 - 120
1,4-Dichlorobenzene	0.0250	0.0244		mg/Kg		97	74 - 120
2-Butanone (MEK)	0.0500	0.0527		mg/Kg		105	63 - 142
2-Hexanone	0.0500	0.0465		mg/Kg		93	65 - 142

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LCS 240-567084/7

Matrix: Solid

Analysis Batch: 567084

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
4-Methyl-2-pentanone (MIBK)	0.0500	0.0411		mg/Kg		82	62 - 142
Acetone	0.0500	0.0860	*+	mg/Kg		172	58 - 160
Benzene	0.0250	0.0248		mg/Kg		99	76 - 121
Dichlorobromomethane	0.0250	0.0244		mg/Kg		98	71 - 138
Bromoform	0.0250	0.0228		mg/Kg		91	57 - 140
Bromomethane	0.0250	0.0249		mg/Kg		100	10 - 171
Carbon disulfide	0.0250	0.0231		mg/Kg		92	43 - 152
Carbon tetrachloride	0.0250	0.0281		mg/Kg		113	64 - 144
Chlorobenzene	0.0250	0.0249		mg/Kg		100	80 - 120
Chloroethane	0.0250	0.0216		mg/Kg		87	11 - 164
Chloroform	0.0250	0.0262		mg/Kg		105	78 - 120
Chloromethane	0.0250	0.0170		mg/Kg		68	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0245		mg/Kg		98	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0197		mg/Kg		79	70 - 133
Cyclohexane	0.0250	0.0249		mg/Kg		100	65 - 137
Chlorodibromomethane	0.0250	0.0244		mg/Kg		98	68 - 131
Dichlorodifluoromethane	0.0250	0.0187		mg/Kg		75	21 - 150
Ethylbenzene	0.0250	0.0248		mg/Kg		99	80 - 120
Isopropylbenzene	0.0250	0.0264		mg/Kg		106	80 - 130
Methyl acetate	0.0500	0.0431		mg/Kg		86	60 - 133
Methyl tert-butyl ether	0.0250	0.0218		mg/Kg		87	70 - 130
Methylcyclohexane	0.0250	0.0256		mg/Kg		103	70 - 138
Methylene Chloride	0.0250	0.0197	J	mg/Kg		79	71 - 124
Styrene	0.0250	0.0268		mg/Kg		107	75 - 140
Tetrachloroethene	0.0250	0.0271		mg/Kg		108	76 - 127
Toluene	0.0250	0.0257		mg/Kg		103	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0255		mg/Kg		102	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0204		mg/Kg		81	61 - 121
Trichloroethene	0.0250	0.0253		mg/Kg		101	74 - 130
Trichlorofluoromethane	0.0250	0.0252		mg/Kg		101	50 - 154
Vinyl chloride	0.0250	0.0221		mg/Kg		88	49 - 146
Xylenes, Total	0.0500	0.0529		mg/Kg		106	80 - 122
m-Xylene & p-Xylene	0.0250	0.0252		mg/Kg		101	80 - 122
o-Xylene	0.0250	0.0277		mg/Kg		111	80 - 124
Butyl acrylate	0.100	0.0828		mg/Kg		83	10 - 120
Methyl acrylate	0.100	0.0888		mg/Kg		89	10 - 120
2-Ethylhexyl acrylate	0.100	0.0774		mg/Kg		77	10 - 120

Surrogate	LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	80		56 - 125
Dibromofluoromethane (Surr)	82		41 - 138
4-Bromofluorobenzene (Surr)	74		41 - 143
1,2-Dichloroethane-d4 (Surr)	81		58 - 125

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LB 240-566896/1-A MB
Matrix: Solid
Analysis Batch: 566958

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			03/28/23 13:16	1
1,2-Dichloroethane	ND		0.025	0.00021	mg/L			03/28/23 13:16	1
2-Butanone (MEK)	0.0117	J	0.25	0.0012	mg/L			03/28/23 13:16	1
Benzene	ND		0.025	0.00042	mg/L			03/28/23 13:16	1
Carbon tetrachloride	ND		0.025	0.00026	mg/L			03/28/23 13:16	1
Chlorobenzene	ND		0.025	0.00038	mg/L			03/28/23 13:16	1
Chloroform	ND		0.025	0.00047	mg/L			03/28/23 13:16	1
Tetrachloroethene	ND		0.025	0.00044	mg/L			03/28/23 13:16	1
Trichloroethene	ND		0.025	0.00044	mg/L			03/28/23 13:16	1
Vinyl chloride	ND		0.025	0.00045	mg/L			03/28/23 13:16	1
Surrogate	MB	MB	Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
Toluene-d8 (Surr)	106		80 - 120					03/28/23 13:16	1
Dibromofluoromethane (Surr)	104		71 - 121					03/28/23 13:16	1
4-Bromofluorobenzene (Surr)	94		80 - 120					03/28/23 13:16	1
1,2-Dichloroethane-d4 (Surr)	113		76 - 120					03/28/23 13:16	1

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

Lab Sample ID: MB 240-566998/1-A
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566998

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/28/23 10:04	03/30/23 08:57	1

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-566998/1-A

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566998

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Atrazine	ND		0.20	0.036	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Carbazole	ND		0.050	0.019	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Isophorone	ND		0.050	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Phenol	ND		0.050	0.0080	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Butoxyethanol	ND		0.070	0.066	mg/Kg		03/28/23 10:04	03/30/23 08:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	122		46 - 137	03/28/23 10:04	03/30/23 08:57	1
Phenol-d5 (Surr)	78		26 - 120	03/28/23 10:04	03/30/23 08:57	1
Nitrobenzene-d5 (Surr)	75		25 - 120	03/28/23 10:04	03/30/23 08:57	1
2-Fluorophenol (Surr)	72		20 - 120	03/28/23 10:04	03/30/23 08:57	1

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-566998/1-A

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 566998

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl (Surr)	89		34 - 120	03/28/23 10:04	03/30/23 08:57	1
2,4,6-Tribromophenol (Surr)	54		10 - 120	03/28/23 10:04	03/30/23 08:57	1

Lab Sample ID: LCS 240-566998/2-A

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 566998

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
bis (2-chloroisopropyl) ether	0.667	0.419		mg/Kg		63	38 - 120
2,4,5-Trichlorophenol	0.667	0.581		mg/Kg		87	50 - 120
2,4,6-Trichlorophenol	0.667	0.581		mg/Kg		87	50 - 120
2,4-Dichlorophenol	0.667	0.533		mg/Kg		80	50 - 120
2,4-Dimethylphenol	0.667	0.453		mg/Kg		68	24 - 120
2,4-Dinitrophenol	1.33	1.16		mg/Kg		87	19 - 132
2,4-Dinitrotoluene	0.667	0.691		mg/Kg		104	64 - 120
2,6-Dinitrotoluene	0.667	0.691		mg/Kg		104	62 - 120
2-Chloronaphthalene	0.667	0.512		mg/Kg		77	51 - 120
2-Chlorophenol	0.667	0.492		mg/Kg		74	47 - 120
2-Methylnaphthalene	0.667	0.483		mg/Kg		72	38 - 120
2-Methylphenol	0.667	0.462		mg/Kg		69	45 - 120
2-Nitroaniline	0.667	0.600		mg/Kg		90	57 - 120
2-Nitrophenol	0.667	0.565		mg/Kg		85	51 - 120
3,3'-Dichlorobenzidine	1.33	1.38		mg/Kg		104	27 - 199
3-Nitroaniline	0.667	0.604		mg/Kg		91	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.17		mg/Kg		87	46 - 126
4-Bromophenyl phenyl ether	0.667	0.621		mg/Kg		93	65 - 120
4-Chloro-3-methylphenol	0.667	0.580		mg/Kg		87	51 - 120
4-Chloroaniline	0.667	0.451		mg/Kg		68	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.599		mg/Kg		90	59 - 120
4-Nitroaniline	0.667	0.720		mg/Kg		108	48 - 128
4-Nitrophenol	1.33	1.26		mg/Kg		95	43 - 120
Acenaphthene	0.667	0.529		mg/Kg		79	52 - 120
Acenaphthylene	0.667	0.533		mg/Kg		80	52 - 120
Acetophenone	0.667	0.476		mg/Kg		71	47 - 120
Anthracene	0.667	0.625		mg/Kg		94	64 - 120
Atrazine	1.33	1.28		mg/Kg		96	71 - 125
Benzaldehyde	1.33	0.879		mg/Kg		66	42 - 120
Benzo[a]anthracene	0.667	0.677		mg/Kg		102	70 - 120
Benzo[a]pyrene	0.667	0.552		mg/Kg		83	63 - 125
Benzo[b]fluoranthene	0.667	0.510		mg/Kg		77	64 - 121
Benzo[g,h,i]perylene	0.667	0.645		mg/Kg		97	62 - 120
Benzo[k]fluoranthene	0.667	0.562		mg/Kg		84	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.462		mg/Kg		69	50 - 120
Bis(2-chloroethyl)ether	0.667	0.382		mg/Kg		57	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.638		mg/Kg		96	63 - 133
Butyl benzyl phthalate	0.667	0.632		mg/Kg		95	66 - 127
Caprolactam	1.33	1.32		mg/Kg		99	67 - 120

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LCS 240-566998/2-A

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 566998

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Carbazole	0.667	0.632		mg/Kg		95	61 - 129
Chrysene	0.667	0.638		mg/Kg		96	67 - 120
Dibenz(a,h)anthracene	0.667	0.626		mg/Kg		94	62 - 120
Dibenzofuran	0.667	0.562		mg/Kg		84	55 - 120
Diethyl phthalate	0.667	0.681		mg/Kg		102	61 - 120
Dimethyl phthalate	0.667	0.649		mg/Kg		97	64 - 120
Di-n-butyl phthalate	0.667	0.599		mg/Kg		90	70 - 129
Di-n-octyl phthalate	0.667	0.586		mg/Kg		88	64 - 129
Fluoranthene	0.667	0.647		mg/Kg		97	71 - 124
Fluorene	0.667	0.591		mg/Kg		89	58 - 120
Hexachlorobenzene	0.667	0.621		mg/Kg		93	59 - 120
Hexachlorobutadiene	0.667	0.483		mg/Kg		72	45 - 120
Hexachlorocyclopentadiene	0.667	0.374		mg/Kg		56	10 - 120
Hexachloroethane	0.667	0.430		mg/Kg		64	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.652		mg/Kg		98	65 - 122
Isophorone	0.667	0.473		mg/Kg		71	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.464		mg/Kg		70	48 - 120
N-Nitrosodiphenylamine	0.667	0.573		mg/Kg		86	64 - 120
Naphthalene	0.667	0.450		mg/Kg		67	34 - 120
Nitrobenzene	0.667	0.451		mg/Kg		68	48 - 120
Pentachlorophenol	1.33	0.774		mg/Kg		58	10 - 120
Phenanthrene	0.667	0.573		mg/Kg		86	60 - 120
Phenol	0.667	0.458		mg/Kg		69	48 - 120
Pyrene	0.667	0.684		mg/Kg		103	67 - 120
3 & 4 Methylphenol	0.667	0.478		mg/Kg		72	49 - 120
2-Butoxyethanol	0.667	0.512		mg/Kg		77	10 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	116		46 - 137
Phenol-d5 (Surr)	78		26 - 120
Nitrobenzene-d5 (Surr)	72		25 - 120
2-Fluorophenol (Surr)	77		20 - 120
2-Fluorobiphenyl (Surr)	84		34 - 120
2,4,6-Tribromophenol (Surr)	112		10 - 120

Lab Sample ID: 240-182548-10 MS

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Prep Type: Total/NA

Prep Batch: 566998

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.31	J	0.768	0.890		mg/Kg	⊛	75	29 - 120
bis (2-chloroisopropyl) ether	ND		0.768	0.380	J	mg/Kg	⊛	49	10 - 120
2,4,5-Trichlorophenol	ND		0.768	ND		mg/Kg	⊛	NC	35 - 120
2,4,6-Trichlorophenol	ND	F1	0.768	ND	F1	mg/Kg	⊛	0	18 - 120
2,4-Dichlorophenol	ND		0.768	0.591	J	mg/Kg	⊛	77	21 - 120
2,4-Dimethylphenol	ND		0.768	0.610	J	mg/Kg	⊛	79	10 - 120
2,4-Dinitrophenol	ND		1.54	ND		mg/Kg	⊛	NC	10 - 126
2,4-Dinitrotoluene	ND		0.768	0.792	J	mg/Kg	⊛	103	46 - 120

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MS

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 567268

Prep Batch: 566998

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
2,6-Dinitrotoluene	ND		0.768	0.653	J	mg/Kg	☼	85	44 - 120
2-Chloronaphthalene	ND		0.768	0.584		mg/Kg	☼	76	33 - 120
2-Chlorophenol	ND		0.768	0.497	J	mg/Kg	☼	65	19 - 120
2-Methylnaphthalene	1.4	F1	0.768	2.55	F1	mg/Kg	☼	157	13 - 122
2-Methylphenol	ND		0.768	0.507	J	mg/Kg	☼	66	12 - 120
2-Nitroaniline	ND		0.768	0.720	J	mg/Kg	☼	94	36 - 122
2-Nitrophenol	ND		0.768	0.523	J	mg/Kg	☼	68	28 - 120
3,3'-Dichlorobenzidine	ND		1.54	0.919	J	mg/Kg	☼	60	10 - 179
3-Nitroaniline	ND		0.768	0.603	J	mg/Kg	☼	79	10 - 123
4,6-Dinitro-2-methylphenol	ND		1.54	1.41	J	mg/Kg	☼	92	11 - 120
4-Bromophenyl phenyl ether	ND		0.768	0.652		mg/Kg	☼	85	49 - 120
4-Chloro-3-methylphenol	ND		0.768	0.628	J	mg/Kg	☼	82	35 - 120
4-Chloroaniline	ND	F1	0.768	ND	F1	mg/Kg	☼	0	10 - 120
4-Chlorophenyl phenyl ether	ND		0.768	0.633		mg/Kg	☼	82	45 - 120
4-Nitroaniline	ND		0.768	0.711	J	mg/Kg	☼	93	13 - 129
4-Nitrophenol	ND		1.54	1.62	J	mg/Kg	☼	106	28 - 123
Acenaphthene	0.23		0.768	0.740		mg/Kg	☼	66	33 - 120
Acenaphthylene	0.078	J	0.768	0.692		mg/Kg	☼	80	39 - 120
Acetophenone	ND		0.768	0.624	J	mg/Kg	☼	81	11 - 120
Anthracene	0.32		0.768	0.805		mg/Kg	☼	63	30 - 127
Atrazine	ND		1.54	1.41	J	mg/Kg	☼	92	52 - 126
Benzaldehyde	ND		1.54	0.795	J	mg/Kg	☼	52	13 - 120
Benzo[a]anthracene	2.8	F1	0.768	1.29	F1	mg/Kg	☼	-197	24 - 137
Benzo[a]pyrene	2.2	F1	0.768	1.13	F1	mg/Kg	☼	-135	28 - 136
Benzo[b]fluoranthene	2.3	F1	0.768	1.17	F1	mg/Kg	☼	-152	21 - 142
Benzo[g,h,i]perylene	1.3	F1	0.768	1.01	F1	mg/Kg	☼	-32	10 - 144
Benzo[k]fluoranthene	1.0	F1	0.768	0.855	F1	mg/Kg	☼	-24	36 - 135
Bis(2-chloroethoxy)methane	ND		0.768	0.459	J	mg/Kg	☼	60	25 - 120
Bis(2-chloroethyl)ether	ND		0.768	0.311	J	mg/Kg	☼	41	16 - 120
Bis(2-ethylhexyl) phthalate	ND		0.768	1.04		mg/Kg	☼	135	37 - 143
Butyl benzyl phthalate	ND		0.768	0.878		mg/Kg	☼	114	49 - 130
Caprolactam	ND		1.54	1.43	J	mg/Kg	☼	93	37 - 127
Carbazole	0.25	J	0.768	0.756		mg/Kg	☼	66	33 - 132
Chrysene	3.0	F1	0.768	1.51	F1	mg/Kg	☼	-191	28 - 129
Dibenz(a,h)anthracene	0.34		0.768	0.771		mg/Kg	☼	56	10 - 132
Dibenzofuran	1.0		0.768	1.70		mg/Kg	☼	90	33 - 120
Diethyl phthalate	ND		0.768	0.689	J	mg/Kg	☼	90	48 - 120
Dimethyl phthalate	ND		0.768	0.677	J	mg/Kg	☼	88	45 - 120
Di-n-butyl phthalate	ND		0.768	0.836		mg/Kg	☼	109	40 - 137
Di-n-octyl phthalate	ND		0.768	1.02		mg/Kg	☼	132	34 - 152
Fluoranthene	5.2		0.768	2.01	4	mg/Kg	☼	-414	31 - 140
Fluorene	0.18		0.768	0.764		mg/Kg	☼	76	43 - 120
Hexachlorobenzene	ND		0.768	0.629		mg/Kg	☼	82	44 - 120
Hexachlorobutadiene	ND		0.768	0.499	J	mg/Kg	☼	65	13 - 120
Hexachlorocyclopentadiene	ND	F1	0.768	ND	F1	mg/Kg	☼	0	10 - 120
Hexachloroethane	ND		0.768	0.412	J	mg/Kg	☼	54	10 - 120
Indeno[1,2,3-cd]pyrene	1.1	F1	0.768	0.976	F1	mg/Kg	☼	-20	10 - 139
Isophorone	ND		0.768	0.477	J	mg/Kg	☼	62	27 - 120
N-Nitrosodi-n-propylamine	ND		0.768	0.453	J	mg/Kg	☼	59	23 - 120

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MS

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Prep Type: Total/NA

Prep Batch: 566998

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	Limits	
	Result	Qualifier	Added	Result	Qualifier						
N-Nitrosodiphenylamine	ND		0.768	0.711		mg/Kg	☼	93	30 - 128		
Naphthalene	1.1		0.768	1.88		mg/Kg	☼	103	10 - 120		
Nitrobenzene	ND		0.768	0.433	J	mg/Kg	☼	56	19 - 120		
Pentachlorophenol	ND		1.54	1.06	J	mg/Kg	☼	69	10 - 120		
Phenanthrene	2.3	F1	0.768	2.79		mg/Kg	☼	59	36 - 120		
Phenol	ND		0.768	0.530	J	mg/Kg	☼	69	10 - 120		
Pyrene	4.6		0.768	1.87	4	mg/Kg	☼	-353	31 - 134		
3 & 4 Methylphenol	ND		0.768	0.566	J	mg/Kg	☼	74	10 - 122		
2-Butoxyethanol	8.5		0.768	14.1	4	mg/Kg	☼	726	10 - 120		
MS MS											
Surrogate	%Recovery	Qualifier	Limits								
Terphenyl-d14 (Surr)	98		46 - 137								
Phenol-d5 (Surr)	73		26 - 120								
Nitrobenzene-d5 (Surr)	57		25 - 120								
2-Fluorophenol (Surr)	61		20 - 120								
2-Fluorobiphenyl (Surr)	83		34 - 120								
2,4,6-Tribromophenol (Surr)	110		10 - 120								

Lab Sample ID: 240-182548-10 MSD

Matrix: Solid

Analysis Batch: 567268

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Prep Type: Total/NA

Prep Batch: 566998

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
1,1'-Biphenyl	0.31	J	0.770	0.983		mg/Kg	☼	87	29 - 120	10		45
bis (2-chloroisopropyl) ether	ND		0.770	0.521	J	mg/Kg	☼	68	10 - 120	31		45
2,4,5-Trichlorophenol	ND		0.770	ND		mg/Kg	☼	NC	35 - 120	NC		39
2,4,6-Trichlorophenol	ND	F1	0.770	ND	F1	mg/Kg	☼	0	18 - 120	NC		45
2,4-Dichlorophenol	ND		0.770	0.636	J	mg/Kg	☼	83	21 - 120	7		44
2,4-Dimethylphenol	ND		0.770	0.659	J	mg/Kg	☼	86	10 - 120	8		45
2,4-Dinitrophenol	ND		1.54	1.60	J	mg/Kg	☼	NC	10 - 126	NC		45
2,4-Dinitrotoluene	ND		0.770	0.781	J	mg/Kg	☼	101	46 - 120	1		45
2,6-Dinitrotoluene	ND		0.770	0.658	J	mg/Kg	☼	85	44 - 120	1		45
2-Chloronaphthalene	ND		0.770	0.617		mg/Kg	☼	80	33 - 120	6		45
2-Chlorophenol	ND		0.770	0.596		mg/Kg	☼	77	19 - 120	18		45
2-Methylnaphthalene	1.4	F1	0.770	2.26		mg/Kg	☼	117	13 - 122	12		45
2-Methylphenol	ND		0.770	0.576	J	mg/Kg	☼	75	12 - 120	13		45
2-Nitroaniline	ND		0.770	0.743	J	mg/Kg	☼	96	36 - 122	3		42
2-Nitrophenol	ND		0.770	0.636		mg/Kg	☼	83	28 - 120	19		45
3,3'-Dichlorobenzidine	ND		1.54	1.08	J	mg/Kg	☼	70	10 - 179	16		45
3-Nitroaniline	ND		0.770	0.653	J	mg/Kg	☼	85	10 - 123	8		45
4,6-Dinitro-2-methylphenol	ND		1.54	1.37	J	mg/Kg	☼	89	11 - 120	3		40
4-Bromophenyl phenyl ether	ND		0.770	0.640		mg/Kg	☼	83	49 - 120	2		42
4-Chloro-3-methylphenol	ND		0.770	0.662	J	mg/Kg	☼	86	35 - 120	5		42
4-Chloroaniline	ND	F1	0.770	0.414	J	mg/Kg	☼	54	10 - 120	NC		45
4-Chlorophenyl phenyl ether	ND		0.770	0.658		mg/Kg	☼	86	45 - 120	4		44
4-Nitroaniline	ND		0.770	0.749	J	mg/Kg	☼	97	13 - 129	5		38
4-Nitrophenol	ND		1.54	1.67	J	mg/Kg	☼	108	28 - 123	3		45
Acenaphthene	0.23		0.770	0.721		mg/Kg	☼	63	33 - 120	3		45

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MSD

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 567268

Prep Batch: 566998

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
Acenaphthylene	0.078	J	0.770	0.676		mg/Kg	✳	78	39 - 120	2	45
Acetophenone	ND		0.770	0.807	J	mg/Kg	✳	105	11 - 120	26	45
Anthracene	0.32		0.770	0.756		mg/Kg	✳	56	30 - 127	6	45
Atrazine	ND		1.54	1.38	J	mg/Kg	✳	90	52 - 126	2	34
Benzaldehyde	ND		1.54	1.15	J	mg/Kg	✳	75	13 - 120	37	45
Benzo[a]anthracene	2.8	F1	0.770	1.18	F1	mg/Kg	✳	-210	24 - 137	8	42
Benzo[a]pyrene	2.2	F1	0.770	0.995	F1	mg/Kg	✳	-152	28 - 136	13	41
Benzo[b]fluoranthene	2.3	F1	0.770	1.02	F1	mg/Kg	✳	-170	21 - 142	13	42
Benzo[g,h,i]perylene	1.3	F1	0.770	0.948	F1	mg/Kg	✳	-39	10 - 144	6	40
Benzo[k]fluoranthene	1.0	F1	0.770	0.788	F1	mg/Kg	✳	-32	36 - 135	8	44
Bis(2-chloroethoxy)methane	ND		0.770	0.564	J	mg/Kg	✳	73	25 - 120	20	45
Bis(2-chloroethyl)ether	ND		0.770	0.454	J	mg/Kg	✳	59	16 - 120	37	45
Bis(2-ethylhexyl) phthalate	ND		0.770	1.02		mg/Kg	✳	132	37 - 143	2	38
Butyl benzyl phthalate	ND		0.770	0.872		mg/Kg	✳	113	49 - 130	1	41
Caprolactam	ND		1.54	1.29	J	mg/Kg	✳	84	37 - 127	10	45
Carbazole	0.25	J	0.770	0.696		mg/Kg	✳	58	33 - 132	8	45
Chrysene	3.0	F1	0.770	1.37	F1	mg/Kg	✳	-209	28 - 129	10	42
Dibenz(a,h)anthracene	0.34		0.770	0.724		mg/Kg	✳	50	10 - 132	6	37
Dibenzofuran	1.0		0.770	1.73		mg/Kg	✳	94	33 - 120	2	43
Diethyl phthalate	ND		0.770	0.710	J	mg/Kg	✳	92	48 - 120	3	38
Dimethyl phthalate	ND		0.770	0.697	J	mg/Kg	✳	91	45 - 120	3	43
Di-n-butyl phthalate	ND		0.770	0.801	J	mg/Kg	✳	104	40 - 137	4	42
Di-n-octyl phthalate	ND		0.770	0.971		mg/Kg	✳	126	34 - 152	4	39
Fluoranthene	5.2		0.770	1.74	4	mg/Kg	✳	-448	31 - 140	14	45
Fluorene	0.18		0.770	0.755		mg/Kg	✳	74	43 - 120	1	39
Hexachlorobenzene	ND		0.770	0.545		mg/Kg	✳	71	44 - 120	14	39
Hexachlorobutadiene	ND		0.770	0.580		mg/Kg	✳	75	13 - 120	15	45
Hexachlorocyclopentadiene	ND	F1	0.770	ND	F1	mg/Kg	✳	0	10 - 120	NC	45
Hexachloroethane	ND		0.770	0.533	J	mg/Kg	✳	69	10 - 120	26	45
Indeno[1,2,3-cd]pyrene	1.1	F1	0.770	0.898	F1	mg/Kg	✳	-30	10 - 139	8	41
Isophorone	ND		0.770	0.568	J	mg/Kg	✳	74	27 - 120	17	45
N-Nitrosodi-n-propylamine	ND		0.770	0.563	J	mg/Kg	✳	73	23 - 120	22	45
N-Nitrosodiphenylamine	ND		0.770	0.679		mg/Kg	✳	88	30 - 128	5	44
Naphthalene	1.1		0.770	1.90		mg/Kg	✳	105	10 - 120	1	45
Nitrobenzene	ND		0.770	0.571	J	mg/Kg	✳	74	19 - 120	27	45
Pentachlorophenol	ND		1.54	1.06	J	mg/Kg	✳	69	10 - 120	0	45
Phenanthrene	2.3	F1	0.770	2.58	F1	mg/Kg	✳	31	36 - 120	8	41
Phenol	ND		0.770	0.571	J	mg/Kg	✳	74	10 - 120	7	45
Pyrene	4.6		0.770	1.65	4	mg/Kg	✳	-381	31 - 134	12	43
3 & 4 Methylphenol	ND		0.770	0.603	J	mg/Kg	✳	78	10 - 122	6	45
2-Butoxyethanol	8.5		0.770	13.5	4	mg/Kg	✳	645	10 - 120	4	40

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	98		46 - 137
Phenol-d5 (Surr)	85		26 - 120
Nitrobenzene-d5 (Surr)	76		25 - 120
2-Fluorophenol (Surr)	80		20 - 120
2-Fluorobiphenyl (Surr)	90		34 - 120

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: 240-182548-10 MSD
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')
Prep Type: Total/NA
Prep Batch: 566998

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	116		10 - 120

Lab Sample ID: MB 240-567046/4-A
Matrix: Solid
Analysis Batch: 567114

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567046

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,4-Dichlorobenzene	ND		0.0040	0.00033	mg/L		03/28/23 13:24	03/29/23 11:37	1
2,4,5-Trichlorophenol	ND		0.0040	0.0020	mg/L		03/28/23 13:24	03/29/23 11:37	1
2,4,6-Trichlorophenol	ND		0.0040	0.0018	mg/L		03/28/23 13:24	03/29/23 11:37	1
2,4-Dinitrotoluene	ND		0.0040	0.0021	mg/L		03/28/23 13:24	03/29/23 11:37	1
Pyridine	ND		0.0040	0.00036	mg/L		03/28/23 13:24	03/29/23 11:37	1
2-Methylphenol	ND		0.0040	0.00021	mg/L		03/28/23 13:24	03/29/23 11:37	1
Hexachlorobenzene	ND		0.00080	0.00016	mg/L		03/28/23 13:24	03/29/23 11:37	1
Hexachlorobutadiene	ND		0.0040	0.00054	mg/L		03/28/23 13:24	03/29/23 11:37	1
Hexachloroethane	ND		0.0040	0.00040	mg/L		03/28/23 13:24	03/29/23 11:37	1
Nitrobenzene	ND		0.0040	0.00051	mg/L		03/28/23 13:24	03/29/23 11:37	1
Pentachlorophenol	ND		0.016	0.0031	mg/L		03/28/23 13:24	03/29/23 11:37	1
3 & 4 Methylphenol	ND		0.0040	0.00019	mg/L		03/28/23 13:24	03/29/23 11:37	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	99		46 - 137	03/28/23 13:24	03/29/23 11:37	1
Phenol-d5 (Surr)	63		26 - 120	03/28/23 13:24	03/29/23 11:37	1
Nitrobenzene-d5 (Surr)	75		24 - 120	03/28/23 13:24	03/29/23 11:37	1
2-Fluorophenol (Surr)	71		19 - 120	03/28/23 13:24	03/29/23 11:37	1
2-Fluorobiphenyl (Surr)	89		33 - 120	03/28/23 13:24	03/29/23 11:37	1
2,4,6-Tribromophenol (Surr)	69		10 - 120	03/28/23 13:24	03/29/23 11:37	1

Lab Sample ID: LCS 240-567046/5-A
Matrix: Solid
Analysis Batch: 567114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567046

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
1,4-Dichlorobenzene	0.0800	0.0585		mg/L		73	40 - 120
2,4,5-Trichlorophenol	0.0800	0.0714		mg/L		89	52 - 123
2,4,6-Trichlorophenol	0.0800	0.0546		mg/L		68	51 - 120
2,4-Dinitrotoluene	0.0800	0.0735		mg/L		92	58 - 125
Pyridine	0.160	0.0778		mg/L		49	10 - 120
2-Methylphenol	0.0800	0.0668		mg/L		84	45 - 120
Hexachlorobenzene	0.0800	0.0667		mg/L		83	55 - 120
Hexachlorobutadiene	0.0800	0.0652		mg/L		82	41 - 120
Hexachloroethane	0.0800	0.0606		mg/L		76	39 - 120
Nitrobenzene	0.0800	0.0591		mg/L		74	47 - 120
Pentachlorophenol	0.160	0.109		mg/L		68	19 - 132
3 & 4 Methylphenol	0.0800	0.0569		mg/L		71	40 - 120

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	90		46 - 137

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LCS 240-567046/5-A
Matrix: Solid
Analysis Batch: 567114

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567046

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Phenol-d5 (Surr)	59		26 - 120
Nitrobenzene-d5 (Surr)	77		24 - 120
2-Fluorophenol (Surr)	69		19 - 120
2-Fluorobiphenyl (Surr)	80		33 - 120
2,4,6-Tribromophenol (Surr)	72		10 - 120

Lab Sample ID: 240-182548-12 MS
Matrix: Solid
Analysis Batch: 567114

Client Sample ID: WC-S. TRACK-SP2-COMP06-10
Prep Type: TCLP
Prep Batch: 567046

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
1,4-Dichlorobenzene	ND		0.0800	0.0557		mg/L		70	37 - 120
2,4,5-Trichlorophenol	ND		0.0800	0.0623		mg/L		78	25 - 128
2,4,6-Trichlorophenol	ND		0.0800	0.0535		mg/L		67	23 - 122
2,4-Dinitrotoluene	ND		0.0800	0.0709		mg/L		89	27 - 127
Pyridine	ND		0.160	0.0871		mg/L		54	10 - 120
2-Methylphenol	ND		0.0800	0.0631		mg/L		79	22 - 120
Hexachlorobenzene	ND		0.0800	0.0611		mg/L		76	18 - 123
Hexachlorobutadiene	ND		0.0800	0.0607		mg/L		76	10 - 120
Hexachloroethane	ND		0.0800	0.0573		mg/L		72	10 - 120
Nitrobenzene	ND		0.0800	0.0588		mg/L		73	26 - 120
Pentachlorophenol	ND		0.160	0.103		mg/L		64	10 - 132
3 & 4 Methylphenol	ND		0.0800	0.0532		mg/L		67	16 - 123

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Terphenyl-d14 (Surr)	89		46 - 137
Phenol-d5 (Surr)	63		26 - 120
Nitrobenzene-d5 (Surr)	71		24 - 120
2-Fluorophenol (Surr)	71		19 - 120
2-Fluorobiphenyl (Surr)	76		33 - 120
2,4,6-Tribromophenol (Surr)	71		10 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 240-567051/4-A
Matrix: Solid
Analysis Batch: 567130

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567051

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chlordane (technical)	ND		0.0050	0.000047	mg/L		03/28/23 13:28	03/29/23 10:41	1
Endrin	ND		0.00050	0.0000065	mg/L		03/28/23 13:28	03/29/23 10:41	1
Heptachlor	ND		0.00050	0.0000082	mg/L		03/28/23 13:28	03/29/23 10:41	1
Heptachlor epoxide	ND		0.00050	0.0000026	mg/L		03/28/23 13:28	03/29/23 10:41	1
gamma-BHC (Lindane)	ND		0.00050	0.0000025	mg/L		03/28/23 13:28	03/29/23 10:41	1
Methoxychlor	ND		0.0010	0.0000047	mg/L		03/28/23 13:28	03/29/23 10:41	1
Toxaphene	ND		0.020	0.000058	mg/L		03/28/23 13:28	03/29/23 10:41	1

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-567051/4-A
Matrix: Solid
Analysis Batch: 567130

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567051

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	76		10 - 145	03/28/23 13:28	03/29/23 10:41	1
DCB Decachlorobiphenyl	78		10 - 145	03/28/23 13:28	03/29/23 10:41	1
Tetrachloro-m-xylene	69		10 - 123	03/28/23 13:28	03/29/23 10:41	1
Tetrachloro-m-xylene	79		10 - 123	03/28/23 13:28	03/29/23 10:41	1

Lab Sample ID: LCS 240-567051/5-A
Matrix: Solid
Analysis Batch: 567130

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567051

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Endrin	0.00100	0.000872		mg/L		87	36 - 120
Heptachlor	0.00100	0.000833		mg/L		83	29 - 120
Heptachlor epoxide	0.00100	0.000841		mg/L		84	36 - 120
gamma-BHC (Lindane)	0.00100	0.000835		mg/L		84	23 - 120
Methoxychlor	0.00100	0.00104		mg/L		104	23 - 140

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	80		10 - 145
DCB Decachlorobiphenyl	85		10 - 145
Tetrachloro-m-xylene	74		10 - 123
Tetrachloro-m-xylene	85		10 - 123

Lab Sample ID: 240-182548-11 MS
Matrix: Solid
Analysis Batch: 567130

Client Sample ID: WC-S. TRACK-SP2-COMP01-05
Prep Type: TCLP
Prep Batch: 567051

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Endrin	ND		0.00100	0.000893		mg/L		89	58 - 120
Heptachlor	ND		0.00100	0.000785		mg/L		78	42 - 120
Heptachlor epoxide	ND		0.00100	0.000832		mg/L		83	54 - 120
gamma-BHC (Lindane)	ND		0.00100	0.000811		mg/L		81	32 - 120
Methoxychlor	ND		0.00100	0.00109		mg/L		109	11 - 159

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	82		10 - 145
DCB Decachlorobiphenyl	82		10 - 145
Tetrachloro-m-xylene	66		10 - 123
Tetrachloro-m-xylene	72		10 - 123

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

Lab Sample ID: MB 240-567137/1-A
Matrix: Solid
Analysis Batch: 567110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567137

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1016	ND		50	25	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1221	ND		50	30	ug/Kg		03/29/23 09:04	03/29/23 12:17	1

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QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 240-567137/1-A
Matrix: Solid
Analysis Batch: 567110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567137

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aroclor-1232	ND		50	21	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1242	ND		50	19	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1248	ND		50	17	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1254	ND		50	21	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1260	ND		50	21	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1262	ND		50	22	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Aroclor-1268	ND		50	16	ug/Kg		03/29/23 09:04	03/29/23 12:17	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
Tetrachloro-m-xylene	117		10 - 149				03/29/23 09:04	03/29/23 12:17	1
DCB Decachlorobiphenyl	130		10 - 174				03/29/23 09:04	03/29/23 12:17	1

Lab Sample ID: LCS 240-567137/2-A
Matrix: Solid
Analysis Batch: 567110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567137

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Aroclor-1016	1000	1050		ug/Kg		105	28 - 140
Aroclor-1260	1000	1230		ug/Kg		123	39 - 153
Surrogate			LCS	LCS			
	%Recovery	Qualifier	Result	Qualifier	Limits		
Tetrachloro-m-xylene	118		10 - 149				
DCB Decachlorobiphenyl	129		10 - 174				

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 410-358880/1-A
Matrix: Solid
Analysis Batch: 358964

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 358880

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		03/29/23 19:00	03/30/23 06:03	1
2,4-D	ND		0.050	0.016	mg/L		03/29/23 19:00	03/30/23 06:03	1
Surrogate	MB	MB	Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136				03/29/23 19:00	03/30/23 06:03	1
2,4-Dichlorophenylacetic acid (Surr)	65		26 - 136				03/29/23 19:00	03/30/23 06:03	1

Lab Sample ID: LCS 410-358880/2-A
Matrix: Solid
Analysis Batch: 358964

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 358880

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Silvex (2,4,5-TP)	0.00500	0.00438	J	mg/L		88	58 - 148
2,4-D	0.0502	0.0427	J	mg/L		85	42 - 147

QC Sample Results

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

Job ID: 240-182548-1

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 410-358880/2-A
Matrix: Solid
Analysis Batch: 358964

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 358880

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4-Dichlorophenylacetic acid (Surr)	73		26 - 136
2,4-Dichlorophenylacetic acid (Surr)	77		26 - 136

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

Lab Sample ID: MB 410-360245/1-A
Matrix: Solid
Analysis Batch: 360597

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 360245

Analyte	MB MB		RL	EDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,3,4,6,7,8-HpCDD	0.122	J	5.0	0.0069	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,4,6,7,8-HpCDF	0.0338	J	5.0	0.00089	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,4,7,8-HxCDD	ND		5.0	0.0030	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,4,7,8-HxCDF	0.0391	J I	5.0	0.0063	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,4,7,8,9-HpCDF	0.0468	J I	5.0	0.0011	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,6,7,8-HxCDD	ND		5.0	0.0028	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,6,7,8-HxCDF	ND		5.0	0.0062	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,7,8-PeCDD	0.0388	J I	5.0	0.0029	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,7,8-PeCDF	ND		5.0	0.0048	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,7,8,9-HxCDD	0.0500	J I	5.0	0.0027	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
1,2,3,7,8,9-HxCDF	0.0766	J	5.0	0.0062	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
2,3,4,6,7,8-HxCDF	0.0445	J	5.0	0.0060	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
2,3,4,7,8-PeCDF	0.0383	J I	5.0	0.0037	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
2,3,7,8-TCDD	0.0120	J I	1.0	0.0042	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
2,3,7,8-TCDF	ND		1.0	0.0028	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
OCDD	0.241	J	10	0.0069	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
OCDF	0.0603	J	10	0.0023	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total HxCDD	0.210	J I	5.0	0.0029	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total HxCDF	0.160	J I	5.0	0.0062	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total HpCDD	0.122	J	5.0	0.0069	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total HpCDF	0.0928	J I	5.0	0.0010	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total PeCDD	0.129	J I	5.0	0.0029	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total PeCDF	0.0851	J I	5.0	0.0043	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total TCDD	0.0567	J I	1.0	0.0042	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Total TCDF	0.0392	J I	1.0	0.0028	ng/Kg		04/03/23 12:06	04/04/23 16:39	1
Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac			
	%Recovery	Qualifier							
13C-OCDF	80		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-OCDD	80		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-2,3,7,8-TCDF	60		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-2,3,7,8-TCDD	56		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-2,3,4,7,8-PeCDF	56		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-2,3,4,6,7,8-HxCDF	70		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-1,2,3,7,8,9-HxCDF	77		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-1,2,3,7,8,9-HxCDD	68		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-1,2,3,7,8-PeCDF	53		40 - 135	04/03/23 12:06	04/04/23 16:39	1			
13C-1,2,3,7,8-PeCDD	51		40 - 135	04/03/23 12:06	04/04/23 16:39	1			

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: MB 410-360245/1-A

Matrix: Solid

Analysis Batch: 360597

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 360245

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-1,2,3,6,7,8-HxCDF	73		40 - 135	04/03/23 12:06	04/04/23 16:39	1
13C-1,2,3,6,7,8-HxCDD	68		40 - 135	04/03/23 12:06	04/04/23 16:39	1
13C-1,2,3,4,7,8,9-HpCDF	77		40 - 135	04/03/23 12:06	04/04/23 16:39	1
13C-1,2,3,4,7,8-HxCDF	69		40 - 135	04/03/23 12:06	04/04/23 16:39	1
13C-1,2,3,4,7,8-HxCDD	65		40 - 135	04/03/23 12:06	04/04/23 16:39	1
13C-1,2,3,4,6,7,8-HpCDF	75		40 - 135	04/03/23 12:06	04/04/23 16:39	1
13C-1,2,3,4,6,7,8-HpCDD	73		40 - 135	04/03/23 12:06	04/04/23 16:39	1

Lab Sample ID: LCS 410-360245/2-A

Matrix: Solid

Analysis Batch: 360597

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 360245

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	
						%Rec	Limits
1,2,3,4,6,7,8-HpCDD	100	100		ng/Kg		100	77 - 127
1,2,3,4,6,7,8-HpCDF	100	97.8		ng/Kg		98	77 - 127
1,2,3,4,7,8-HxCDD	100	102		ng/Kg		102	77 - 127
1,2,3,4,7,8-HxCDF	100	104		ng/Kg		104	77 - 129
1,2,3,4,7,8,9-HpCDF	100	103		ng/Kg		103	77 - 127
1,2,3,6,7,8-HxCDD	100	105		ng/Kg		105	76 - 127
1,2,3,6,7,8-HxCDF	100	102		ng/Kg		102	77 - 129
1,2,3,7,8-PeCDD	100	105		ng/Kg		105	77 - 127
1,2,3,7,8-PeCDF	100	108		ng/Kg		108	75 - 129
1,2,3,7,8,9-HxCDD	100	105		ng/Kg		105	76 - 127
1,2,3,7,8,9-HxCDF	100	101		ng/Kg		101	76 - 126
2,3,4,6,7,8-HxCDF	100	101		ng/Kg		101	78 - 128
2,3,4,7,8-PeCDF	100	107		ng/Kg		107	75 - 131
2,3,7,8-TCDD	20.0	20.2		ng/Kg		101	68 - 142
2,3,7,8-TCDF	20.0	21.0		ng/Kg		105	70 - 133
OCDD	200	205		ng/Kg		102	77 - 125
OCDF	200	203		ng/Kg		101	75 - 128

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-OCDF	83		40 - 135
13C-OCDD	83		40 - 135
13C-2,3,7,8-TCDF	69		40 - 135
13C-2,3,7,8-TCDD	67		40 - 135
13C-2,3,4,7,8-PeCDF	70		40 - 135
13C-2,3,4,6,7,8-HxCDF	77		40 - 135
13C-1,2,3,7,8,9-HxCDF	78		40 - 135
13C-1,2,3,7,8,9-HxCDD	75		40 - 135
13C-1,2,3,7,8-PeCDF	68		40 - 135
13C-1,2,3,7,8-PeCDD	64		40 - 135
13C-1,2,3,6,7,8-HxCDF	79		40 - 135
13C-1,2,3,6,7,8-HxCDD	72		40 - 135
13C-1,2,3,4,7,8,9-HpCDF	78		40 - 135
13C-1,2,3,4,7,8-HxCDF	76		40 - 135
13C-1,2,3,4,7,8-HxCDD	74		40 - 135
13C-1,2,3,4,6,7,8-HpCDF	77		40 - 135
13C-1,2,3,4,6,7,8-HpCDD	79		40 - 135

Eurofins Canton

QC Sample Results

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

Job ID: 240-182548-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-567031/2-A
Matrix: Solid
Analysis Batch: 567197

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567031

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 14:20	1
Barium	ND		0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 14:20	1
Cadmium	ND		0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 14:20	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 14:20	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 14:20	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 14:20	1
Silver	ND		0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 14:20	1

Lab Sample ID: LCS 240-567031/3-A
Matrix: Solid
Analysis Batch: 567197

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567031

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	1.97		mg/L		98	50 - 150	
Cadmium	1.00	1.03		mg/L		103	50 - 150	
Chromium	1.00	0.987		mg/L		99	50 - 150	
Lead	1.00	0.978		mg/L		98	50 - 150	
Selenium	2.00	2.19		mg/L		110	50 - 150	
Silver	0.100	0.106		mg/L		106	50 - 150	

Lab Sample ID: LB 240-566897/1-B
Matrix: Solid
Analysis Batch: 567197

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 567031

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	ND		0.050	0.0041	mg/L		03/28/23 14:00	03/29/23 14:15	1
Barium	0.00229	J	0.50	0.0013	mg/L		03/28/23 14:00	03/29/23 14:15	1
Cadmium	ND		0.050	0.00020	mg/L		03/28/23 14:00	03/29/23 14:15	1
Chromium	ND		0.050	0.0040	mg/L		03/28/23 14:00	03/29/23 14:15	1
Lead	ND		0.050	0.0028	mg/L		03/28/23 14:00	03/29/23 14:15	1
Selenium	ND		0.050	0.0060	mg/L		03/28/23 14:00	03/29/23 14:15	1
Silver	0.000843	J	0.050	0.00062	mg/L		03/28/23 14:00	03/29/23 14:15	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-567033/2-A
Matrix: Solid
Analysis Batch: 567224

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567033

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.0020	0.00013	mg/L		03/28/23 14:00	03/29/23 12:51	1

Lab Sample ID: LCS 240-567033/3-A
Matrix: Solid
Analysis Batch: 567224

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Mercury	0.00500	0.00510		mg/L		102	80 - 120	

QC Sample Results

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

Job ID: 240-182548-1

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

Lab Sample ID: LB 240-566897/1-C
 Matrix: Solid
 Analysis Batch: 567224

Client Sample ID: Method Blank
 Prep Type: TCLP
 Prep Batch: 567033

Analyte	LB Result	LB 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 12:49	1

Method: Moisture - Percent Moisture

Lab Sample ID: 240-182548-2 DU
 Matrix: Solid
 Analysis Batch: 567052

Client Sample ID: WC-S. TRACK-SP2-02 (2-3')
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Percent Solids	83.8		85.7		%		2	20
Percent Moisture	16.2		14.3		%		13	20

QC Association Summary

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

Job ID: 240-182548-1

GC/MS VOA

Composite Batch: 566868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	Composite	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	Composite	

Leach Batch: 566896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	1311	566868
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	1311	566868
LB 240-566896/1-A MB	Method Blank	TCLP	Solid	1311	

Prep Batch: 566928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Total/NA	Solid	5035	
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	Total/NA	Solid	5035	
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Total/NA	Solid	5035	
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	Total/NA	Solid	5035	
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	Total/NA	Solid	5035	
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	5035	
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	5035	
MB 240-566928/1-A	Method Blank	Total/NA	Solid	5035	
LCS 240-566928/2-A	Lab Control Sample	Total/NA	Solid	5035	
240-182548-10 MS	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	5035	
240-182548-10 MSD	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	5035	

Analysis Batch: 566934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Total/NA	Solid	8260D	566928
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	Total/NA	Solid	8260D	566928
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Total/NA	Solid	8260D	566928
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	Total/NA	Solid	8260D	566928
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	Total/NA	Solid	8260D	566928
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	8260D	566928
MB 240-566928/1-A	Method Blank	Total/NA	Solid	8260D	566928
LCS 240-566928/2-A	Lab Control Sample	Total/NA	Solid	8260D	566928
240-182548-10 MS	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	8260D	566928
240-182548-10 MSD	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	8260D	566928

Analysis Batch: 566958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	8260D	566896
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	8260D	566896
LB 240-566896/1-A MB	Method Blank	TCLP	Solid	8260D	566896
LCS 240-566958/10	Lab Control Sample	Total/NA	Solid	8260D	

Prep Batch: 567049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	Total/NA	Solid	5035	
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	Total/NA	Solid	5035	
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	Total/NA	Solid	5035	
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	5035	
MB 240-567049/1-A	Method Blank	Total/NA	Solid	5035	
MB 240-567049/2-A	Method Blank	Total/NA	Solid	5035	

QC Association Summary

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

Job ID: 240-182548-1

GC/MS VOA

Analysis Batch: 567081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	Total/NA	Solid	8260D	567049
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	Total/NA	Solid	8260D	567049
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Total/NA	Solid	8260D	566928
MB 240-567049/1-A	Method Blank	Total/NA	Solid	8260D	567049
LCS 240-567081/4	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 567084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	Total/NA	Solid	8260D	567049
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	8260D	567049
MB 240-567049/2-A	Method Blank	Total/NA	Solid	8260D	567049
LCS 240-567084/7	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 567279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Total/NA	Solid	8260D	566928
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	8260D	566928

GC/MS Semi VOA

Composite Batch: 566868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	Composite	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	Composite	
240-182548-12 MS	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	Composite	

Leach Batch: 566899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	1311	566868
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	1311	566868
240-182548-12 MS	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	1311	566868

Prep Batch: 566998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	Total/NA	Solid	3540C	
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	Total/NA	Solid	3540C	
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Total/NA	Solid	3540C	
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	Total/NA	Solid	3540C	
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	Total/NA	Solid	3540C	
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Total/NA	Solid	3540C	
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	Total/NA	Solid	3540C	
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	Total/NA	Solid	3540C	
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	3540C	
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	3540C	
MB 240-566998/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-566998/2-A	Lab Control Sample	Total/NA	Solid	3540C	
240-182548-10 MS	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	3540C	
240-182548-10 MSD	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	3540C	

QC Association Summary

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

Job ID: 240-182548-1

GC/MS Semi VOA

Prep Batch: 567046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	3510C	566899
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	3510C	566899
MB 240-567046/4-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-567046/5-A	Lab Control Sample	Total/NA	Solid	3510C	
240-182548-12 MS	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	3510C	566899

Analysis Batch: 567114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	8270E	567046
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	8270E	567046
MB 240-567046/4-A	Method Blank	Total/NA	Solid	8270E	567046
LCS 240-567046/5-A	Lab Control Sample	Total/NA	Solid	8270E	567046
240-182548-12 MS	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	8270E	567046

Analysis Batch: 567268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	Total/NA	Solid	8270E	566998
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	Total/NA	Solid	8270E	566998
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Total/NA	Solid	8270E	566998
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	Total/NA	Solid	8270E	566998
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	Total/NA	Solid	8270E	566998
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Total/NA	Solid	8270E	566998
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	Total/NA	Solid	8270E	566998
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	Total/NA	Solid	8270E	566998
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	8270E	566998
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	8270E	566998
MB 240-566998/1-A	Method Blank	Total/NA	Solid	8270E	566998
LCS 240-566998/2-A	Lab Control Sample	Total/NA	Solid	8270E	566998
240-182548-10 MS	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	8270E	566998
240-182548-10 MSD	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	8270E	566998

GC Semi VOA

Leach Batch: 358769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	1311	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	1311	

Prep Batch: 358880

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	8151A	358769
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	8151A	358769
MB 410-358880/1-A	Method Blank	Total/NA	Solid	8151A	
LCS 410-358880/2-A	Lab Control Sample	Total/NA	Solid	8151A	

Analysis Batch: 358964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	8151A	358880
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	8151A	358880
MB 410-358880/1-A	Method Blank	Total/NA	Solid	8151A	358880
LCS 410-358880/2-A	Lab Control Sample	Total/NA	Solid	8151A	358880

QC Association Summary

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

Job ID: 240-182548-1

GC Semi VOA

Composite Batch: 566865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	Composite	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	Composite	

Composite Batch: 566868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	Composite	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	Composite	
240-182548-11 MS	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	Composite	

Leach Batch: 566899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	1311	566868
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	1311	566868
240-182548-11 MS	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	1311	566868

Prep Batch: 567051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	3510C	566899
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	3510C	566899
MB 240-567051/4-A	Method Blank	Total/NA	Solid	3510C	
LCS 240-567051/5-A	Lab Control Sample	Total/NA	Solid	3510C	
240-182548-11 MS	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	3510C	566899

Analysis Batch: 567110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	8082A	567137
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	8082A	567137
MB 240-567137/1-A	Method Blank	Total/NA	Solid	8082A	567137
LCS 240-567137/2-A	Lab Control Sample	Total/NA	Solid	8082A	567137

Analysis Batch: 567130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	8081B	567051
240-182548-12	WC-S. TRACK-SP2-COMP06-10	TCLP	Solid	8081B	567051
MB 240-567051/4-A	Method Blank	Total/NA	Solid	8081B	567051
LCS 240-567051/5-A	Lab Control Sample	Total/NA	Solid	8081B	567051
240-182548-11 MS	WC-S. TRACK-SP2-COMP01-05	TCLP	Solid	8081B	567051

Prep Batch: 567137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	3546	566865
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	3546	566865
MB 240-567137/1-A	Method Blank	Total/NA	Solid	3546	
LCS 240-567137/2-A	Lab Control Sample	Total/NA	Solid	3546	

Specialty Organics

Prep Batch: 360245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	HRMS-Soxtherm	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	HRMS-Soxtherm	

Eurofins Canton

QC Association Summary

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

Job ID: 240-182548-1

Specialty Organics (Continued)

Prep Batch: 360245 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-360245/1-A	Method Blank	Total/NA	Solid	HRMS-Soxtherm	
LCS 410-360245/2-A	Lab Control Sample	Total/NA	Solid	HRMS-Soxtherm	

Analysis Batch: 360597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	8290A	360245
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	8290A	360245
MB 410-360245/1-A	Method Blank	Total/NA	Solid	8290A	360245
LCS 410-360245/2-A	Lab Control Sample	Total/NA	Solid	8290A	360245

Metals

Leach Batch: 566897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	TCLP	Solid	1311	
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	TCLP	Solid	1311	
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	TCLP	Solid	1311	
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	TCLP	Solid	1311	
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	TCLP	Solid	1311	
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	TCLP	Solid	1311	
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	TCLP	Solid	1311	
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	TCLP	Solid	1311	
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	TCLP	Solid	1311	
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	TCLP	Solid	1311	
LB 240-566897/1-B	Method Blank	TCLP	Solid	1311	
LB 240-566897/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 567031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	TCLP	Solid	3010A	566897
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	TCLP	Solid	3010A	566897
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	TCLP	Solid	3010A	566897
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	TCLP	Solid	3010A	566897
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	TCLP	Solid	3010A	566897
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	TCLP	Solid	3010A	566897
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	TCLP	Solid	3010A	566897
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	TCLP	Solid	3010A	566897
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	TCLP	Solid	3010A	566897
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	TCLP	Solid	3010A	566897
LB 240-566897/1-B	Method Blank	TCLP	Solid	3010A	566897
MB 240-567031/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-567031/3-A	Lab Control Sample	Total/NA	Solid	3010A	

Prep Batch: 567033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	TCLP	Solid	7470A	566897
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	TCLP	Solid	7470A	566897
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	TCLP	Solid	7470A	566897
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	TCLP	Solid	7470A	566897
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	TCLP	Solid	7470A	566897
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	TCLP	Solid	7470A	566897

QC Association Summary

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

Job ID: 240-182548-1

Metals (Continued)

Prep Batch: 567033 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	TCLP	Solid	7470A	566897
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	TCLP	Solid	7470A	566897
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	TCLP	Solid	7470A	566897
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	TCLP	Solid	7470A	566897
LB 240-566897/1-C	Method Blank	TCLP	Solid	7470A	566897
MB 240-567033/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-567033/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 567197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	TCLP	Solid	6010D	567031
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	TCLP	Solid	6010D	567031
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	TCLP	Solid	6010D	567031
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	TCLP	Solid	6010D	567031
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	TCLP	Solid	6010D	567031
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	TCLP	Solid	6010D	567031
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	TCLP	Solid	6010D	567031
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	TCLP	Solid	6010D	567031
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	TCLP	Solid	6010D	567031
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	TCLP	Solid	6010D	567031
LB 240-566897/1-B	Method Blank	TCLP	Solid	6010D	567031
MB 240-567031/2-A	Method Blank	Total/NA	Solid	6010D	567031
LCS 240-567031/3-A	Lab Control Sample	Total/NA	Solid	6010D	567031

Analysis Batch: 567224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	TCLP	Solid	7470A	567033
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	TCLP	Solid	7470A	567033
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	TCLP	Solid	7470A	567033
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	TCLP	Solid	7470A	567033
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	TCLP	Solid	7470A	567033
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	TCLP	Solid	7470A	567033
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	TCLP	Solid	7470A	567033
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	TCLP	Solid	7470A	567033
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	TCLP	Solid	7470A	567033
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	TCLP	Solid	7470A	567033
LB 240-566897/1-C	Method Blank	TCLP	Solid	7470A	567033
MB 240-567033/2-A	Method Blank	Total/NA	Solid	7470A	567033
LCS 240-567033/3-A	Lab Control Sample	Total/NA	Solid	7470A	567033

General Chemistry

Composite Batch: 566865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	Composite	
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	Composite	

Analysis Batch: 567052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-1	WC-S. TRACK-SP2-01 (2-3')	Total/NA	Solid	Moisture	
240-182548-2	WC-S. TRACK-SP2-02 (2-3')	Total/NA	Solid	Moisture	

QC Association Summary

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

Job ID: 240-182548-1

General Chemistry (Continued)

Analysis Batch: 567052 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182548-3	WC-S. TRACK-SP2-03 (4-5')	Total/NA	Solid	Moisture	
240-182548-4	WC-S. TRACK-SP2-04 (4-5')	Total/NA	Solid	Moisture	
240-182548-5	WC-S. TRACK-SP2-05 (6-7')	Total/NA	Solid	Moisture	
240-182548-6	WC-S. TRACK-SP2-06 (2-3')	Total/NA	Solid	Moisture	
240-182548-7	WC-S. TRACK-SP2-07 (3-4')	Total/NA	Solid	Moisture	
240-182548-8	WC-S. TRACK-SP2-08 (7-8')	Total/NA	Solid	Moisture	
240-182548-9	WC-S. TRACK-SP2-09 (9-10')	Total/NA	Solid	Moisture	
240-182548-10	WC-S. TRACK-SP2-10 (5-6')	Total/NA	Solid	Moisture	
240-182548-11	WC-S. TRACK-SP2-COMP01-05	Total/NA	Solid	Moisture	566865
240-182548-12	WC-S. TRACK-SP2-COMP06-10	Total/NA	Solid	Moisture	566865
240-182548-2 DU	WC-S. TRACK-SP2-02 (2-3')	Total/NA	Solid	Moisture	

Lab Chronicle

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 14:58
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:07
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			567049	LAM	EET CAN	03/26/23 12:51
Total/NA	Analysis	8260D		1	567081	CS	EET CAN	03/29/23 02:22
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		2	567268	MRU	EET CAN	03/30/23 09:43

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:03
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:10
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			567049	LAM	EET CAN	03/26/23 12:51
Total/NA	Analysis	8260D		1	567081	CS	EET CAN	03/29/23 02:47
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		50	567268	MRU	EET CAN	03/30/23 10:06

Lab Chronicle

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:08
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:12
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		100	566934	TJL2	EET CAN	03/28/23 10:25
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	567279	TJL2	EET CAN	03/30/23 19:08
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		4	567268	MRU	EET CAN	03/30/23 12:22

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:12
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:14
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	566934	TJL2	EET CAN	03/28/23 12:11
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		4	567268	MRU	EET CAN	03/30/23 12:45

Lab Chronicle

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:17
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:16
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			567049	LAM	EET CAN	03/26/23 12:51
Total/NA	Analysis	8260D		1	567084	TJL2	EET CAN	03/29/23 12:33
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		4	567268	MRU	EET CAN	03/30/23 13:08

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:21
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:18
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	567081	CS	EET CAN	03/29/23 08:39
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		20	566934	TJL2	EET CAN	03/28/23 10:46
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		5	567268	MRU	EET CAN	03/30/23 12:00

Lab Chronicle

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:26
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:20
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	566934	TJL2	EET CAN	03/28/23 12:33
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		4	567268	MRU	EET CAN	03/30/23 13:31

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:31
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:22
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

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

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	566934	TJL2	EET CAN	03/28/23 12:54
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		50	567268	MRU	EET CAN	03/30/23 10:29

Lab Chronicle

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

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-09 (9-10')

Lab Sample ID: 240-182548-9

Date Collected: 03/24/23 13:25

Matrix: Solid

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:44
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:29
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

Client Sample ID: WC-S. TRACK-SP2-09 (9-10')

Lab Sample ID: 240-182548-9

Date Collected: 03/24/23 13:25

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			567049	LAM	EET CAN	03/26/23 12:51
Total/NA	Analysis	8260D		1	567084	TJL2	EET CAN	03/29/23 12:54
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	567279	TJL2	EET CAN	03/30/23 17:21
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		4	567268	MRU	EET CAN	03/30/23 13:53

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Date Collected: 03/24/23 13:40

Matrix: Solid

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3010A			567031	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	6010D		1	567197	RKT	EET CAN	03/29/23 15:48
TCLP	Leach	1311			566897	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	7470A			567033	AJC	EET CAN	03/28/23 14:00
TCLP	Analysis	7470A		1	567224	MRL	EET CAN	03/29/23 13:31
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

Client Sample ID: WC-S. TRACK-SP2-10 (5-6')

Lab Sample ID: 240-182548-10

Date Collected: 03/24/23 13:40

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			566928	LAM	EET CAN	03/27/23 18:16
Total/NA	Analysis	8260D		1	566934	TJL2	EET CAN	03/28/23 11:08
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		10	567268	MRU	EET CAN	03/30/23 10:51

Lab Chronicle

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

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-COMP01-05

Lab Sample ID: 240-182548-11

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566868	DRJ	EET CAN	03/27/23 11:52
TCLP	Leach	1311			566896	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Analysis	8260D		1	566958	HMB	EET CAN	03/28/23 14:03
TCLP	Composite	Composite			566868	DRJ	EET CAN	03/27/23 11:52
TCLP	Leach	1311			566899	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3510C			567046	SDE	EET CAN	03/28/23 13:24
TCLP	Analysis	8270E		1	567114	TMH	EET CAN	03/29/23 15:58
TCLP	Composite	Composite			566868	DRJ	EET CAN	03/27/23 11:52
TCLP	Leach	1311			566899	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3510C			567051	SDE	EET CAN	03/28/23 13:28
TCLP	Analysis	8081B		1	567130	BPM	EET CAN	03/29/23 11:12
TCLP	Leach	1311			358769	UNWS	ELLE	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	8151A			358880	K2IL	ELLE	03/29/23 19:00
TCLP	Analysis	8151A		1	358964	UAMZ	ELLE	03/30/23 17:21
Total/NA	Composite	Composite			566865	DRJ	EET CAN	03/27/23 11:49
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

Client Sample ID: WC-S. TRACK-SP2-COMP01-05

Lab Sample ID: 240-182548-11

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Composite	Composite			566865	DRJ	EET CAN	03/27/23 11:49
Total/NA	Prep	3546			567137	BMB	EET CAN	03/29/23 09:04
Total/NA	Analysis	8082A		1	567110	MBB	EET CAN	03/29/23 15:58
Total/NA	Prep	HRMS-Soxtherm			360245	RGA5	ELLE	04/03/23 12:06
Total/NA	Analysis	8290A		1	360597	DZ6A	ELLE	04/05/23 03:25

Client Sample ID: WC-S. TRACK-SP2-COMP06-10

Lab Sample ID: 240-182548-12

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Composite	Composite			566868	DRJ	EET CAN	03/27/23 11:52
TCLP	Leach	1311			566896	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Analysis	8260D		1	566958	HMB	EET CAN	03/28/23 14:26
TCLP	Composite	Composite			566868	DRJ	EET CAN	03/27/23 11:52
TCLP	Leach	1311			566899	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3510C			567046	SDE	EET CAN	03/28/23 13:24
TCLP	Analysis	8270E		1	567114	TMH	EET CAN	03/29/23 16:24
TCLP	Composite	Composite			566868	DRJ	EET CAN	03/27/23 11:52
TCLP	Leach	1311			566899	DRJ	EET CAN	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	3510C			567051	SDE	EET CAN	03/28/23 13:28
TCLP	Analysis	8081B		1	567130	BPM	EET CAN	03/29/23 11:43

Lab Chronicle

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

Job ID: 240-182548-1

Client Sample ID: WC-S. TRACK-SP2-COMP06-10

Lab Sample ID: 240-182548-12

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			358769	UNWS	ELLE	03/27/23 16:00 - 03/28/23 08:20 ¹
TCLP	Prep	8151A			358880	K2IL	ELLE	03/29/23 19:00
TCLP	Analysis	8151A		1	358964	UAMZ	ELLE	03/30/23 17:55
Total/NA	Composite	Composite			566865	DRJ	EET CAN	03/27/23 11:49
Total/NA	Analysis	Moisture		1	567052	MS	EET CAN	03/28/23 14:26

Client Sample ID: WC-S. TRACK-SP2-COMP06-10

Lab Sample ID: 240-182548-12

Date Collected: 03/24/23 00:00

Matrix: Solid

Date Received: 03/25/23 18:35

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			566865	DRJ	EET CAN	03/27/23 11:49
Total/NA	Prep	3546			567137	BMB	EET CAN	03/29/23 09:04
Total/NA	Analysis	8082A		1	567110	MBB	EET CAN	03/29/23 16:14
Total/NA	Prep	HRMS-Soxtherm			360245	RGA5	ELLE	04/03/23 12:06
Total/NA	Analysis	8290A		1	360597	DZ6A	ELLE	04/05/23 04:14

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: 240-182548-1

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	06-29-23
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	03-31-23
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: 240-182548-1

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

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



Address: 180 Van Buren Ave
 Baraborton, OH 44203-3543
 ET Gantner 330-491-9396

Chain of Custody Record

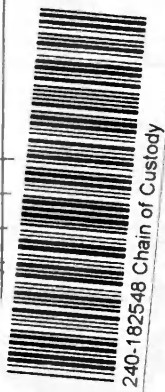
645693

Environment Testing
 America

TAL-9210

Regulatory Program: DW NPDES RCRA Other: CERCLA

Client Contact		Project Manager: Jason Artrip		Site Contact:		Date: 3/24/23		COC No: 1 of 1	
Company Name: Arcadis		Tel/E-mail: Jason.Artrip@arcadis.com		Lab Contact:		Carrier: Courier		Sampler: Michelle Clayton	
Address: 4665 Cornell Rd Ste 200		Analysis Turnaround Time		Perform MS/MSD (Y/N)		For Lab Use Only:		Walk-in Client:	
City/State/Zip: Cincinnati, OH 45241		TAT if different from Below		Filtered Sample (Y/N)		Lab Sampling:		Job / SDG No.:	
Phone: 513-860-8700		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
Fax:		2 weeks							
Project Name: East Palestine Train Derailment		1 week							
Site: East Palestine, OH		2 days							
PO# 24030745		1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Sample Specific Notes:		
WC-S.Track - SP2-01 (2-3)		3/24/23	11:00	G	S	9	Total VOC	X	
WC-S.Track - SP2-02 (2-3)		3/24/23	11:11	G	S	9	Total SVOC	X	
WC-S.Track - SP2-03 (4-5)		3/24/23	11:22	G	S	9	Total PCBs	X	
WC-S.Track - SP2-04 (4-5)		3/24/23	11:38	G	S	9	Total Metals	X	
WC-S.Track - SP2-05 (6-7)		3/24/23	11:50	G	S	9	Total VOC	X	
WC-S.Track - SP2-06 (2-3)		3/24/23	12:05	G	S	9	Total SVOC	X	
WC-S.Track - SP2-07 (3-4)		3/24/23	12:13	G	S	9	Total PCBs	X	
WC-S.Track - SP2-08 (7-8)		3/24/23	13:00	G	S	9	Total Metals	X	
WC-S.Track - SP2-09 (9-10)		3/24/23	13:25	G	S	9	Total VOC	X	
WC-S.Track - SP2-10 (5-6)		3/24/23	13:40	G	S	9	Total SVOC	X	
WC-S.Track - SP2-Composite-05		3/24	-	C	S	0			Lab to generate 5 pr composite
WC-S.Track - SP2-Composite-10		3/24	-	C	S	0			Lab to generate 5 pr 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.

Special Instructions/QC Requirements & Comments: U043 (WV-MICHIGAN-DE-LISTED)

Relinquished by:	Company:	Date/Time:	Relinquished by:	Company:	Date/Time:	Relinquished by:	Company:	Date/Time:
<i>Michelle Clayton</i>	Arcadis	3/24/23 17:30	<i>Jason Artrip</i>	Arcadis	3/24/23 17:30	<i>Michelle Clayton</i>	Arcadis	3/24/23 17:30
<i>Jason Artrip</i>	Arcadis	3/25/23 17:00	<i>Michelle Clayton</i>	Arcadis	3/25/23 17:00	<i>Michelle Clayton</i>	Arcadis	3/25/23 17:00
<i>Michelle Clayton</i>	Arcadis	3/25/23 18:35	<i>Michelle Clayton</i>	Arcadis	3/25/23 18:35	<i>Michelle Clayton</i>	Arcadis	3/25/23 18:35



**Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility**

Login # : 182548

Client Acadix Site Name NSRR-ER
Cooler Received on 3-23-23 Opened on 3-27-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Cooler unpacked by:
DAW

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 # _____ (CF _____ °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No NA
 -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
 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: _____

TAL-8210

Company Name: Arcadis
Address: 4665 Cornell Rd Ste 200
City/State/Zip: Cincinnati, OH 45241
Phone: 513-860-8700
Fax: LM 3/29/23
Project Name: East Palestine Train Derailment
Site: East Palestine, OH
PO # 24030745

Client Contact: Arcadis
Company Name: Arcadis
Address: 4665 Cornell Rd Ste 200
City/State/Zip: Cincinnati, OH 45241
Phone: 513-860-8700
Fax: LM 3/29/23
Project Name: East Palestine Train Derailment
Site: East Palestine, OH
PO # 24030745

Project Manager: Jason Artrip
Tel/E-mail: Jason.Artrip@arcadis.com
Analysis Turnaround Time: RUSH
TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day

Regulatory Program: DW NPDES RCRA Other: CERCLA
Site Contact: LM 3/29/23 Date: 3/24/23 Carrier: Courier
Lab Contact:
COC No: LM 3/29/23 of 1 COCs

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 PCBs	Total SVOC	TCP Metals	TCP VOC	TCP Stroc	TCP Pest/Herbs	Diurnal/Evening
WC-S, Track - SP2-01 (2-3)	3/24/23	11:00	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-02 (2-3)	3/24/23	11:11	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-03 (4-5)	3/24/23	11:22	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-04 (4-5)	3/24/23	11:38	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-05 (6-7)	3/24/23	11:50	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-06 (2-3)	3/24/23	12:05	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-07 (3-4)	3/24/23	12:13	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-08 (7-8)	3/24/23	13:00	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-09 (9-10)	3/24/23	13:25	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-10 (5-6)	3/24/23	13:40	G	S	9	N	N	X	X	X	X	X	X	X	X
WC-S, Track - SP2-Comp01-05	3/24	-	C	S	0										
WC-S, Track - SP2-Composite-10	3/24	-	C	S	0										



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other Methanol
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.
LM 3/29/23
 Non-Hazardous Flammable Skin Irritant Poison B Unknown LM 3/29/23

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:
LM 3/29/23
Lab to generate 5 pt Composite
Lab to generate 5 pt Composite

Relinquished by:	Date/Time:	Relinquished by:	Date/Time:	Relinquished by:	Date/Time:	Relinquished by:	Date/Time:
Jason Artrip	3/24/23 17:00	Received by:	3/24/23 17:00	Company:	Arcadis	Received by:	3/24/23 17:00
Eva Tronacion	3/25/23 18:35	Received by:	3/25/23 18:35	Company:	EETNC	Received by:	3/25/23 18:35
Jason Artrip	3/25/23 18:35	Received by:	3/25/23 18:35	Company:	EETNC	Received by:	3/25/23 18:35



**Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility**

Login # : 182548

Client Acadix Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 3-23-23 Opened on 3-27-23

DAW

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 # _____ (CF _____ °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ 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 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

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	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> Other	IR GUN #: <u>19</u>	<u>1.9</u>	<u>2.2</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	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> Other	IR GUN #: <u>19</u>	<u>2.4</u>	<u>2.7</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	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> Other	IR GUN #: <u>19</u>	<u>1.0</u>	<u>1.3</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 type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<input type="radio"/> EC	<input type="radio"/> Client	<input type="radio"/> Box	<input type="radio"/> 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
<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



Environment Testing

Client Information (Sub Contract Lab)		Sampler: DelMonico, Michael		Lab PM: DelMonico, Michael		Carrier Tracking No(s):		COC No: 240-165511.1			
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 #: 240-182548-1			
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:		Due Date Requested: 4/3/2023 TAT Requested (days):		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:	
Project Name: NS East Palestine Site:		Project #: 24030745 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)	Form MS/MSD (Yes or No)	8290A/HRMS_Soxdim_P 8290 17 + Totals	8151A/1311_T TCLP Herbicides	Total Number of Containers	Special Instructions/Note:
Preservation Code: X X											
WC-S. TRACK-SP2-COMP01-05 (240-182548-11)		3/24/23	Eastern	Solid		X	X			1	
WC-S. TRACK-SP2-COMP06-10 (240-182548-12)		3/24/23	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>[Signature]</i>		Date/Time: 3/23 1545		Company: EESTAC		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: 3-28-23 0945		Company: <i>[Signature]</i>	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2-1							



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:		E-Mail:		State of Origin:		Page: Page 1 of 1																	
Company: Eurofins Lancaster Laboratories Environm				Accreditations Required (See note):		Job #:		240-182548-1																			
Address: 2425 New Holland Pike, City: Lancaster State, Zip: PA, 17601 Phone: 717-656-2300(Tel) Email:				Due Date Requested: 4/3/2023 TAT Requested (days):		Analysis Requested						Preservation Codes:															
Project Name: NS East Palestine Site:				Project #: 24030745 SSOW#:								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)		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)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		8290A/HRMS_Soxtim_P 8290 17 + Totals		8151A/1311_T TCLP Herbicides		8151A/8151A_AP TCLP Herbicides		Total Number of containers		Special Instructions/Note:			
WC-S. TRACK-SP2-COMP01-05 (240-182548-11)				3/24/23		Eastern		Solid		Solid		X		X		X						1					
WC-S. TRACK-SP2-COMP06-10 (240-182548-12)				3/24/23		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/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: 3/28/23 1440		Company: <i>[Signature]</i>		Received by: <i>[Signature]</i>	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by: <i>[Signature]</i>	

Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.2
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Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-182548-1

Login Number: 182548

List Number: 2

Creator: McBeth, Jessica

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Creation: 03/28/23 12:24 PM

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: 240-182548-1

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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	75	74	83	76	77	73	71	71
240-182548-12	WC-S. TRACK-SP2-COMP06-10	78	79	67	67	67	75	75	76
LCS 410-360245/2-A	Lab Control Sample	83	83	69	67	70	77	78	75
MB 410-360245/1-A	Method Blank	80	80	60	56	56	70	77	68

		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)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	75	70	83	71	73	88	70	72
240-182548-12	WC-S. TRACK-SP2-COMP06-10	66	63	77	73	76	74	72	75
LCS 410-360245/2-A	Lab Control Sample	68	64	79	72	78	76	74	77
MB 410-360245/1-A	Method Blank	53	51	73	68	77	69	65	75

		HpCDD (40-135)
240-182548-11	WC-S. TRACK-SP2-COMP01-05	71
240-182548-12	WC-S. TRACK-SP2-COMP06-10	74
LCS 410-360245/2-A	Lab Control Sample	79
MB 410-360245/1-A	Method Blank	73

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 7:51:16 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182577-1

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: 240-182577-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time
H3	Sample was received and analyzed past 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
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: 240-182577-1

Job ID: 240-182577-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182577-1

Comments

No additional comments.

Receipt

The samples were received on 3/27/2023 6:30 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 0.8° C.

GC/MS VOA

Method 5035: The following sample was 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-SP2E-01 (2-3') (240-182577-1).

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. This 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 3-27-22 at 20:20pm: WC-S. TRACK-SP2E-01 (2-3') (240-182577-1). 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 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: The following sample was received with insufficient time remaining to freeze within 48 hours, as required for samples collected in water preserved TerraCores: WC-S. TRACK-SP2E-01 (2-3') (240-182577-1). The sample was collected on 3/25/2023 at 4:10 PM. The sample was received on 3/27/2023 at 6:30 PM and placed in the freezer on 3/27/2023 at 8:20 PM.

Method 8260D: Surrogate recovery for the following sample was outside the upper control limit: WC-S. TRACK-SP2E-01 (2-3') (240-182577-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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 240-567268 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 sample is impacted: WC-S. TRACK-SP2E-01 (2-3') (240-182577-1).

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

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: 240-182577-1

Job ID: 240-182577-1 (Continued)

Laboratory: Eurofins Canton (Continued)

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: 240-182577-1

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
5030C	Purge and Trap	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: 240-182577-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Solid	03/25/23 16:10	03/27/23 18:30
240-182577-2	TRIP BLANK	Water	03/24/23 00:00	03/27/23 18:30

- 1
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- 9
- 10
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- 12
- 13
- 14

Detection Summary

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

Job ID: 240-182577-1

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	0.11	J	0.22	0.095	mg/Kg	12.5	✳	8270E	Total/NA
Phenanthrene	0.064	J	0.22	0.033	mg/Kg	12.5	✳	8270E	Total/NA
Arsenic	0.0068	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.11	J	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.0033	J	0.050	0.00020	mg/L	1		6010D	TCLP

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182577-2

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: 240-182577-1

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Date Collected: 03/25/23 16:10

Matrix: Solid

Date Received: 03/27/23 18:30

Percent Solids: 85.6

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	H H3	0.0035	0.0012	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,1,2,2-Tetrachloroethane	ND	H H3	0.0035	0.00099	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	H H3	0.0035	0.00089	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,1,2-Trichloroethane	ND	H H3	0.0035	0.00078	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,1-Dichloroethane	ND	H H3	0.0035	0.00048	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,1-Dichloroethene	ND	H H3	0.0035	0.0013	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,2,4-Trichlorobenzene	ND	H H3	0.0035	0.0017	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,2-Dibromo-3-Chloropropane	ND	H H3	0.0069	0.0025	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Ethylene Dibromide	ND	H H3	0.0035	0.00053	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,2-Dichlorobenzene	ND	H H3	0.0035	0.00077	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,2-Dichloroethane	ND	H H3	0.0035	0.00053	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,2-Dichloropropane	ND	H H3	0.0035	0.00059	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,3-Dichlorobenzene	ND	H H3	0.0035	0.00056	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
1,4-Dichlorobenzene	ND	H H3	0.0035	0.00061	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
2-Butanone (MEK)	ND	H H3	0.014	0.0025	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
2-Hexanone	ND	H H3	0.014	0.0028	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
4-Methyl-2-pentanone (MIBK)	ND	H H3	0.014	0.0026	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Acetone	ND	H H3 *+	0.017	0.015	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Benzene	ND	H H3	0.0035	0.00048	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Dichlorobromomethane	ND	H H3	0.0035	0.0010	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Bromoform	ND	H H3	0.0035	0.0017	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Bromomethane	ND	H H3	0.0035	0.0029	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Carbon disulfide	ND	H H3	0.0035	0.00080	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Carbon tetrachloride	ND	H H3	0.0035	0.0022	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Chlorobenzene	ND	H H3	0.0035	0.00063	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Chloroethane	ND	H H3	0.0035	0.0019	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Chloroform	ND	H H3	0.0035	0.00054	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Chloromethane	ND	H H3	0.0035	0.0016	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
cis-1,2-Dichloroethene	ND	H H3	0.0035	0.0010	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
cis-1,3-Dichloropropene	ND	H H3	0.0035	0.0020	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Cyclohexane	ND	H H3	0.0069	0.00095	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Chlorodibromomethane	ND	H H3	0.0035	0.0019	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Dichlorodifluoromethane	ND	H H3	0.0035	0.00065	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Ethylbenzene	ND	H H3	0.0035	0.00072	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Isopropylbenzene	ND	H H3	0.0035	0.0013	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Methyl acetate	ND	H H3	0.017	0.0023	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Methyl tert-butyl ether	ND	H H3	0.0035	0.0014	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Methylcyclohexane	ND	H H3	0.0069	0.00085	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Methylene Chloride	ND	H H3	0.017	0.0083	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Styrene	ND	H H3	0.0035	0.00080	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Tetrachloroethene	ND	H H3	0.0035	0.00050	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Toluene	ND	H H3	0.0035	0.00053	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
trans-1,2-Dichloroethene	ND	H H3	0.0035	0.00098	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
trans-1,3-Dichloropropene	ND	H H3	0.0035	0.0026	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Trichloroethene	ND	H H3	0.0035	0.00044	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Trichlorofluoromethane	ND	H H3	0.0035	0.0019	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Vinyl chloride	ND	H H3	0.0035	0.0012	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1
Xylenes, Total	ND	H H3	0.0069	0.0011	mg/Kg	✱	03/27/23 20:20	03/29/23 13:15	1

Client Sample Results

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

Job ID: 240-182577-1

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Date Collected: 03/25/23 16:10

Matrix: Solid

Date Received: 03/27/23 18:30

Percent Solids: 85.6

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	121		56 - 125	03/27/23 20:20	03/29/23 04:02	1
Toluene-d8 (Surr)	80		56 - 125	03/27/23 20:20	03/29/23 13:15	1
Dibromofluoromethane (Surr)	100		41 - 138	03/27/23 20:20	03/29/23 04:02	1
Dibromofluoromethane (Surr)	85		41 - 138	03/27/23 20:20	03/29/23 13:15	1
4-Bromofluorobenzene (Surr)	131		41 - 143	03/27/23 20:20	03/29/23 04:02	1
4-Bromofluorobenzene (Surr)	73		41 - 143	03/27/23 20:20	03/29/23 13:15	1
1,2-Dichloroethane-d4 (Surr)	126	S1+	58 - 125	03/27/23 20:20	03/29/23 04:02	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/27/23 20:20	03/29/23 13:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.73	0.25	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
bis (2-chloroisopropyl) ether	ND		1.5	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,4,5-Trichlorophenol	ND		2.2	1.0	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,4,6-Trichlorophenol	ND		2.2	0.94	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,4-Dichlorophenol	ND		2.2	0.64	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,4-Dimethylphenol	ND		2.2	0.59	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,4-Dinitrophenol	ND		4.8	2.1	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,4-Dinitrotoluene	ND		2.9	0.91	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2,6-Dinitrotoluene	ND		2.9	0.82	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2-Chloronaphthalene	ND		0.73	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2-Chlorophenol	ND		0.73	0.15	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2-Methylnaphthalene	ND		0.22	0.029	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2-Methylphenol	ND		2.9	0.45	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2-Nitroaniline	ND		2.9	0.59	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
2-Nitrophenol	ND		0.73	0.19	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
3,3'-Dichlorobenzidine	ND		1.5	0.63	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
3-Nitroaniline	ND		2.9	0.72	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4,6-Dinitro-2-methylphenol	ND		4.8	1.2	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4-Bromophenyl phenyl ether	ND		0.73	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4-Chloro-3-methylphenol	ND		2.2	0.66	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4-Chloroaniline	ND		2.2	0.44	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4-Chlorophenyl phenyl ether	ND		0.73	0.21	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4-Nitroaniline	ND		2.9	0.88	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
4-Nitrophenol	ND		4.8	1.4	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Acenaphthene	ND		0.22	0.042	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Acenaphthylene	ND		0.22	0.059	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Acetophenone	ND		1.5	0.16	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Anthracene	ND		0.22	0.035	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Atrazine	ND		2.9	0.53	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Benzaldehyde	ND		1.5	0.34	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Benzo[a]anthracene	ND		0.22	0.050	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Benzo[a]pyrene	ND		0.22	0.14	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Benzo[b]fluoranthene	0.11	J	0.22	0.095	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Benzo[g,h,i]perylene	ND		0.22	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Benzo[k]fluoranthene	ND		0.22	0.10	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Bis(2-chloroethoxy)methane	ND		1.5	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Bis(2-chloroethyl)ether	ND		1.5	0.18	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Bis(2-ethylhexyl) phthalate	ND		1.0	0.75	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5
Butyl benzyl phthalate	ND		1.0	0.32	mg/Kg	☼	03/28/23 10:04	03/30/23 14:16	12.5

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Client Sample Results

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

Job ID: 240-182577-1

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Date Collected: 03/25/23 16:10

Matrix: Solid

Date Received: 03/27/23 18:30

Percent Solids: 85.6

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		4.8	1.1	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Carbazole	ND		0.73	0.28	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Chrysene	ND		0.22	0.022	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Dibenz(a,h)anthracene	ND		0.22	0.10	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Dibenzofuran	ND		0.73	0.19	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Diethyl phthalate	ND		1.0	0.45	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Dimethyl phthalate	ND		1.0	0.21	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Di-n-butyl phthalate	ND		1.0	0.74	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Di-n-octyl phthalate	ND		1.0	0.41	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Fluoranthene	ND		0.22	0.065	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Fluorene	ND		0.22	0.040	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Hexachlorobenzene	ND		0.22	0.042	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Hexachlorobutadiene	ND		0.73	0.18	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Hexachlorocyclopentadiene	ND		4.8	0.91	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Hexachloroethane	ND		0.73	0.13	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Indeno[1,2,3-cd]pyrene	ND		0.22	0.11	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Isophorone	ND		0.73	0.18	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
N-Nitrosodi-n-propylamine	ND		0.73	0.16	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
N-Nitrosodiphenylamine	ND		0.73	0.18	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Naphthalene	ND		0.22	0.035	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Nitrobenzene	ND		1.5	0.19	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Pentachlorophenol	ND		2.2	0.85	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Phenanthrene	0.064	J	0.22	0.033	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Phenol	ND		0.73	0.12	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
Pyrene	ND		0.22	0.031	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5
3 & 4 Methylphenol	ND		5.9	0.42	mg/Kg	✱	03/28/23 10:04	03/30/23 14:16	12.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137	03/28/23 10:04	03/30/23 14:16	12.5
Phenol-d5 (Surr)	73		26 - 120	03/28/23 10:04	03/30/23 14:16	12.5
Nitrobenzene-d5 (Surr)	63		25 - 120	03/28/23 10:04	03/30/23 14:16	12.5
2-Fluorophenol (Surr)	67		20 - 120	03/28/23 10:04	03/30/23 14:16	12.5
2-Fluorobiphenyl (Surr)	77		34 - 120	03/28/23 10:04	03/30/23 14:16	12.5
2,4,6-Tribromophenol (Surr)	113		10 - 120	03/28/23 10:04	03/30/23 14:16	12.5

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		03/29/23 14:00	03/30/23 13:32	1
Barium	0.11	J	0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 13:32	1
Cadmium	0.0033	J	0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 13:32	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 13:32	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 13:32	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 13:32	1
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 13:32	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		03/29/23 14:00	03/30/23 12:28	1

Client Sample Results

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

Job ID: 240-182577-1

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Date Collected: 03/25/23 16:10

Matrix: Solid

Date Received: 03/27/23 18:30

Percent Solids: 85.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids (EPA Moisture)	85.6		0.1	0.1	%			03/29/23 15:08	1
Percent Moisture (EPA Moisture)	14.4		0.1	0.1	%			03/29/23 15:08	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: 240-182577-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182577-2

Date Collected: 03/24/23 00:00

Matrix: Water

Date Received: 03/27/23 18:30

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			03/28/23 16:02	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 16:02	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 16:02	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 16:02	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 16:02	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 16:02	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 16:02	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 16:02	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 16:02	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 16:02	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 16:02	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 16:02	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 16:02	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 16:02	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/28/23 16:02	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 16:02	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 16:02	1
Acetone	ND		0.010	0.0054	mg/L			03/28/23 16:02	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 16:02	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 16:02	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 16:02	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 16:02	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 16:02	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 16:02	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 16:02	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 16:02	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 16:02	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 16:02	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 16:02	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 16:02	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 16:02	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 16:02	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 16:02	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 16:02	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 16:02	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 16:02	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 16:02	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 16:02	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 16:02	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 16:02	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 16:02	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 16:02	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 16:02	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 16:02	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 16:02	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 16:02	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/28/23 16:02	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/28/23 16:02	1
Butyl acrylate	ND		0.010	0.0023	mg/L			03/28/23 16:02	1

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Client Sample Results

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

Job ID: 240-182577-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182577-2

Date Collected: 03/24/23 00:00

Matrix: Water

Date Received: 03/27/23 18:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/28/23 16:02	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/28/23 16:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	97		78 - 122		03/28/23 16:02	1
<i>Dibromofluoromethane (Surr)</i>	106		73 - 120		03/28/23 16:02	1
<i>4-Bromofluorobenzene (Surr)</i>	94		56 - 136		03/28/23 16:02	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137		03/28/23 16:02	1

Surrogate Summary

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

Job ID: 240-182577-1

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)
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	121	100	131	126 S1+
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	80	85	73	87
LCS 240-567081/4	Lab Control Sample	122	109	120	118
LCS 240-567084/7	Lab Control Sample	80	82	74	81
MB 240-567049/1-A	Method Blank	120	101	122	118
MB 240-567049/2-A	Method Blank	74	88	61	87

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

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TOL	DBFM	BFB	DCA
		(78-122)	(73-120)	(56-136)	(62-137)
240-182577-2	TRIP BLANK	97	106	94	103
LCS 240-567011/5	Lab Control Sample	105	105	103	98
LCS 240-567011/6	Lab Control Sample	98	105	104	101
MB 240-567011/8	Method Blank	99	108	95	101

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)
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	106	73	63	67	77	113
LCS 240-566998/2-A	Lab Control Sample	116	78	72	77	84	112
MB 240-566998/1-A	Method Blank	122	78	75	72	89	54

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: 240-182577-1

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

Lab Sample ID: MB 240-567011/8
Matrix: Water
Analysis Batch: 567011

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 15:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 15:15	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 15:15	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 15:15	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 15:15	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 15:15	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 15:15	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 15:15	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/28/23 15:15	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 15:15	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 15:15	1
Acetone	ND		0.010	0.0054	mg/L			03/28/23 15:15	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 15:15	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 15:15	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 15:15	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 15:15	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 15:15	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 15:15	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 15:15	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 15:15	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 15:15	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 15:15	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 15:15	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 15:15	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 15:15	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 15:15	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 15:15	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 15:15	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 15:15	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 15:15	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 15:15	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 15:15	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 15:15	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 15:15	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 15:15	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/28/23 15:15	1

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: MB 240-567011/8
Matrix: Water
Analysis Batch: 567011

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butyl acrylate	ND		0.010	0.0023	mg/L			03/28/23 15:15	1
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/28/23 15:15	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/28/23 15:15	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	99		78 - 122					03/28/23 15:15	1
<i>Dibromofluoromethane (Surr)</i>	108		73 - 120					03/28/23 15:15	1
<i>4-Bromofluorobenzene (Surr)</i>	95		56 - 136					03/28/23 15:15	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		62 - 137					03/28/23 15:15	1

Lab Sample ID: LCS 240-567011/5
Matrix: Water
Analysis Batch: 567011

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	0.0244		mg/L		97	64 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0287		mg/L		115	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0254		mg/L		102	51 - 146
1,1,2-Trichloroethane	0.0250	0.0257		mg/L		103	70 - 138
1,1-Dichloroethane	0.0250	0.0239		mg/L		95	72 - 127
1,1-Dichloroethene	0.0250	0.0264		mg/L		106	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0264		mg/L		105	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0248		mg/L		99	53 - 135
Ethylene Dibromide	0.0250	0.0255		mg/L		102	71 - 134
1,2-Dichlorobenzene	0.0250	0.0268		mg/L		107	78 - 120
1,2-Dichloroethane	0.0250	0.0235		mg/L		94	66 - 128
1,2-Dichloropropane	0.0250	0.0249		mg/L		99	75 - 133
1,3-Dichlorobenzene	0.0250	0.0267		mg/L		107	80 - 120
1,4-Dichlorobenzene	0.0250	0.0266		mg/L		107	80 - 120
2-Butanone (MEK)	0.0500	0.0504		mg/L		101	54 - 156
2-Hexanone	0.0500	0.0560		mg/L		112	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0551		mg/L		110	46 - 158
Acetone	0.0500	0.0485		mg/L		97	50 - 149
Benzene	0.0250	0.0256		mg/L		102	77 - 123
Dichlorobromomethane	0.0250	0.0241		mg/L		96	69 - 126
Bromoform	0.0250	0.0245		mg/L		98	57 - 129
Bromomethane	0.0125	0.0120		mg/L		96	36 - 142
Carbon disulfide	0.0250	0.0256		mg/L		102	43 - 140
Carbon tetrachloride	0.0250	0.0237		mg/L		95	55 - 137
Chlorobenzene	0.0250	0.0257		mg/L		103	80 - 121
Chloroethane	0.0125	0.00970		mg/L		78	38 - 152
Chloroform	0.0250	0.0242		mg/L		97	74 - 122
Chloromethane	0.0125	0.0126		mg/L		101	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0248		mg/L		99	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0247		mg/L		99	64 - 130
Cyclohexane	0.0250	0.0263		mg/L		105	58 - 146
Chlorodibromomethane	0.0250	0.0240		mg/L		96	70 - 124
Dichlorodifluoromethane	0.0125	0.0113		mg/L		90	34 - 153

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: LCS 240-567011/5
Matrix: Water
Analysis Batch: 567011

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	0.0250	0.0262		mg/L		105	80 - 121
Isopropylbenzene	0.0250	0.0274		mg/L		110	74 - 128
Methyl acetate	0.0500	0.0429		mg/L		86	42 - 169
Methyl tert-butyl ether	0.0250	0.0247		mg/L		99	65 - 126
Methylcyclohexane	0.0250	0.0259		mg/L		104	62 - 136
Methylene Chloride	0.0250	0.0254		mg/L		102	71 - 125
Styrene	0.0250	0.0273		mg/L		109	80 - 135
Tetrachloroethene	0.0250	0.0265		mg/L		106	76 - 123
Toluene	0.0250	0.0265		mg/L		106	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0253		mg/L		101	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0254		mg/L		101	57 - 129
Trichloroethene	0.0250	0.0240		mg/L		96	70 - 122
Trichlorofluoromethane	0.0125	0.0103		mg/L		83	30 - 170
Vinyl chloride	0.0125	0.0118		mg/L		94	60 - 144
Xylenes, Total	0.0500	0.0534		mg/L		107	80 - 121
m-Xylene & p-Xylene	0.0250	0.0270		mg/L		108	80 - 120
o-Xylene	0.0250	0.0264		mg/L		106	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120
4-Bromofluorobenzene (Surr)	103		56 - 136
1,2-Dichloroethane-d4 (Surr)	98		62 - 137

Lab Sample ID: LCS 240-567011/6
Matrix: Water
Analysis Batch: 567011

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Butyl acrylate	0.0250	0.0240		mg/L		96	75 - 120
Methyl acrylate	0.0250	0.0243		mg/L		97	80 - 120
2-Ethylhexyl acrylate	0.0250	0.0198		mg/L		79	61 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120
4-Bromofluorobenzene (Surr)	104		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: MB 240-567049/1-A
Matrix: Solid
Analysis Batch: 567081

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567049

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	120		56 - 125	03/28/23 14:04	03/29/23 01:57	1
Dibromofluoromethane (Surr)	101		41 - 138	03/28/23 14:04	03/29/23 01:57	1
4-Bromofluorobenzene (Surr)	122		41 - 143	03/28/23 14:04	03/29/23 01:57	1
1,2-Dichloroethane-d4 (Surr)	118		58 - 125	03/28/23 14:04	03/29/23 01:57	1

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: MB 240-567049/2-A
Matrix: Solid
Analysis Batch: 567084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567049

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1,2,2-Tetrachloroethane	ND		0.0050	0.0014	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0050	0.0013	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1,2-Trichloroethane	ND		0.0050	0.0011	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1-Dichloroethane	ND		0.0050	0.00069	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,1-Dichloroethene	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2,4-Trichlorobenzene	ND		0.0050	0.0025	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dibromo-3-Chloropropane	ND		0.010	0.0036	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Ethylene Dibromide	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dichlorobenzene	ND		0.0050	0.0011	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dichloroethane	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,2-Dichloropropane	ND		0.0050	0.00085	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,3-Dichlorobenzene	ND		0.0050	0.00082	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
1,4-Dichlorobenzene	ND		0.0050	0.00088	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
2-Butanone (MEK)	ND		0.020	0.0036	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
2-Hexanone	ND		0.020	0.0041	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
4-Methyl-2-pentanone (MIBK)	ND		0.020	0.0037	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Acetone	0.0387		0.025	0.021	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Benzene	ND		0.0050	0.00070	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Dichlorobromomethane	ND		0.0050	0.0015	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Bromoform	ND		0.0050	0.0024	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Bromomethane	ND		0.0050	0.0042	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Carbon disulfide	ND		0.0050	0.0012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Carbon tetrachloride	ND		0.0050	0.0033	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chlorobenzene	ND		0.0050	0.00092	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chloroethane	ND		0.0050	0.0027	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chloroform	ND		0.0050	0.00079	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chloromethane	ND		0.0050	0.0023	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
cis-1,2-Dichloroethene	ND		0.0050	0.0015	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
cis-1,3-Dichloropropene	ND		0.0050	0.0029	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Cyclohexane	ND		0.010	0.0014	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Chlorodibromomethane	ND		0.0050	0.0028	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Dichlorodifluoromethane	ND		0.0050	0.00094	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Ethylbenzene	ND		0.0050	0.0010	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Isopropylbenzene	ND		0.0050	0.0019	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methyl acetate	ND		0.025	0.0034	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methyl tert-butyl ether	ND		0.0050	0.0020	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methylcyclohexane	ND		0.010	0.0012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Methylene Chloride	ND		0.025	0.012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Styrene	ND		0.0050	0.0012	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Tetrachloroethene	ND		0.0050	0.00073	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Toluene	ND		0.0050	0.00077	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
trans-1,2-Dichloroethene	ND		0.0050	0.0014	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
trans-1,3-Dichloropropene	ND		0.0050	0.0037	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Trichloroethene	ND		0.0050	0.00063	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Trichlorofluoromethane	ND		0.0050	0.0027	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Vinyl chloride	ND		0.0050	0.0018	mg/Kg		03/28/23 14:04	03/29/23 11:50	1
Xylenes, Total	ND		0.010	0.0016	mg/Kg		03/28/23 14:04	03/29/23 11:50	1

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: MB 240-567049/2-A
Matrix: Solid
Analysis Batch: 567084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567049

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	74		56 - 125	03/28/23 14:04	03/29/23 11:50	1
Dibromofluoromethane (Surr)	88		41 - 138	03/28/23 14:04	03/29/23 11:50	1
4-Bromofluorobenzene (Surr)	61		41 - 143	03/28/23 14:04	03/29/23 11:50	1
1,2-Dichloroethane-d4 (Surr)	87		58 - 125	03/28/23 14:04	03/29/23 11:50	1

Lab Sample ID: LCS 240-567081/4
Matrix: Solid
Analysis Batch: 567081

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	122		56 - 125
Dibromofluoromethane (Surr)	109		41 - 138
4-Bromofluorobenzene (Surr)	120		41 - 143
1,2-Dichloroethane-d4 (Surr)	118		58 - 125

Lab Sample ID: LCS 240-567084/7
Matrix: Solid
Analysis Batch: 567084

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	0.0264		mg/Kg		106	74 - 136
1,1,2,2-Tetrachloroethane	0.0250	0.0244		mg/Kg		98	66 - 129
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0297		mg/Kg		119	64 - 148
1,1,2-Trichloroethane	0.0250	0.0260		mg/Kg		104	79 - 120
1,1-Dichloroethane	0.0250	0.0239		mg/Kg		96	74 - 121
1,1-Dichloroethene	0.0250	0.0265		mg/Kg		106	68 - 141
1,2,4-Trichlorobenzene	0.0250	0.0232		mg/Kg		93	58 - 132
1,2-Dibromo-3-Chloropropane	0.0250	0.0194		mg/Kg		78	52 - 133
Ethylene Dibromide	0.0250	0.0247		mg/Kg		99	80 - 121
1,2-Dichlorobenzene	0.0250	0.0252		mg/Kg		101	73 - 120
1,2-Dichloroethane	0.0250	0.0250		mg/Kg		100	71 - 123
1,2-Dichloropropane	0.0250	0.0236		mg/Kg		95	76 - 126
1,3-Dichlorobenzene	0.0250	0.0245		mg/Kg		98	73 - 120
1,4-Dichlorobenzene	0.0250	0.0244		mg/Kg		97	74 - 120
2-Butanone (MEK)	0.0500	0.0527		mg/Kg		105	63 - 142
2-Hexanone	0.0500	0.0465		mg/Kg		93	65 - 142
4-Methyl-2-pentanone (MIBK)	0.0500	0.0411		mg/Kg		82	62 - 142
Acetone	0.0500	0.0860	*+	mg/Kg		172	58 - 160
Benzene	0.0250	0.0248		mg/Kg		99	76 - 121
Dichlorobromomethane	0.0250	0.0244		mg/Kg		98	71 - 138
Bromoform	0.0250	0.0228		mg/Kg		91	57 - 140
Bromomethane	0.0250	0.0249		mg/Kg		100	10 - 171
Carbon disulfide	0.0250	0.0231		mg/Kg		92	43 - 152
Carbon tetrachloride	0.0250	0.0281		mg/Kg		113	64 - 144
Chlorobenzene	0.0250	0.0249		mg/Kg		100	80 - 120
Chloroethane	0.0250	0.0216		mg/Kg		87	11 - 164
Chloroform	0.0250	0.0262		mg/Kg		105	78 - 120

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: LCS 240-567084/7
Matrix: Solid
Analysis Batch: 567084

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloromethane	0.0250	0.0170		mg/Kg		68	41 - 142
cis-1,2-Dichloroethene	0.0250	0.0245		mg/Kg		98	78 - 124
cis-1,3-Dichloropropene	0.0250	0.0197		mg/Kg		79	70 - 133
Cyclohexane	0.0250	0.0249		mg/Kg		100	65 - 137
Chlorodibromomethane	0.0250	0.0244		mg/Kg		98	68 - 131
Dichlorodifluoromethane	0.0250	0.0187		mg/Kg		75	21 - 150
Ethylbenzene	0.0250	0.0248		mg/Kg		99	80 - 120
Isopropylbenzene	0.0250	0.0264		mg/Kg		106	80 - 130
Methyl acetate	0.0500	0.0431		mg/Kg		86	60 - 133
Methyl tert-butyl ether	0.0250	0.0218		mg/Kg		87	70 - 130
Methylcyclohexane	0.0250	0.0256		mg/Kg		103	70 - 138
Methylene Chloride	0.0250	0.0197	J	mg/Kg		79	71 - 124
Styrene	0.0250	0.0268		mg/Kg		107	75 - 140
Tetrachloroethene	0.0250	0.0271		mg/Kg		108	76 - 127
Toluene	0.0250	0.0257		mg/Kg		103	80 - 120
trans-1,2-Dichloroethene	0.0250	0.0255		mg/Kg		102	76 - 130
trans-1,3-Dichloropropene	0.0250	0.0204		mg/Kg		81	61 - 121
Trichloroethene	0.0250	0.0253		mg/Kg		101	74 - 130
Trichlorofluoromethane	0.0250	0.0252		mg/Kg		101	50 - 154
Vinyl chloride	0.0250	0.0221		mg/Kg		88	49 - 146
Xylenes, Total	0.0500	0.0529		mg/Kg		106	80 - 122
m-Xylene & p-Xylene	0.0250	0.0252		mg/Kg		101	80 - 122
o-Xylene	0.0250	0.0277		mg/Kg		111	80 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	80		56 - 125
Dibromofluoromethane (Surr)	82		41 - 138
4-Bromofluorobenzene (Surr)	74		41 - 143
1,2-Dichloroethane-d4 (Surr)	81		58 - 125

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

Lab Sample ID: MB 240-566998/1-A
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566998

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.050	0.017	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
bis (2-chloroisopropyl) ether	ND		0.10	0.010	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4,5-Trichlorophenol	ND		0.15	0.069	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4,6-Trichlorophenol	ND		0.15	0.064	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dichlorophenol	ND		0.15	0.044	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dimethylphenol	ND		0.15	0.040	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dinitrophenol	ND		0.33	0.14	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,4-Dinitrotoluene	ND		0.20	0.062	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2,6-Dinitrotoluene	ND		0.20	0.056	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Chloronaphthalene	ND		0.050	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Chlorophenol	ND		0.050	0.010	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Methylnaphthalene	ND		0.015	0.0020	mg/Kg		03/28/23 10:04	03/30/23 08:57	1

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: MB 240-566998/1-A
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566998

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
2-Methylphenol	ND		0.20	0.031	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Nitroaniline	ND		0.20	0.040	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
2-Nitrophenol	ND		0.050	0.013	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
3,3'-Dichlorobenzidine	ND		0.10	0.043	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
3-Nitroaniline	ND		0.20	0.049	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4,6-Dinitro-2-methylphenol	ND		0.33	0.080	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Bromophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Chloro-3-methylphenol	ND		0.15	0.045	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Chloroaniline	ND		0.15	0.030	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Chlorophenyl phenyl ether	ND		0.050	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Nitroaniline	ND		0.20	0.060	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
4-Nitrophenol	ND		0.33	0.094	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Acenaphthene	ND		0.015	0.0029	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Acenaphthylene	ND		0.015	0.0040	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Acetophenone	ND		0.10	0.011	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Anthracene	ND		0.015	0.0024	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Atrazine	ND		0.20	0.036	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzaldehyde	ND		0.10	0.023	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[a]anthracene	ND		0.015	0.0034	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[a]pyrene	ND		0.015	0.0093	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[b]fluoranthene	ND		0.015	0.0065	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[g,h,i]perylene	ND		0.015	0.0071	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Benzo[k]fluoranthene	ND		0.015	0.0069	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Bis(2-chloroethoxy)methane	ND		0.10	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Bis(2-chloroethyl)ether	ND		0.10	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Bis(2-ethylhexyl) phthalate	ND		0.070	0.051	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Butyl benzyl phthalate	ND		0.070	0.022	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Caprolactam	ND		0.33	0.075	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Carbazole	ND		0.050	0.019	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Chrysene	ND		0.015	0.0015	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Dibenz(a,h)anthracene	ND		0.015	0.0069	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Dibenzofuran	ND		0.050	0.013	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Diethyl phthalate	ND		0.070	0.031	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Dimethyl phthalate	ND		0.070	0.014	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Di-n-butyl phthalate	ND		0.070	0.051	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Di-n-octyl phthalate	ND		0.070	0.028	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Fluoranthene	ND		0.015	0.0045	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Fluorene	ND		0.015	0.0027	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachlorobenzene	ND		0.015	0.0029	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachlorobutadiene	ND		0.050	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachlorocyclopentadiene	ND		0.33	0.062	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Hexachloroethane	ND		0.050	0.0090	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Indeno[1,2,3-cd]pyrene	ND		0.015	0.0074	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Isophorone	ND		0.050	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
N-Nitrosodi-n-propylamine	ND		0.050	0.011	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
N-Nitrosodiphenylamine	ND		0.050	0.012	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Naphthalene	ND		0.015	0.0024	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Nitrobenzene	ND		0.10	0.013	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Pentachlorophenol	ND		0.15	0.058	mg/Kg		03/28/23 10:04	03/30/23 08:57	1

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: MB 240-566998/1-A
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566998

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	ND		0.015	0.0022	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Phenol	ND		0.050	0.0080	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
Pyrene	ND		0.015	0.0021	mg/Kg		03/28/23 10:04	03/30/23 08:57	1
3 & 4 Methylphenol	ND		0.40	0.029	mg/Kg		03/28/23 10:04	03/30/23 08:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Terphenyl-d14 (Surr)</i>	122		46 - 137	03/28/23 10:04	03/30/23 08:57	1
<i>Phenol-d5 (Surr)</i>	78		26 - 120	03/28/23 10:04	03/30/23 08:57	1
<i>Nitrobenzene-d5 (Surr)</i>	75		25 - 120	03/28/23 10:04	03/30/23 08:57	1
<i>2-Fluorophenol (Surr)</i>	72		20 - 120	03/28/23 10:04	03/30/23 08:57	1
<i>2-Fluorobiphenyl (Surr)</i>	89		34 - 120	03/28/23 10:04	03/30/23 08:57	1
<i>2,4,6-Tribromophenol (Surr)</i>	54		10 - 120	03/28/23 10:04	03/30/23 08:57	1

Lab Sample ID: LCS 240-566998/2-A
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566998

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.667	0.499		mg/Kg		75	50 - 120
bis (2-chloroisopropyl) ether	0.667	0.419		mg/Kg		63	38 - 120
2,4,5-Trichlorophenol	0.667	0.581		mg/Kg		87	50 - 120
2,4,6-Trichlorophenol	0.667	0.581		mg/Kg		87	50 - 120
2,4-Dichlorophenol	0.667	0.533		mg/Kg		80	50 - 120
2,4-Dimethylphenol	0.667	0.453		mg/Kg		68	24 - 120
2,4-Dinitrophenol	1.33	1.16		mg/Kg		87	19 - 132
2,4-Dinitrotoluene	0.667	0.691		mg/Kg		104	64 - 120
2,6-Dinitrotoluene	0.667	0.691		mg/Kg		104	62 - 120
2-Chloronaphthalene	0.667	0.512		mg/Kg		77	51 - 120
2-Chlorophenol	0.667	0.492		mg/Kg		74	47 - 120
2-Methylnaphthalene	0.667	0.483		mg/Kg		72	38 - 120
2-Methylphenol	0.667	0.462		mg/Kg		69	45 - 120
2-Nitroaniline	0.667	0.600		mg/Kg		90	57 - 120
2-Nitrophenol	0.667	0.565		mg/Kg		85	51 - 120
3,3'-Dichlorobenzidine	1.33	1.38		mg/Kg		104	27 - 199
3-Nitroaniline	0.667	0.604		mg/Kg		91	41 - 120
4,6-Dinitro-2-methylphenol	1.33	1.17		mg/Kg		87	46 - 126
4-Bromophenyl phenyl ether	0.667	0.621		mg/Kg		93	65 - 120
4-Chloro-3-methylphenol	0.667	0.580		mg/Kg		87	51 - 120
4-Chloroaniline	0.667	0.451		mg/Kg		68	29 - 120
4-Chlorophenyl phenyl ether	0.667	0.599		mg/Kg		90	59 - 120
4-Nitroaniline	0.667	0.720		mg/Kg		108	48 - 128
4-Nitrophenol	1.33	1.26		mg/Kg		95	43 - 120
Acenaphthene	0.667	0.529		mg/Kg		79	52 - 120
Acenaphthylene	0.667	0.533		mg/Kg		80	52 - 120
Acetophenone	0.667	0.476		mg/Kg		71	47 - 120
Anthracene	0.667	0.625		mg/Kg		94	64 - 120
Atrazine	1.33	1.28		mg/Kg		96	71 - 125
Benzaldehyde	1.33	0.879		mg/Kg		66	42 - 120

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: LCS 240-566998/2-A
Matrix: Solid
Analysis Batch: 567268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566998

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]anthracene	0.667	0.677		mg/Kg		102	70 - 120
Benzo[a]pyrene	0.667	0.552		mg/Kg		83	63 - 125
Benzo[b]fluoranthene	0.667	0.510		mg/Kg		77	64 - 121
Benzo[g,h,i]perylene	0.667	0.645		mg/Kg		97	62 - 120
Benzo[k]fluoranthene	0.667	0.562		mg/Kg		84	63 - 128
Bis(2-chloroethoxy)methane	0.667	0.462		mg/Kg		69	50 - 120
Bis(2-chloroethyl)ether	0.667	0.382		mg/Kg		57	42 - 120
Bis(2-ethylhexyl) phthalate	0.667	0.638		mg/Kg		96	63 - 133
Butyl benzyl phthalate	0.667	0.632		mg/Kg		95	66 - 127
Caprolactam	1.33	1.32		mg/Kg		99	67 - 120
Carbazole	0.667	0.632		mg/Kg		95	61 - 129
Chrysene	0.667	0.638		mg/Kg		96	67 - 120
Dibenz(a,h)anthracene	0.667	0.626		mg/Kg		94	62 - 120
Dibenzofuran	0.667	0.562		mg/Kg		84	55 - 120
Diethyl phthalate	0.667	0.681		mg/Kg		102	61 - 120
Dimethyl phthalate	0.667	0.649		mg/Kg		97	64 - 120
Di-n-butyl phthalate	0.667	0.599		mg/Kg		90	70 - 129
Di-n-octyl phthalate	0.667	0.586		mg/Kg		88	64 - 129
Fluoranthene	0.667	0.647		mg/Kg		97	71 - 124
Fluorene	0.667	0.591		mg/Kg		89	58 - 120
Hexachlorobenzene	0.667	0.621		mg/Kg		93	59 - 120
Hexachlorobutadiene	0.667	0.483		mg/Kg		72	45 - 120
Hexachlorocyclopentadiene	0.667	0.374		mg/Kg		56	10 - 120
Hexachloroethane	0.667	0.430		mg/Kg		64	39 - 120
Indeno[1,2,3-cd]pyrene	0.667	0.652		mg/Kg		98	65 - 122
Isophorone	0.667	0.473		mg/Kg		71	50 - 120
N-Nitrosodi-n-propylamine	0.667	0.464		mg/Kg		70	48 - 120
N-Nitrosodiphenylamine	0.667	0.573		mg/Kg		86	64 - 120
Naphthalene	0.667	0.450		mg/Kg		67	34 - 120
Nitrobenzene	0.667	0.451		mg/Kg		68	48 - 120
Pentachlorophenol	1.33	0.774		mg/Kg		58	10 - 120
Phenanthrene	0.667	0.573		mg/Kg		86	60 - 120
Phenol	0.667	0.458		mg/Kg		69	48 - 120
Pyrene	0.667	0.684		mg/Kg		103	67 - 120
3 & 4 Methylphenol	0.667	0.478		mg/Kg		72	49 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	116		46 - 137
Phenol-d5 (Surr)	78		26 - 120
Nitrobenzene-d5 (Surr)	72		25 - 120
2-Fluorophenol (Surr)	77		20 - 120
2-Fluorobiphenyl (Surr)	84		34 - 120
2,4,6-Tribromophenol (Surr)	112		10 - 120

QC Sample Results

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

Job ID: 240-182577-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-567192/2-A
Matrix: Solid
Analysis Batch: 567433

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567192

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/29/23 14:00	03/30/23 12:48	1
Barium	ND		0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 12:48	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 12:48	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 12:48	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 12:48	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 12:48	1
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 12:48	1

Lab Sample ID: LCS 240-567192/3-A
Matrix: Solid
Analysis Batch: 567433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567192

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.28		mg/L		114	50 - 150
Barium	2.00	2.05		mg/L		103	50 - 150
Cadmium	1.00	1.07		mg/L		107	50 - 150
Chromium	1.00	1.03		mg/L		103	50 - 150
Lead	1.00	0.947		mg/L		95	50 - 150
Selenium	2.00	2.33		mg/L		117	50 - 150
Silver	0.100	0.109		mg/L		109	50 - 150

Lab Sample ID: LB 240-567058/1-B
Matrix: Solid
Analysis Batch: 567433

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 567192

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/29/23 14:00	03/30/23 12:44	1
Barium	ND		0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 12:44	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 12:44	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 12:44	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 12:44	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 12:44	1
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 12:44	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-567194/2-A
Matrix: Solid
Analysis Batch: 567395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567194

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/29/23 14:00	03/30/23 12:11	1

Lab Sample ID: LCS 240-567194/3-A
Matrix: Solid
Analysis Batch: 567395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567194

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00533		mg/L		107	80 - 120

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QC Sample Results

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

Job ID: 240-182577-1

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

Lab Sample ID: LB 240-567058/1-C
Matrix: Solid
Analysis Batch: 567395

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 567194

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/29/23 14:00	03/30/23 12:09	1

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

QC Association Summary

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

Job ID: 240-182577-1

GC/MS VOA

Analysis Batch: 567011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-2	TRIP BLANK	Total/NA	Water	8260D	
MB 240-567011/8	Method Blank	Total/NA	Water	8260D	
LCS 240-567011/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-567011/6	Lab Control Sample	Total/NA	Water	8260D	

Prep Batch: 567049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	5035	
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	5035	
MB 240-567049/1-A	Method Blank	Total/NA	Solid	5035	
MB 240-567049/2-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 567081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	8260D	567049
MB 240-567049/1-A	Method Blank	Total/NA	Solid	8260D	567049
LCS 240-567081/4	Lab Control Sample	Total/NA	Solid	8260D	

Analysis Batch: 567084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	8260D	567049
MB 240-567049/2-A	Method Blank	Total/NA	Solid	8260D	567049
LCS 240-567084/7	Lab Control Sample	Total/NA	Solid	8260D	

GC/MS Semi VOA

Prep Batch: 566998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	3540C	
MB 240-566998/1-A	Method Blank	Total/NA	Solid	3540C	
LCS 240-566998/2-A	Lab Control Sample	Total/NA	Solid	3540C	

Analysis Batch: 567268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	8270E	566998
MB 240-566998/1-A	Method Blank	Total/NA	Solid	8270E	566998
LCS 240-566998/2-A	Lab Control Sample	Total/NA	Solid	8270E	566998

Metals

Leach Batch: 567058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	TCLP	Solid	1311	
LB 240-567058/1-B	Method Blank	TCLP	Solid	1311	
LB 240-567058/1-C	Method Blank	TCLP	Solid	1311	

Prep Batch: 567192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	TCLP	Solid	3010A	567058
LB 240-567058/1-B	Method Blank	TCLP	Solid	3010A	567058
MB 240-567192/2-A	Method Blank	Total/NA	Solid	3010A	
LCS 240-567192/3-A	Lab Control Sample	Total/NA	Solid	3010A	

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QC Association Summary

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

Job ID: 240-182577-1

Metals

Prep Batch: 567194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	TCLP	Solid	7470A	567058
LB 240-567058/1-C	Method Blank	TCLP	Solid	7470A	567058
MB 240-567194/2-A	Method Blank	Total/NA	Solid	7470A	
LCS 240-567194/3-A	Lab Control Sample	Total/NA	Solid	7470A	

Analysis Batch: 567395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	TCLP	Solid	7470A	567194
LB 240-567058/1-C	Method Blank	TCLP	Solid	7470A	567194
MB 240-567194/2-A	Method Blank	Total/NA	Solid	7470A	567194
LCS 240-567194/3-A	Lab Control Sample	Total/NA	Solid	7470A	567194

Analysis Batch: 567433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	TCLP	Solid	6010D	567192
LB 240-567058/1-B	Method Blank	TCLP	Solid	6010D	567192
MB 240-567192/2-A	Method Blank	Total/NA	Solid	6010D	567192
LCS 240-567192/3-A	Lab Control Sample	Total/NA	Solid	6010D	567192

General Chemistry

Analysis Batch: 567221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182577-1	WC-S. TRACK-SP2E-01 (2-3')	Total/NA	Solid	Moisture	

Lab Chronicle

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

Job ID: 240-182577-1

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Date Collected: 03/25/23 16:10

Matrix: Solid

Date Received: 03/27/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			567058	DRJ	EET CAN	03/28/23 16:35 - 03/29/23 08:40 ¹
TCLP	Prep	3010A			567192	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	6010D		1	567433	KLC	EET CAN	03/30/23 13:32
TCLP	Leach	1311			567058	DRJ	EET CAN	03/28/23 16:35 - 03/29/23 08:40 ¹
TCLP	Prep	7470A			567194	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	7470A		1	567395	MRL	EET CAN	03/30/23 12:28
Total/NA	Analysis	Moisture		1	567221	BLW	EET CAN	03/29/23 15:08

Client Sample ID: WC-S. TRACK-SP2E-01 (2-3')

Lab Sample ID: 240-182577-1

Date Collected: 03/25/23 16:10

Matrix: Solid

Date Received: 03/27/23 18:30

Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			567049	LAM	EET CAN	03/27/23 20:20
Total/NA	Analysis	8260D		1	567081	CS	EET CAN	03/29/23 04:02
Total/NA	Prep	5035			567049	LAM	EET CAN	03/27/23 20:20
Total/NA	Analysis	8260D		1	567084	TJL2	EET CAN	03/29/23 13:15
Total/NA	Prep	3540C			566998	BMB	EET CAN	03/28/23 10:04
Total/NA	Analysis	8270E		12.5	567268	MRU	EET CAN	03/30/23 14:16

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182577-2

Date Collected: 03/24/23 00:00

Matrix: Water

Date Received: 03/27/23 18:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 16:02

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

Accreditation/Certification Summary

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

Job ID: 240-182577-1

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	04-01-24
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

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


Chain of Custody Record 642815

Environment Testing America

Address: 180 Van Buren Ave
 Berberon OH 44203-3543
 330-497-9390

TAL-8210

Regulatory Program: DW NPDES RCRA Other: 4

Project Manager: <u>Jason Antipio</u> Tel/Email: <u>Jason.Antipio@arcadis.com</u>		Site Contact: Lab Contact:		Date: <u>3/25/23</u> Carrier: <u>Courier</u>		COC No.: <u>1</u> of <u>1</u> COCs Sampler: <u>Michelle Clayton</u> For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
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 <u>Rush</u>		Filtered Sample (Y/N) <u>MM</u> Perform MS / MSD (Y / N) <u>XX</u> Total VOC <u>XX</u> Total SVOC <u>XX</u> TCLP Metals <u>XX</u>		Sample Specific Notes:  240-182577 Chain of Custody		Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (C-Comp, G-Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)
<u>WC-S-Track-SP2E-01(2-3)</u>	<u>3/25/23</u>	<u>16:10</u>	<u>G</u>	<u>S</u>	<u>9</u>	<u>MM</u>	<u>XX</u>
<u>Trap Blank & E</u>	<u>3/29/23</u>	<u>-</u>	<u>-</u>	<u>W</u>	<u>1</u>	<u>MM</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. <u>V043 (VAIL) (H10) (UCL - 152CA)</u>							
Special Instructions/QC Requirements & Comments: <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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Relinquished by: <u>MA [Signature]</u>		Custody Seal No.: <u>ARCADIS</u>		Cooler Temp. (°C): Obs'd: _____ Corrd: _____		Therm ID No.: _____	
Relinquished by: <u>Jason Emberson</u>		Company: <u>ARCADIS</u>		Received by: <u>Jason Emberson</u>		Company: <u>Eurofins</u>	
Relinquished by: _____		Company: <u>Eurofins</u>		Received by: <u>EEINC</u>		Company: <u>EEINC</u>	
Relinquished by: _____		Company: _____		Received in Laboratory by: _____		Date/Time: <u>3-27-23 18:30</u>	



Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : 182577

Client Arcadis Site Name _____
 Cooler Received on 3-27-23 Opened on 3-27-23
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Cooler unpacked by: [Signature]

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 # 19 (CF+0.3 °C) Observed Cooler Temp. 0.5 °C Corrected Cooler Temp. 0.8 °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# HC293086
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 # 01042016 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: _____

TB analyses are marked for VOC, SVOC, TCLP metals. Rec'd one VOC vial preserved with HCl. Only logged for VOC due to insufficient volume. [Signature] 3-27-23
TerraCore was Received out of hold. [Signature] 3-27-23

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: _____

Chain of Custody Record

Address: 180 Van Buren Ave
Borchester OH 44203-3543
330-497-9340

642815  eurofins

Environment Testing
America

Regulatory Program: DW NPDES RCRA Other: LM 3/29/23

Project Manager: Jason Artiga NPDES RCRA Other: LM 3/29/23

Tel/Email: Jason.Artiga@eurofins.com Date: 3/25/23 Carrier: Courier

Client Contact
Company Name: Arcadis COC No. 1 of 1 COCs
Address: 4665 Cornell rd Ste 200
City/State/Zip: Cincinnati: OH 45241
Phone: 513-860-8700
Fax: LM 3/29/23
Project Name: East Palestine Train Derailment
Site: East Palestine OH
PO# 24030745
Sampler: Michelle Clayton
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.	Analysis Turnaround Time		Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Total VOC	Total SVOC	TCP Metals	Sample Specific Notes:
						CALENDAR DAYS	WORKING DAYS						
<u>WC-S Truck-SP2E-01(2-3')</u>	<u>3/15/23</u>	<u>16:10</u>	<u>G</u>	<u>S</u>	<u>9</u>			<u>X</u>	<u>X</u>				
<u>Trip Blank & E</u>	<u>3/29/23</u>	<u>-</u>	<u>-</u>	<u>W</u>	<u>1</u>			<u>X</u>	<u>X</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. V043(VM)(H)(D)(U)(L)(S)(E)

Non-Hazard Flammable Skin Irritant Unknown LM 3/29/23

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

Cooler Temp. (°C): Obs'd _____ Corrd' _____

Therm ID No. _____

Relinquished by: Jason Artiga Date/Time: 3/27/23 17:00 Company: Eurofins

Relinquished by: Michelle Clayton Date/Time: 3/27/23 18:30 Company: Eurofins

Relinquished by: _____ Date/Time: _____ Company: _____



Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : 182577

Client Arcadis Site Name _____
 Cooler Received on 3-27-23 Opened on 3-27-23
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other _____

Cooler unpacked by: _____

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 # 19 (CF+0.3 °C) Observed Cooler Temp. 0.5 °C Corrected Cooler Temp. 0.8 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1

Yes	No	
<input checked="" type="radio"/>	<input type="radio"/>	
-Were the seals on the outside of the cooler(s) signed & dated?		
Yes	No	NA
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		
Yes	No	NA
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
-Were tamper/custody seals intact and uncompromised?		
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. Larger than this.
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 01042016 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: _____

TB analyses are marked for VOC, SVOC, TCLP metals. Rec'd one VOC vial preserved with HCl. Only logged for VOC due to insufficient volume. JME 3-27-23
TerraCore was Received out of hold. JME 3-27-23

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: Daniel Hunt
Norfolk Southern Corporation
650 Peachtree Street, NW
Atlanta, Georgia 30308

Generated 3/7/2023 8:37:12 PM

JOB DESCRIPTION

NS-ER East Palestine, OH

JOB NUMBER

410-117699-1

Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
3/7/2023 8:37:12 PM

Authorized for release by
Kelly Bauer, Project Manager
Kelly.Bauer@et.eurofinsus.com
(717)556-7262

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.





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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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-ER East Palestine, OH

Job ID: 410-117699-1

Job ID: 410-117699-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Narrative

**Job Narrative
410-117699-1**

Receipt

The samples were received on 3/6/2023 11:10 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 4.0°C

GC/MS VOA

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

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

Detection Summary

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-257204

Lab Sample ID: 410-117699-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Ethylhexyl acrylate	18		5.0		ug/L	1		8260D	Total/NA
Acetone	21		20		ug/L	1		8260D	Total/NA
Ethanol	1100		750		ug/L	1		8260D	Total/NA
n-Butyl acrylate	130		5.0		ug/L	1		8260D	Total/NA
Vinyl chloride	6.2		1.0		ug/L	1		8260D	Total/NA

Client Sample ID: WC-251478

Lab Sample ID: 410-117699-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Ethylhexyl acrylate	27		5.0		ug/L	1		8260D	Total/NA
Styrene	10		5.0		ug/L	1		8260D	Total/NA
Toluene	1.5		1.0		ug/L	1		8260D	Total/NA
Vinyl chloride	6.4		1.0		ug/L	1		8260D	Total/NA
n-Butyl acrylate - DL	1500		50		ug/L	10		8260D	Total/NA

Client Sample ID: WC-251321

Lab Sample ID: 410-117699-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Ethylhexyl acrylate	23		5.0		ug/L	1		8260D	Total/NA
Vinyl chloride	8.1		1.0		ug/L	1		8260D	Total/NA
n-Butyl acrylate - DL	330		50		ug/L	10		8260D	Total/NA

Client Sample ID: WC-251633

Lab Sample ID: 410-117699-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Ethylhexyl acrylate	6.8		5.0		ug/L	1		8260D	Total/NA
Acetone	24		20		ug/L	1		8260D	Total/NA
n-Butyl acrylate	35		5.0		ug/L	1		8260D	Total/NA
Vinyl chloride	11		1.0		ug/L	1		8260D	Total/NA

Client Sample ID: WC-256094

Lab Sample ID: 410-117699-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.9		1.0		ug/L	1		8260D	Total/NA
n-Butyl acrylate	77		5.0		ug/L	1		8260D	Total/NA
o-Xylene	2.2		1.0		ug/L	1		8260D	Total/NA
Vinyl chloride	5.8		1.0		ug/L	1		8260D	Total/NA
Xylenes, Total	2.2		1.0		ug/L	1		8260D	Total/NA
2-Ethylhexyl acrylate - DL	300		50		ug/L	10		8260D	Total/NA

Client Sample ID: WC-251091

Lab Sample ID: 410-117699-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Ethylhexyl acrylate	220		5.0		ug/L	1		8260D	Total/NA
Benzene	3.7		1.0		ug/L	1		8260D	Total/NA
Vinyl chloride	62		1.0		ug/L	1		8260D	Total/NA
n-Butyl acrylate - DL	2600		100		ug/L	20		8260D	Total/NA

Client Sample ID: WC-251079

Lab Sample ID: 410-117699-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Ethylhexyl acrylate	55		10		ug/L	2		8260D	Total/NA
Ethanol	7200		1500		ug/L	2		8260D	Total/NA
Vinyl chloride	2.8		2.0		ug/L	2		8260D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251079 (Continued)

Lab Sample ID: 410-117699-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
n-Butyl acrylate - DL	5600		250		ug/L	50		8260D	Total/NA

Client Sample ID: WC-251782

Lab Sample ID: 410-117699-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
n-Butyl acrylate - DL	1200		50		ug/L	10		8260D	Total/NA

Client Sample ID: WC-538B

Lab Sample ID: 410-117699-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
n-Butyl acrylate - DL	49000		1000		ug/L	200		8260D	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 410-117699-10

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-257204

Lab Sample ID: 410-117699-1

Date Collected: 03/06/23 17:05

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 13:34	1
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 13:34	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 13:34	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 13:34	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 13:34	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 13:34	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 13:34	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 13:34	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:34	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 13:34	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 13:34	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:34	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:34	1
2-Butanone	ND		10		ug/L			03/07/23 13:34	1
2-Ethylhexyl acrylate	18		5.0		ug/L			03/07/23 13:34	1
2-Hexanone	ND		10		ug/L			03/07/23 13:34	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 13:34	1
Acetone	21		20		ug/L			03/07/23 13:34	1
Benzene	ND		1.0		ug/L			03/07/23 13:34	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 13:34	1
Bromoform	ND		4.0		ug/L			03/07/23 13:34	1
Bromomethane	ND		1.0		ug/L			03/07/23 13:34	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 13:34	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 13:34	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 13:34	1
Chloroethane	ND		1.0		ug/L			03/07/23 13:34	1
Chloroform	ND		1.0		ug/L			03/07/23 13:34	1
Chloromethane	ND		2.0		ug/L			03/07/23 13:34	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 13:34	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 13:34	1
Cyclohexane	ND		5.0		ug/L			03/07/23 13:34	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 13:34	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 13:34	1
Ethanol	1100		750		ug/L			03/07/23 13:34	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 13:34	1
Freon 113	ND		10		ug/L			03/07/23 13:34	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 13:34	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 13:34	1
Methyl acetate	ND		5.0		ug/L			03/07/23 13:34	1
Methyl acrylate	ND		5.0		ug/L			03/07/23 13:34	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 13:34	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 13:34	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 13:34	1
n-Butyl acrylate	130		5.0		ug/L			03/07/23 13:34	1
o-Xylene	ND		1.0		ug/L			03/07/23 13:34	1
Styrene	ND		5.0		ug/L			03/07/23 13:34	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 13:34	1
Toluene	ND		1.0		ug/L			03/07/23 13:34	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 13:34	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-257204

Lab Sample ID: 410-117699-1

Date Collected: 03/06/23 17:05

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 13:34	1
Trichloroethene	ND		1.0		ug/L			03/07/23 13:34	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 13:34	1
Vinyl chloride	6.2		1.0		ug/L			03/07/23 13:34	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 13:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		80 - 120		03/07/23 13:34	1
4-Bromofluorobenzene (Surr)	105		80 - 120		03/07/23 13:34	1
Dibromofluoromethane (Surr)	111		80 - 120		03/07/23 13:34	1
Toluene-d8 (Surr)	98		80 - 120		03/07/23 13:34	1

Client Sample ID: WC-251478

Lab Sample ID: 410-117699-2

Date Collected: 03/06/23 17:23

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 14:40	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 14:40	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 14:40	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 14:40	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 14:40	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 14:40	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 14:40	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 14:40	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 14:40	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 14:40	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 14:40	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 14:40	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 14:40	1
2-Butanone	ND		10		ug/L			03/07/23 14:40	1
2-Ethylhexyl acrylate	27		5.0		ug/L			03/07/23 14:40	1
2-Hexanone	ND		10		ug/L			03/07/23 14:40	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 14:40	1
Acetone	ND		20		ug/L			03/07/23 14:40	1
Benzene	ND		1.0		ug/L			03/07/23 14:40	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 14:40	1
Bromoform	ND		4.0		ug/L			03/07/23 14:40	1
Bromomethane	ND		1.0		ug/L			03/07/23 14:40	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 14:40	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 14:40	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 14:40	1
Chloroethane	ND		1.0		ug/L			03/07/23 14:40	1
Chloroform	ND		1.0		ug/L			03/07/23 14:40	1
Chloromethane	ND		2.0		ug/L			03/07/23 14:40	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 14:40	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 14:40	1
Cyclohexane	ND		5.0		ug/L			03/07/23 14:40	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 14:40	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251478

Lab Sample ID: 410-117699-2

Date Collected: 03/06/23 17:23

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 14:40	1
Ethanol	ND		750		ug/L			03/07/23 14:40	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 14:40	1
Freon 113	ND		10		ug/L			03/07/23 14:40	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 14:40	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 14:40	1
Methyl acetate	ND		5.0		ug/L			03/07/23 14:40	1
Methyl acrylate	ND		5.0		ug/L			03/07/23 14:40	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 14:40	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 14:40	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 14:40	1
o-Xylene	ND		1.0		ug/L			03/07/23 14:40	1
Styrene	10		5.0		ug/L			03/07/23 14:40	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 14:40	1
Toluene	1.5		1.0		ug/L			03/07/23 14:40	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 14:40	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 14:40	1
Trichloroethene	ND		1.0		ug/L			03/07/23 14:40	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 14:40	1
Vinyl chloride	6.4		1.0		ug/L			03/07/23 14:40	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 14:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 14:40	1
4-Bromofluorobenzene (Surr)	103		80 - 120		03/07/23 14:40	1
Dibromofluoromethane (Surr)	109		80 - 120		03/07/23 14:40	1
Toluene-d8 (Surr)	98		80 - 120		03/07/23 14:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butyl acrylate	1500		50		ug/L			03/07/23 15:02	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 15:02	10
4-Bromofluorobenzene (Surr)	99		80 - 120		03/07/23 15:02	10
Dibromofluoromethane (Surr)	109		80 - 120		03/07/23 15:02	10
Toluene-d8 (Surr)	99		80 - 120		03/07/23 15:02	10

Client Sample ID: WC-251321

Lab Sample ID: 410-117699-3

Date Collected: 03/06/23 17:25

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 15:24	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 15:24	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 15:24	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 15:24	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 15:24	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 15:24	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 15:24	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251321

Lab Sample ID: 410-117699-3

Date Collected: 03/06/23 17:25

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 15:24	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 15:24	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 15:24	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 15:24	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 15:24	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 15:24	1
2-Butanone	ND		10		ug/L			03/07/23 15:24	1
2-Ethylhexyl acrylate	23		5.0		ug/L			03/07/23 15:24	1
2-Hexanone	ND		10		ug/L			03/07/23 15:24	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 15:24	1
Acetone	ND		20		ug/L			03/07/23 15:24	1
Benzene	ND		1.0		ug/L			03/07/23 15:24	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 15:24	1
Bromoform	ND		4.0		ug/L			03/07/23 15:24	1
Bromomethane	ND		1.0		ug/L			03/07/23 15:24	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 15:24	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 15:24	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 15:24	1
Chloroethane	ND		1.0		ug/L			03/07/23 15:24	1
Chloroform	ND		1.0		ug/L			03/07/23 15:24	1
Chloromethane	ND		2.0		ug/L			03/07/23 15:24	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 15:24	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 15:24	1
Cyclohexane	ND		5.0		ug/L			03/07/23 15:24	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 15:24	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 15:24	1
Ethanol	ND		750		ug/L			03/07/23 15:24	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 15:24	1
Freon 113	ND		10		ug/L			03/07/23 15:24	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 15:24	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 15:24	1
Methyl acetate	ND		5.0		ug/L			03/07/23 15:24	1
Methyl acrylate	ND		5.0		ug/L			03/07/23 15:24	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 15:24	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 15:24	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 15:24	1
o-Xylene	ND		1.0		ug/L			03/07/23 15:24	1
Styrene	ND		5.0		ug/L			03/07/23 15:24	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 15:24	1
Toluene	ND		1.0		ug/L			03/07/23 15:24	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 15:24	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 15:24	1
Trichloroethene	ND		1.0		ug/L			03/07/23 15:24	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 15:24	1
Vinyl chloride	8.1		1.0		ug/L			03/07/23 15:24	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 15:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120		03/07/23 15:24	1
4-Bromofluorobenzene (Surr)	98		80 - 120		03/07/23 15:24	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251321

Lab Sample ID: 410-117699-3

Date Collected: 03/06/23 17:25

Matrix: Water

Date Received: 03/06/23 23:10

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 15:24	1
Toluene-d8 (Surr)	98		80 - 120		03/07/23 15:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butyl acrylate	330		50		ug/L			03/07/23 15:46	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		80 - 120		03/07/23 15:46	10
4-Bromofluorobenzene (Surr)	96		80 - 120		03/07/23 15:46	10
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 15:46	10
Toluene-d8 (Surr)	99		80 - 120		03/07/23 15:46	10

Client Sample ID: WC-251633

Lab Sample ID: 410-117699-4

Date Collected: 03/06/23 17:32

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 13:56	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 13:56	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 13:56	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 13:56	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 13:56	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 13:56	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 13:56	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 13:56	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:56	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 13:56	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 13:56	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:56	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:56	1
2-Butanone	ND		10		ug/L			03/07/23 13:56	1
2-Ethylhexyl acrylate	6.8		5.0		ug/L			03/07/23 13:56	1
2-Hexanone	ND		10		ug/L			03/07/23 13:56	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 13:56	1
Acetone	24		20		ug/L			03/07/23 13:56	1
Benzene	ND		1.0		ug/L			03/07/23 13:56	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 13:56	1
Bromoform	ND		4.0		ug/L			03/07/23 13:56	1
Bromomethane	ND		1.0		ug/L			03/07/23 13:56	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 13:56	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 13:56	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 13:56	1
Chloroethane	ND		1.0		ug/L			03/07/23 13:56	1
Chloroform	ND		1.0		ug/L			03/07/23 13:56	1
Chloromethane	ND		2.0		ug/L			03/07/23 13:56	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 13:56	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 13:56	1
Cyclohexane	ND		5.0		ug/L			03/07/23 13:56	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251633

Lab Sample ID: 410-117699-4

Date Collected: 03/06/23 17:32

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromochloromethane	ND		1.0		ug/L			03/07/23 13:56	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 13:56	1
Ethanol	ND		750		ug/L			03/07/23 13:56	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 13:56	1
Freon 113	ND		10		ug/L			03/07/23 13:56	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 13:56	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 13:56	1
Methyl acetate	ND		5.0		ug/L			03/07/23 13:56	1
Methyl acrylate	ND		5.0		ug/L			03/07/23 13:56	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 13:56	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 13:56	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 13:56	1
n-Butyl acrylate	35		5.0		ug/L			03/07/23 13:56	1
o-Xylene	ND		1.0		ug/L			03/07/23 13:56	1
Styrene	ND		5.0		ug/L			03/07/23 13:56	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 13:56	1
Toluene	ND		1.0		ug/L			03/07/23 13:56	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 13:56	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 13:56	1
Trichloroethene	ND		1.0		ug/L			03/07/23 13:56	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 13:56	1
Vinyl chloride	11		1.0		ug/L			03/07/23 13:56	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 13:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120		03/07/23 13:56	1
4-Bromofluorobenzene (Surr)	103		80 - 120		03/07/23 13:56	1
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 13:56	1
Toluene-d8 (Surr)	99		80 - 120		03/07/23 13:56	1

Client Sample ID: WC-256094

Lab Sample ID: 410-117699-5

Date Collected: 03/06/23 17:36

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 14:18	1
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 14:18	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 14:18	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 14:18	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 14:18	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 14:18	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 14:18	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 14:18	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 14:18	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 14:18	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 14:18	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 14:18	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 14:18	1
2-Butanone	ND		10		ug/L			03/07/23 14:18	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-256094

Lab Sample ID: 410-117699-5

Date Collected: 03/06/23 17:36

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	ND		10		ug/L			03/07/23 14:18	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 14:18	1
Acetone	ND		20		ug/L			03/07/23 14:18	1
Benzene	3.9		1.0		ug/L			03/07/23 14:18	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 14:18	1
Bromoform	ND		4.0		ug/L			03/07/23 14:18	1
Bromomethane	ND		1.0		ug/L			03/07/23 14:18	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 14:18	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 14:18	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 14:18	1
Chloroethane	ND		1.0		ug/L			03/07/23 14:18	1
Chloroform	ND		1.0		ug/L			03/07/23 14:18	1
Chloromethane	ND		2.0		ug/L			03/07/23 14:18	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 14:18	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 14:18	1
Cyclohexane	ND		5.0		ug/L			03/07/23 14:18	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 14:18	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 14:18	1
Ethanol	ND		750		ug/L			03/07/23 14:18	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 14:18	1
Freon 113	ND		10		ug/L			03/07/23 14:18	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 14:18	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 14:18	1
Methyl acetate	ND		5.0		ug/L			03/07/23 14:18	1
Methyl acrylate	ND		5.0		ug/L			03/07/23 14:18	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 14:18	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 14:18	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 14:18	1
n-Butyl acrylate	77		5.0		ug/L			03/07/23 14:18	1
o-Xylene	2.2		1.0		ug/L			03/07/23 14:18	1
Styrene	ND		5.0		ug/L			03/07/23 14:18	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 14:18	1
Toluene	ND		1.0		ug/L			03/07/23 14:18	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 14:18	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 14:18	1
Trichloroethene	ND		1.0		ug/L			03/07/23 14:18	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 14:18	1
Vinyl chloride	5.8		1.0		ug/L			03/07/23 14:18	1
Xylenes, Total	2.2		1.0		ug/L			03/07/23 14:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120		03/07/23 14:18	1
4-Bromofluorobenzene (Surr)	103		80 - 120		03/07/23 14:18	1
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 14:18	1
Toluene-d8 (Surr)	99		80 - 120		03/07/23 14:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Ethylhexyl acrylate	300		50		ug/L			03/07/23 19:04	10

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-256094

Lab Sample ID: 410-117699-5

Date Collected: 03/06/23 17:36

Matrix: Water

Date Received: 03/06/23 23:10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120		03/07/23 19:04	10
4-Bromofluorobenzene (Surr)	95		80 - 120		03/07/23 19:04	10
Dibromofluoromethane (Surr)	109		80 - 120		03/07/23 19:04	10
Toluene-d8 (Surr)	100		80 - 120		03/07/23 19:04	10

Client Sample ID: WC-251091

Lab Sample ID: 410-117699-6

Date Collected: 03/06/23 17:40

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 16:08	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 16:08	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 16:08	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 16:08	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 16:08	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 16:08	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 16:08	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 16:08	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 16:08	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 16:08	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 16:08	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 16:08	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 16:08	1
2-Butanone	ND		10		ug/L			03/07/23 16:08	1
2-Ethylhexyl acrylate	220		5.0		ug/L			03/07/23 16:08	1
2-Hexanone	ND		10		ug/L			03/07/23 16:08	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 16:08	1
Acetone	ND		20		ug/L			03/07/23 16:08	1
Benzene	3.7		1.0		ug/L			03/07/23 16:08	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 16:08	1
Bromoform	ND		4.0		ug/L			03/07/23 16:08	1
Bromomethane	ND		1.0		ug/L			03/07/23 16:08	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 16:08	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 16:08	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 16:08	1
Chloroethane	ND		1.0		ug/L			03/07/23 16:08	1
Chloroform	ND		1.0		ug/L			03/07/23 16:08	1
Chloromethane	ND		2.0		ug/L			03/07/23 16:08	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 16:08	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 16:08	1
Cyclohexane	ND		5.0		ug/L			03/07/23 16:08	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 16:08	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 16:08	1
Ethanol	ND		750		ug/L			03/07/23 16:08	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 16:08	1
Freon 113	ND		10		ug/L			03/07/23 16:08	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 16:08	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 16:08	1
Methyl acetate	ND		5.0		ug/L			03/07/23 16:08	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251091

Lab Sample ID: 410-117699-6

Date Collected: 03/06/23 17:40

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		5.0		ug/L			03/07/23 16:08	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 16:08	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 16:08	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 16:08	1
o-Xylene	ND		1.0		ug/L			03/07/23 16:08	1
Styrene	ND		5.0		ug/L			03/07/23 16:08	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 16:08	1
Toluene	ND		1.0		ug/L			03/07/23 16:08	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 16:08	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 16:08	1
Trichloroethene	ND		1.0		ug/L			03/07/23 16:08	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 16:08	1
Vinyl chloride	62		1.0		ug/L			03/07/23 16:08	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 16:08	1
4-Bromofluorobenzene (Surr)	102		80 - 120		03/07/23 16:08	1
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 16:08	1
Toluene-d8 (Surr)	98		80 - 120		03/07/23 16:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butyl acrylate	2600		100		ug/L			03/07/23 16:30	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 16:30	20
4-Bromofluorobenzene (Surr)	97		80 - 120		03/07/23 16:30	20
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 16:30	20
Toluene-d8 (Surr)	99		80 - 120		03/07/23 16:30	20

Client Sample ID: WC-251079

Lab Sample ID: 410-117699-7

Date Collected: 03/06/23 17:46

Matrix: Water

Date Received: 03/06/23 23:10

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		ug/L			03/07/23 16:52	2
1,1,1,2-Tetrachloroethane	ND		2.0		ug/L			03/07/23 16:52	2
1,1,2-Trichloroethane	ND		2.0		ug/L			03/07/23 16:52	2
1,1-Dichloroethane	ND		2.0		ug/L			03/07/23 16:52	2
1,1-Dichloroethene	ND		2.0		ug/L			03/07/23 16:52	2
1,2,4-Trichlorobenzene	ND		10		ug/L			03/07/23 16:52	2
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			03/07/23 16:52	2
1,2-Dibromoethane	ND		2.0		ug/L			03/07/23 16:52	2
1,2-Dichlorobenzene	ND		10		ug/L			03/07/23 16:52	2
1,2-Dichloroethane	ND		2.0		ug/L			03/07/23 16:52	2
1,2-Dichloropropane	ND		2.0		ug/L			03/07/23 16:52	2
1,3-Dichlorobenzene	ND		10		ug/L			03/07/23 16:52	2
1,4-Dichlorobenzene	ND		10		ug/L			03/07/23 16:52	2
2-Butanone	ND		20		ug/L			03/07/23 16:52	2

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251079

Lab Sample ID: 410-117699-7

Date Collected: 03/06/23 17:46

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Ethylhexyl acrylate	55		10		ug/L			03/07/23 16:52	2
2-Hexanone	ND		20		ug/L			03/07/23 16:52	2
4-Methyl-2-pentanone	ND		20		ug/L			03/07/23 16:52	2
Acetone	ND		40		ug/L			03/07/23 16:52	2
Benzene	ND		2.0		ug/L			03/07/23 16:52	2
Bromodichloromethane	ND		2.0		ug/L			03/07/23 16:52	2
Bromoform	ND		8.0		ug/L			03/07/23 16:52	2
Bromomethane	ND		2.0		ug/L			03/07/23 16:52	2
Carbon disulfide	ND		10		ug/L			03/07/23 16:52	2
Carbon tetrachloride	ND		2.0		ug/L			03/07/23 16:52	2
Chlorobenzene	ND		2.0		ug/L			03/07/23 16:52	2
Chloroethane	ND		2.0		ug/L			03/07/23 16:52	2
Chloroform	ND		2.0		ug/L			03/07/23 16:52	2
Chloromethane	ND		4.0		ug/L			03/07/23 16:52	2
cis-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 16:52	2
cis-1,3-Dichloropropene	ND		2.0		ug/L			03/07/23 16:52	2
Cyclohexane	ND		10		ug/L			03/07/23 16:52	2
Dibromochloromethane	ND		2.0		ug/L			03/07/23 16:52	2
Dichlorodifluoromethane	ND		2.0		ug/L			03/07/23 16:52	2
Ethanol	7200		1500		ug/L			03/07/23 16:52	2
Ethylbenzene	ND		2.0		ug/L			03/07/23 16:52	2
Freon 113	ND		20		ug/L			03/07/23 16:52	2
Isopropylbenzene	ND		10		ug/L			03/07/23 16:52	2
m&p-Xylene	ND		10		ug/L			03/07/23 16:52	2
Methyl acetate	ND		10		ug/L			03/07/23 16:52	2
Methyl acrylate	ND		10		ug/L			03/07/23 16:52	2
Methyl tertiary butyl ether	ND		2.0		ug/L			03/07/23 16:52	2
Methylcyclohexane	ND		10		ug/L			03/07/23 16:52	2
Methylene Chloride	ND		2.0		ug/L			03/07/23 16:52	2
o-Xylene	ND		2.0		ug/L			03/07/23 16:52	2
Styrene	ND		10		ug/L			03/07/23 16:52	2
Tetrachloroethene	ND		2.0		ug/L			03/07/23 16:52	2
Toluene	ND		2.0		ug/L			03/07/23 16:52	2
trans-1,2-Dichloroethene	ND		4.0		ug/L			03/07/23 16:52	2
trans-1,3-Dichloropropene	ND		2.0		ug/L			03/07/23 16:52	2
Trichloroethene	ND		2.0		ug/L			03/07/23 16:52	2
Trichlorofluoromethane	ND		2.0		ug/L			03/07/23 16:52	2
Vinyl chloride	2.8		2.0		ug/L			03/07/23 16:52	2
Xylenes, Total	ND		2.0		ug/L			03/07/23 16:52	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 16:52	2
4-Bromofluorobenzene (Surr)	99		80 - 120		03/07/23 16:52	2
Dibromofluoromethane (Surr)	109		80 - 120		03/07/23 16:52	2
Toluene-d8 (Surr)	97		80 - 120		03/07/23 16:52	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butyl acrylate	5600		250		ug/L			03/07/23 17:14	50

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251079

Lab Sample ID: 410-117699-7

Date Collected: 03/06/23 17:46

Matrix: Water

Date Received: 03/06/23 23:10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 17:14	50
4-Bromofluorobenzene (Surr)	97		80 - 120		03/07/23 17:14	50
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 17:14	50
Toluene-d8 (Surr)	99		80 - 120		03/07/23 17:14	50

Client Sample ID: WC-251782

Lab Sample ID: 410-117699-8

Date Collected: 03/06/23 17:53

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 17:36	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 17:36	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 17:36	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 17:36	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 17:36	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 17:36	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 17:36	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 17:36	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 17:36	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 17:36	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 17:36	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 17:36	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 17:36	1
2-Butanone	ND		10		ug/L			03/07/23 17:36	1
2-Ethylhexyl acrylate	ND		5.0		ug/L			03/07/23 17:36	1
2-Hexanone	ND		10		ug/L			03/07/23 17:36	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 17:36	1
Acetone	ND		20		ug/L			03/07/23 17:36	1
Benzene	ND		1.0		ug/L			03/07/23 17:36	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 17:36	1
Bromoform	ND		4.0		ug/L			03/07/23 17:36	1
Bromomethane	ND		1.0		ug/L			03/07/23 17:36	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 17:36	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 17:36	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 17:36	1
Chloroethane	ND		1.0		ug/L			03/07/23 17:36	1
Chloroform	ND		1.0		ug/L			03/07/23 17:36	1
Chloromethane	ND		2.0		ug/L			03/07/23 17:36	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 17:36	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 17:36	1
Cyclohexane	ND		5.0		ug/L			03/07/23 17:36	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 17:36	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 17:36	1
Ethanol	ND		750		ug/L			03/07/23 17:36	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 17:36	1
Freon 113	ND		10		ug/L			03/07/23 17:36	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 17:36	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 17:36	1
Methyl acetate	ND		5.0		ug/L			03/07/23 17:36	1

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251782

Lab Sample ID: 410-117699-8

Date Collected: 03/06/23 17:53

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		5.0		ug/L			03/07/23 17:36	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 17:36	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 17:36	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 17:36	1
o-Xylene	ND		1.0		ug/L			03/07/23 17:36	1
Styrene	ND		5.0		ug/L			03/07/23 17:36	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 17:36	1
Toluene	ND		1.0		ug/L			03/07/23 17:36	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 17:36	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 17:36	1
Trichloroethene	ND		1.0		ug/L			03/07/23 17:36	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 17:36	1
Vinyl chloride	ND		1.0		ug/L			03/07/23 17:36	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120					03/07/23 17:36	1
4-Bromofluorobenzene (Surr)	98		80 - 120					03/07/23 17:36	1
Dibromofluoromethane (Surr)	108		80 - 120					03/07/23 17:36	1
Toluene-d8 (Surr)	97		80 - 120					03/07/23 17:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butyl acrylate	1200		50		ug/L			03/07/23 17:58	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					03/07/23 17:58	10
4-Bromofluorobenzene (Surr)	97		80 - 120					03/07/23 17:58	10
Dibromofluoromethane (Surr)	108		80 - 120					03/07/23 17:58	10
Toluene-d8 (Surr)	100		80 - 120					03/07/23 17:58	10

Client Sample ID: WC-538B

Lab Sample ID: 410-117699-9

Date Collected: 03/06/23 17:56

Matrix: Water

Date Received: 03/06/23 23:10

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		20		ug/L			03/07/23 18:20	20
1,1,1,2-Tetrachloroethane	ND		20		ug/L			03/07/23 18:20	20
1,1,2-Trichloroethane	ND		20		ug/L			03/07/23 18:20	20
1,1-Dichloroethane	ND		20		ug/L			03/07/23 18:20	20
1,1-Dichloroethene	ND		20		ug/L			03/07/23 18:20	20
1,2,4-Trichlorobenzene	ND		100		ug/L			03/07/23 18:20	20
1,2-Dibromo-3-Chloropropane	ND		100		ug/L			03/07/23 18:20	20
1,2-Dibromoethane	ND		20		ug/L			03/07/23 18:20	20
1,2-Dichlorobenzene	ND		100		ug/L			03/07/23 18:20	20
1,2-Dichloroethane	ND		20		ug/L			03/07/23 18:20	20
1,2-Dichloropropane	ND		20		ug/L			03/07/23 18:20	20
1,3-Dichlorobenzene	ND		100		ug/L			03/07/23 18:20	20
1,4-Dichlorobenzene	ND		100		ug/L			03/07/23 18:20	20
2-Butanone	ND		200		ug/L			03/07/23 18:20	20

Eurofins Lancaster Laboratories Environment Testing, LLC

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-538B

Lab Sample ID: 410-117699-9

Date Collected: 03/06/23 17:56

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Ethylhexyl acrylate	ND		100		ug/L			03/07/23 18:20	20
2-Hexanone	ND		200		ug/L			03/07/23 18:20	20
4-Methyl-2-pentanone	ND		200		ug/L			03/07/23 18:20	20
Acetone	ND		400		ug/L			03/07/23 18:20	20
Benzene	ND		20		ug/L			03/07/23 18:20	20
Bromodichloromethane	ND		20		ug/L			03/07/23 18:20	20
Bromoform	ND		80		ug/L			03/07/23 18:20	20
Bromomethane	ND		20		ug/L			03/07/23 18:20	20
Carbon disulfide	ND		100		ug/L			03/07/23 18:20	20
Carbon tetrachloride	ND		20		ug/L			03/07/23 18:20	20
Chlorobenzene	ND		20		ug/L			03/07/23 18:20	20
Chloroethane	ND		20		ug/L			03/07/23 18:20	20
Chloroform	ND		20		ug/L			03/07/23 18:20	20
Chloromethane	ND		40		ug/L			03/07/23 18:20	20
cis-1,2-Dichloroethene	ND		20		ug/L			03/07/23 18:20	20
cis-1,3-Dichloropropene	ND		20		ug/L			03/07/23 18:20	20
Cyclohexane	ND		100		ug/L			03/07/23 18:20	20
Dibromochloromethane	ND		20		ug/L			03/07/23 18:20	20
Dichlorodifluoromethane	ND		20		ug/L			03/07/23 18:20	20
Ethanol	ND		15000		ug/L			03/07/23 18:20	20
Ethylbenzene	ND		20		ug/L			03/07/23 18:20	20
Freon 113	ND		200		ug/L			03/07/23 18:20	20
Isopropylbenzene	ND		100		ug/L			03/07/23 18:20	20
m&p-Xylene	ND		100		ug/L			03/07/23 18:20	20
Methyl acetate	ND		100		ug/L			03/07/23 18:20	20
Methyl acrylate	ND		100		ug/L			03/07/23 18:20	20
Methyl tertiary butyl ether	ND		20		ug/L			03/07/23 18:20	20
Methylcyclohexane	ND		100		ug/L			03/07/23 18:20	20
Methylene Chloride	ND		20		ug/L			03/07/23 18:20	20
o-Xylene	ND		20		ug/L			03/07/23 18:20	20
Styrene	ND		100		ug/L			03/07/23 18:20	20
Tetrachloroethene	ND		20		ug/L			03/07/23 18:20	20
Toluene	ND		20		ug/L			03/07/23 18:20	20
trans-1,2-Dichloroethene	ND		40		ug/L			03/07/23 18:20	20
trans-1,3-Dichloropropene	ND		20		ug/L			03/07/23 18:20	20
Trichloroethene	ND		20		ug/L			03/07/23 18:20	20
Trichlorofluoromethane	ND		20		ug/L			03/07/23 18:20	20
Vinyl chloride	ND		20		ug/L			03/07/23 18:20	20
Xylenes, Total	ND		20		ug/L			03/07/23 18:20	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 18:20	20
4-Bromofluorobenzene (Surr)	99		80 - 120		03/07/23 18:20	20
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 18:20	20
Toluene-d8 (Surr)	98		80 - 120		03/07/23 18:20	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butyl acrylate	49000		1000		ug/L			03/07/23 18:42	200

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-538B

Lab Sample ID: 410-117699-9

Date Collected: 03/06/23 17:56

Matrix: Water

Date Received: 03/06/23 23:10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		80 - 120		03/07/23 18:42	200
4-Bromofluorobenzene (Surr)	98		80 - 120		03/07/23 18:42	200
Dibromofluoromethane (Surr)	110		80 - 120		03/07/23 18:42	200
Toluene-d8 (Surr)	100		80 - 120		03/07/23 18:42	200

Client Sample ID: TRIP BLANK

Lab Sample ID: 410-117699-10

Date Collected: 03/06/23 00:00

Matrix: Water

Date Received: 03/06/23 23:10

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		1.0		ug/L			03/07/23 13:12	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 13:12	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 13:12	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 13:12	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 13:12	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 13:12	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 13:12	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 13:12	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:12	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 13:12	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 13:12	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:12	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 13:12	1
2-Butanone	ND		10		ug/L			03/07/23 13:12	1
2-Ethylhexyl acrylate	ND		5.0		ug/L			03/07/23 13:12	1
2-Hexanone	ND		10		ug/L			03/07/23 13:12	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 13:12	1
Acetone	ND		20		ug/L			03/07/23 13:12	1
Benzene	ND		1.0		ug/L			03/07/23 13:12	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 13:12	1
Bromoform	ND		4.0		ug/L			03/07/23 13:12	1
Bromomethane	ND		1.0		ug/L			03/07/23 13:12	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 13:12	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 13:12	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 13:12	1
Chloroethane	ND		1.0		ug/L			03/07/23 13:12	1
Chloroform	ND		1.0		ug/L			03/07/23 13:12	1
Chloromethane	ND		2.0		ug/L			03/07/23 13:12	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 13:12	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 13:12	1
Cyclohexane	ND		5.0		ug/L			03/07/23 13:12	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 13:12	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 13:12	1
Ethanol	ND		750		ug/L			03/07/23 13:12	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 13:12	1
Freon 113	ND		10		ug/L			03/07/23 13:12	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 13:12	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 13:12	1
Methyl acetate	ND		5.0		ug/L			03/07/23 13:12	1

Client Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 410-117699-10

Date Collected: 03/06/23 00:00

Matrix: Water

Date Received: 03/06/23 23:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		5.0		ug/L			03/07/23 13:12	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 13:12	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 13:12	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 13:12	1
n-Butyl acrylate	ND		5.0		ug/L			03/07/23 13:12	1
o-Xylene	ND		1.0		ug/L			03/07/23 13:12	1
Styrene	ND		5.0		ug/L			03/07/23 13:12	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 13:12	1
Toluene	ND		1.0		ug/L			03/07/23 13:12	1
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 13:12	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 13:12	1
Trichloroethene	ND		1.0		ug/L			03/07/23 13:12	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 13:12	1
Vinyl chloride	ND		1.0		ug/L			03/07/23 13:12	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 13:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		80 - 120		03/07/23 13:12	1
4-Bromofluorobenzene (Surr)	90		80 - 120		03/07/23 13:12	1
Dibromofluoromethane (Surr)	110		80 - 120		03/07/23 13:12	1
Toluene-d8 (Surr)	100		80 - 120		03/07/23 13:12	1

Surrogate Summary

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (80-120)	BFB (80-120)	DBFM (80-120)	TOL (80-120)
410-117699-1	WC-257204	107	105	111	98
410-117699-2	WC-251478	105	103	109	98
410-117699-2 - DL	WC-251478	105	99	109	99
410-117699-3	WC-251321	103	98	108	98
410-117699-3 - DL	WC-251321	106	96	108	99
410-117699-4	WC-251633	104	103	108	99
410-117699-5	WC-256094	104	103	108	99
410-117699-5 - DL	WC-256094	103	95	109	100
410-117699-6	WC-251091	105	102	108	98
410-117699-6 - DL	WC-251091	105	97	108	99
410-117699-7	WC-251079	105	99	109	97
410-117699-7 - DL	WC-251079	105	97	108	99
410-117699-8	WC-251782	104	98	108	97
410-117699-8 - DL	WC-251782	103	97	108	100
410-117699-9	WC-538B	105	99	108	98
410-117699-9 - DL	WC-538B	104	98	110	100
410-117699-10	TRIP BLANK	106	90	110	100
LCS 410-350829/5	Lab Control Sample	100	97	102	102
LCS 410-350829/7	Lab Control Sample	103	94	103	101
LCSD 410-350829/6	Lab Control Sample Dup	102	97	102	102
LCSD 410-350829/8	Lab Control Sample Dup	100	94	103	99
MB 410-350829/11	Method Blank	105	91	108	101

Surrogate Legend

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

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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

Lab Sample ID: MB 410-350829/11
Matrix: Water
Analysis Batch: 350829

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0		ug/L			03/07/23 11:44	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/07/23 11:44	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/07/23 11:44	1
1,1-Dichloroethane	ND		1.0		ug/L			03/07/23 11:44	1
1,1-Dichloroethene	ND		1.0		ug/L			03/07/23 11:44	1
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/07/23 11:44	1
1,2-Dibromo-3-Chloropropane	ND		5.0		ug/L			03/07/23 11:44	1
1,2-Dibromoethane	ND		1.0		ug/L			03/07/23 11:44	1
1,2-Dichlorobenzene	ND		5.0		ug/L			03/07/23 11:44	1
1,2-Dichloroethane	ND		1.0		ug/L			03/07/23 11:44	1
1,2-Dichloropropane	ND		1.0		ug/L			03/07/23 11:44	1
1,3-Dichlorobenzene	ND		5.0		ug/L			03/07/23 11:44	1
1,4-Dichlorobenzene	ND		5.0		ug/L			03/07/23 11:44	1
2-Butanone	ND		10		ug/L			03/07/23 11:44	1
2-Ethylhexyl acrylate	ND		5.0		ug/L			03/07/23 11:44	1
2-Hexanone	ND		10		ug/L			03/07/23 11:44	1
4-Methyl-2-pentanone	ND		10		ug/L			03/07/23 11:44	1
Acetone	ND		20		ug/L			03/07/23 11:44	1
Benzene	ND		1.0		ug/L			03/07/23 11:44	1
Bromodichloromethane	ND		1.0		ug/L			03/07/23 11:44	1
Bromoform	ND		4.0		ug/L			03/07/23 11:44	1
Bromomethane	ND		1.0		ug/L			03/07/23 11:44	1
Carbon disulfide	ND		5.0		ug/L			03/07/23 11:44	1
Carbon tetrachloride	ND		1.0		ug/L			03/07/23 11:44	1
Chlorobenzene	ND		1.0		ug/L			03/07/23 11:44	1
Chloroethane	ND		1.0		ug/L			03/07/23 11:44	1
Chloroform	ND		1.0		ug/L			03/07/23 11:44	1
Chloromethane	ND		2.0		ug/L			03/07/23 11:44	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/07/23 11:44	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 11:44	1
Cyclohexane	ND		5.0		ug/L			03/07/23 11:44	1
Dibromochloromethane	ND		1.0		ug/L			03/07/23 11:44	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/07/23 11:44	1
Ethanol	ND		750		ug/L			03/07/23 11:44	1
Ethylbenzene	ND		1.0		ug/L			03/07/23 11:44	1
Freon 113	ND		10		ug/L			03/07/23 11:44	1
Isopropylbenzene	ND		5.0		ug/L			03/07/23 11:44	1
m&p-Xylene	ND		5.0		ug/L			03/07/23 11:44	1
Methyl acetate	ND		5.0		ug/L			03/07/23 11:44	1
Methyl acrylate	ND		5.0		ug/L			03/07/23 11:44	1
Methyl tertiary butyl ether	ND		1.0		ug/L			03/07/23 11:44	1
Methylcyclohexane	ND		5.0		ug/L			03/07/23 11:44	1
Methylene Chloride	ND		1.0		ug/L			03/07/23 11:44	1
n-Butyl acrylate	ND		5.0		ug/L			03/07/23 11:44	1
o-Xylene	ND		1.0		ug/L			03/07/23 11:44	1
Styrene	ND		5.0		ug/L			03/07/23 11:44	1
Tetrachloroethene	ND		1.0		ug/L			03/07/23 11:44	1
Toluene	ND		1.0		ug/L			03/07/23 11:44	1

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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

Lab Sample ID: MB 410-350829/11
Matrix: Water
Analysis Batch: 350829

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
trans-1,2-Dichloroethene	ND		2.0		ug/L			03/07/23 11:44	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/07/23 11:44	1
Trichloroethene	ND		1.0		ug/L			03/07/23 11:44	1
Trichlorofluoromethane	ND		1.0		ug/L			03/07/23 11:44	1
Vinyl chloride	ND		1.0		ug/L			03/07/23 11:44	1
Xylenes, Total	ND		1.0		ug/L			03/07/23 11:44	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	105		80 - 120		03/07/23 11:44	1
4-Bromofluorobenzene (Surr)	91		80 - 120		03/07/23 11:44	1
Dibromofluoromethane (Surr)	108		80 - 120		03/07/23 11:44	1
Toluene-d8 (Surr)	101		80 - 120		03/07/23 11:44	1

Lab Sample ID: LCS 410-350829/5
Matrix: Water
Analysis Batch: 350829

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	20.0	18.7		ug/L		94	67 - 126
1,1,1,2-Tetrachloroethane	20.0	20.0		ug/L		100	72 - 120
1,1,1,2-Trichloroethane	20.0	19.6		ug/L		98	80 - 120
1,1-Dichloroethane	20.0	19.4		ug/L		97	80 - 120
1,1-Dichloroethene	20.0	19.1		ug/L		95	80 - 131
1,2,4-Trichlorobenzene	20.0	18.0		ug/L		90	63 - 120
1,2-Dibromo-3-Chloropropane	20.0	17.6		ug/L		88	47 - 131
1,2-Dibromoethane	20.0	20.1		ug/L		101	77 - 120
1,2-Dichlorobenzene	20.0	19.1		ug/L		95	80 - 120
1,2-Dichloroethane	20.0	19.1		ug/L		95	73 - 124
1,2-Dichloropropane	20.0	19.2		ug/L		96	80 - 120
1,3-Dichlorobenzene	20.0	19.2		ug/L		96	80 - 120
1,4-Dichlorobenzene	20.0	20.3		ug/L		101	80 - 120
2-Butanone	250	239		ug/L		96	59 - 135
2-Hexanone	250	263		ug/L		105	56 - 135
4-Methyl-2-pentanone	250	255		ug/L		102	62 - 133
Acetone	250	266		ug/L		107	54 - 157
Benzene	20.0	19.7		ug/L		99	80 - 120
Bromodichloromethane	20.0	19.3		ug/L		96	71 - 120
Bromoform	20.0	20.0		ug/L		100	51 - 120
Bromomethane	20.0	17.7		ug/L		88	53 - 128
Carbon disulfide	20.0	19.0		ug/L		95	65 - 128
Carbon tetrachloride	20.0	18.9		ug/L		94	64 - 134
Chlorobenzene	20.0	19.0		ug/L		95	80 - 120
Chloroethane	20.0	18.8		ug/L		94	55 - 123
Chloroform	20.0	19.0		ug/L		95	80 - 120
Chloromethane	20.0	16.9		ug/L		85	56 - 121
cis-1,2-Dichloroethene	20.0	20.2		ug/L		101	80 - 125
cis-1,3-Dichloropropene	20.0	18.3		ug/L		91	75 - 120
Cyclohexane	20.0	15.6		ug/L		78	68 - 126

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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

Lab Sample ID: LCS 410-350829/5
Matrix: Water
Analysis Batch: 350829

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dibromochloromethane	20.0	20.1		ug/L		101	71 - 120
Dichlorodifluoromethane	20.0	14.2		ug/L		71	41 - 127
Ethylbenzene	20.0	18.7		ug/L		94	80 - 120
Freon 113	20.0	16.6		ug/L		83	73 - 139
Isopropylbenzene	20.0	18.6		ug/L		93	80 - 120
m&p-Xylene	40.0	37.8		ug/L		94	80 - 120
Methyl acetate	20.0	24.6		ug/L		123	54 - 136
Methyl tertiary butyl ether	20.0	16.8		ug/L		84	69 - 122
Methylcyclohexane	20.0	15.5		ug/L		77	67 - 121
Methylene Chloride	20.0	19.7		ug/L		99	80 - 120
o-Xylene	20.0	18.0		ug/L		90	80 - 120
Styrene	20.0	18.8		ug/L		94	80 - 120
Tetrachloroethene	20.0	19.3		ug/L		97	80 - 120
Toluene	20.0	19.2		ug/L		96	80 - 120
trans-1,2-Dichloroethene	20.0	19.2		ug/L		96	80 - 126
trans-1,3-Dichloropropene	20.0	18.6		ug/L		93	67 - 120
Trichloroethene	20.0	19.2		ug/L		96	80 - 120
Trichlorofluoromethane	20.0	14.2		ug/L		71	55 - 135
Vinyl chloride	20.0	16.5		ug/L		83	56 - 120
Xylenes, Total	60.0	55.8		ug/L		93	80 - 120

Surrogate	%Recovery	LCS Qualifier	LCS Limits
1,2-Dichloroethane-d4 (Surr)	100		80 - 120
4-Bromofluorobenzene (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	102		80 - 120
Toluene-d8 (Surr)	102		80 - 120

Lab Sample ID: LCS 410-350829/7
Matrix: Water
Analysis Batch: 350829

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Ethylhexyl acrylate	20.0	14.7		ug/L		74	70 - 130
Ethanol	1000	1100		ug/L		110	31 - 180
Methyl acrylate	20.0	18.3		ug/L		92	70 - 130
n-Butyl acrylate	20.0	15.5		ug/L		77	70 - 130

Surrogate	%Recovery	LCS Qualifier	LCS Limits
1,2-Dichloroethane-d4 (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	103		80 - 120
Toluene-d8 (Surr)	101		80 - 120

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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

Lab Sample ID: LCSD 410-350829/6
Matrix: Water
Analysis Batch: 350829

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	20.0	18.7		ug/L		94	67 - 126	0	30
1,1,2,2-Tetrachloroethane	20.0	19.6		ug/L		98	72 - 120	2	30
1,1,2-Trichloroethane	20.0	19.0		ug/L		95	80 - 120	3	30
1,1-Dichloroethane	20.0	19.1		ug/L		95	80 - 120	1	30
1,1-Dichloroethene	20.0	19.5		ug/L		97	80 - 131	2	30
1,2,4-Trichlorobenzene	20.0	18.2		ug/L		91	63 - 120	2	30
1,2-Dibromo-3-Chloropropane	20.0	16.9		ug/L		85	47 - 131	4	30
1,2-Dibromoethane	20.0	19.5		ug/L		97	77 - 120	3	30
1,2-Dichlorobenzene	20.0	18.7		ug/L		94	80 - 120	2	30
1,2-Dichloroethane	20.0	19.0		ug/L		95	73 - 124	1	30
1,2-Dichloropropane	20.0	19.0		ug/L		95	80 - 120	1	30
1,3-Dichlorobenzene	20.0	19.1		ug/L		95	80 - 120	1	30
1,4-Dichlorobenzene	20.0	20.2		ug/L		101	80 - 120	1	30
2-Butanone	250	237		ug/L		95	59 - 135	1	30
2-Hexanone	250	255		ug/L		102	56 - 135	3	30
4-Methyl-2-pentanone	250	247		ug/L		99	62 - 133	3	30
Acetone	250	262		ug/L		105	54 - 157	2	30
Benzene	20.0	19.6		ug/L		98	80 - 120	1	30
Bromodichloromethane	20.0	19.3		ug/L		97	71 - 120	0	30
Bromoform	20.0	19.3		ug/L		96	51 - 120	4	30
Bromomethane	20.0	17.7		ug/L		89	53 - 128	0	30
Carbon disulfide	20.0	19.2		ug/L		96	65 - 128	1	30
Carbon tetrachloride	20.0	18.7		ug/L		94	64 - 134	1	30
Chlorobenzene	20.0	18.8		ug/L		94	80 - 120	1	30
Chloroethane	20.0	19.0		ug/L		95	55 - 123	1	30
Chloroform	20.0	18.8		ug/L		94	80 - 120	1	30
Chloromethane	20.0	17.2		ug/L		86	56 - 121	2	30
cis-1,2-Dichloroethene	20.0	20.3		ug/L		102	80 - 125	0	30
cis-1,3-Dichloropropene	20.0	18.1		ug/L		91	75 - 120	1	30
Cyclohexane	20.0	16.0		ug/L		80	68 - 126	3	30
Dibromochloromethane	20.0	19.6		ug/L		98	71 - 120	3	30
Dichlorodifluoromethane	20.0	14.5		ug/L		73	41 - 127	3	30
Ethylbenzene	20.0	18.4		ug/L		92	80 - 120	2	30
Freon 113	20.0	16.4		ug/L		82	73 - 139	1	30
Isopropylbenzene	20.0	18.4		ug/L		92	80 - 120	1	30
m&p-Xylene	40.0	37.5		ug/L		94	80 - 120	1	30
Methyl acetate	20.0	19.5		ug/L		98	54 - 136	23	30
Methyl tertiary butyl ether	20.0	16.7		ug/L		84	69 - 122	1	30
Methylcyclohexane	20.0	15.6		ug/L		78	67 - 121	1	30
Methylene Chloride	20.0	19.5		ug/L		97	80 - 120	1	30
o-Xylene	20.0	18.0		ug/L		90	80 - 120	0	30
Styrene	20.0	18.6		ug/L		93	80 - 120	1	30
Tetrachloroethene	20.0	18.6		ug/L		93	80 - 120	4	30
Toluene	20.0	19.0		ug/L		95	80 - 120	1	30
trans-1,2-Dichloroethene	20.0	19.0		ug/L		95	80 - 126	1	30
trans-1,3-Dichloropropene	20.0	18.6		ug/L		93	67 - 120	0	30
Trichloroethene	20.0	18.9		ug/L		95	80 - 120	1	30
Trichlorofluoromethane	20.0	14.4		ug/L		72	55 - 135	1	30

QC Sample Results

Client: Norfolk Southern Corporation
 Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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

Lab Sample ID: LCSD 410-350829/6
Matrix: Water
Analysis Batch: 350829

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Vinyl chloride	20.0	16.6		ug/L		83	56 - 120	0	30
Xylenes, Total	60.0	55.5		ug/L		93	80 - 120	1	30
Surrogate									
	%Recovery	LCSD Qualifier	LCSD Limits						
1,2-Dichloroethane-d4 (Surr)	102		80 - 120						
4-Bromofluorobenzene (Surr)	97		80 - 120						
Dibromofluoromethane (Surr)	102		80 - 120						
Toluene-d8 (Surr)	102		80 - 120						

Lab Sample ID: LCSD 410-350829/8
Matrix: Water
Analysis Batch: 350829

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Ethylhexyl acrylate	20.0	14.7		ug/L		73	70 - 130	0	30
Ethanol	1000	1070		ug/L		107	31 - 180	3	30
Methyl acrylate	20.0	17.5		ug/L		88	70 - 130	5	30
n-Butyl acrylate	20.0	14.9		ug/L		74	70 - 130	3	30
Surrogate									
	%Recovery	LCSD Qualifier	LCSD Limits						
1,2-Dichloroethane-d4 (Surr)	100		80 - 120						
4-Bromofluorobenzene (Surr)	94		80 - 120						
Dibromofluoromethane (Surr)	103		80 - 120						
Toluene-d8 (Surr)	99		80 - 120						

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

GC/MS VOA

Analysis Batch: 350829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-117699-1	WC-257204	Total/NA	Water	8260D	
410-117699-2	WC-251478	Total/NA	Water	8260D	
410-117699-2 - DL	WC-251478	Total/NA	Water	8260D	
410-117699-3	WC-251321	Total/NA	Water	8260D	
410-117699-3 - DL	WC-251321	Total/NA	Water	8260D	
410-117699-4	WC-251633	Total/NA	Water	8260D	
410-117699-5	WC-256094	Total/NA	Water	8260D	
410-117699-5 - DL	WC-256094	Total/NA	Water	8260D	
410-117699-6	WC-251091	Total/NA	Water	8260D	
410-117699-6 - DL	WC-251091	Total/NA	Water	8260D	
410-117699-7	WC-251079	Total/NA	Water	8260D	
410-117699-7 - DL	WC-251079	Total/NA	Water	8260D	
410-117699-8	WC-251782	Total/NA	Water	8260D	
410-117699-8 - DL	WC-251782	Total/NA	Water	8260D	
410-117699-9	WC-538B	Total/NA	Water	8260D	
410-117699-9 - DL	WC-538B	Total/NA	Water	8260D	
410-117699-10	TRIP BLANK	Total/NA	Water	8260D	
MB 410-350829/11	Method Blank	Total/NA	Water	8260D	
LCS 410-350829/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 410-350829/7	Lab Control Sample	Total/NA	Water	8260D	
LCSD 410-350829/6	Lab Control Sample Dup	Total/NA	Water	8260D	
LCSD 410-350829/8	Lab Control Sample Dup	Total/NA	Water	8260D	

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-257204

Lab Sample ID: 410-117699-1

Date Collected: 03/06/23 17:05

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 13:34

Client Sample ID: WC-251478

Lab Sample ID: 410-117699-2

Date Collected: 03/06/23 17:23

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 14:40
Total/NA	Analysis	8260D	DL	10	350829	TQ4J	ELLE	03/07/23 15:02

Client Sample ID: WC-251321

Lab Sample ID: 410-117699-3

Date Collected: 03/06/23 17:25

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 15:24
Total/NA	Analysis	8260D	DL	10	350829	TQ4J	ELLE	03/07/23 15:46

Client Sample ID: WC-251633

Lab Sample ID: 410-117699-4

Date Collected: 03/06/23 17:32

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 13:56

Client Sample ID: WC-256094

Lab Sample ID: 410-117699-5

Date Collected: 03/06/23 17:36

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 14:18
Total/NA	Analysis	8260D	DL	10	350829	TQ4J	ELLE	03/07/23 19:04

Client Sample ID: WC-251091

Lab Sample ID: 410-117699-6

Date Collected: 03/06/23 17:40

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 16:08
Total/NA	Analysis	8260D	DL	20	350829	TQ4J	ELLE	03/07/23 16:30

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Client Sample ID: WC-251079

Lab Sample ID: 410-117699-7

Date Collected: 03/06/23 17:46

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		2	350829	TQ4J	ELLE	03/07/23 16:52
Total/NA	Analysis	8260D	DL	50	350829	TQ4J	ELLE	03/07/23 17:14

Client Sample ID: WC-251782

Lab Sample ID: 410-117699-8

Date Collected: 03/06/23 17:53

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 17:36
Total/NA	Analysis	8260D	DL	10	350829	TQ4J	ELLE	03/07/23 17:58

Client Sample ID: WC-538B

Lab Sample ID: 410-117699-9

Date Collected: 03/06/23 17:56

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		20	350829	TQ4J	ELLE	03/07/23 18:20
Total/NA	Analysis	8260D	DL	200	350829	TQ4J	ELLE	03/07/23 18:42

Client Sample ID: TRIP BLANK

Lab Sample ID: 410-117699-10

Date Collected: 03/06/23 00:00

Matrix: Water

Date Received: 03/06/23 23:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	350829	TQ4J	ELLE	03/07/23 13:12

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-ER East Palestine, OH

Job ID: 410-117699-1

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
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 Lancaster Laboratories Environment Testing, LLC



Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

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
Wyoming (UST)	A2LA	0001.01	11-30-24

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Method Summary

Client: Norfolk Southern Corporation
Project/Site: NS-ER East Palestine, OH

Job ID: 410-117699-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE

Protocol References:

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-ER East Palestine, OH

Job ID: 410-117699-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-117699-1	WC-257204	Water	03/06/23 17:05	03/06/23 23:10
410-117699-2	WC-251478	Water	03/06/23 17:23	03/06/23 23:10
410-117699-3	WC-251321	Water	03/06/23 17:25	03/06/23 23:10
410-117699-4	WC-251633	Water	03/06/23 17:32	03/06/23 23:10
410-117699-5	WC-256094	Water	03/06/23 17:36	03/06/23 23:10
410-117699-6	WC-251091	Water	03/06/23 17:40	03/06/23 23:10
410-117699-7	WC-251079	Water	03/06/23 17:46	03/06/23 23:10
410-117699-8	WC-251782	Water	03/06/23 17:53	03/06/23 23:10
410-117699-9	WC-538B	Water	03/06/23 17:56	03/06/23 23:10
410-117699-10	TRIP BLANK	Water	03/06/23 00:00	03/06/23 23:10

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Addr



410-117699 Chain of Custody

Chain of Custody Record

644930



Environment Testing America

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact		Project Manager:		Site Contact: <u>Cardyn Grogan</u>		COC No: _____	
Company Name: <u>Arcadis</u>		Tel/Email:		Lab Contact: <u>arcadis.com</u>		Carrier: _____	
Address:		Analysis Turnaround Time		Filtered Sample (Y/N) <u>Y</u> Perform MS/MSD (Y/N) <u>Y</u> <u>VOCS-8260</u>		SAMPLER: _____	
City/State/Zip:		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS				For Lab Use Only:	
Phone:		TAT if different from Below <u>rush</u>				Walk-in Client: _____	
Fax:		<input type="checkbox"/> 2 weeks <u>asap</u>				Lab Sampling: _____	
Project Name:		<input type="checkbox"/> 1 week				Job / SDG No.: _____	
Site:		<input type="checkbox"/> 2 days					
PO# <u>30169714</u>		<input type="checkbox"/> 1 day					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:
<u>WC-251204</u>		<u>3/6/23</u>	<u>1705</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-251478</u>		<u>3/6/23</u>	<u>1723</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-251321</u>		<u>3/6/23</u>	<u>1725</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-251633</u>		<u>3/6/23</u>	<u>1732</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-256094</u>		<u>3/6/23</u>	<u>1736</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-251091</u>		<u>3/6/23</u>	<u>1740</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-251079</u>		<u>3/6/23</u>	<u>1746</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-251782</u>		<u>3/6/23</u>	<u>1753</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>WC-538B</u>		<u>3/6/23</u>	<u>1756</u>	<u>G</u>	<u>WT</u>	<u>3</u>	
<u>TRIP BLANK</u>		<u>3</u>	<u>-</u>	<u>G</u>	<u>WT</u>	<u>1</u>	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							
Special Instructions/QC Requirements & Comments:							
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>AT</u>		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Therm ID No.: _____	
Relinquished by: <u>[Signature]</u> / Arcadis <u>1825</u>		Company: <u>Arcadis</u> Date/Time: <u>3/6/23 1825</u>		Received by: <u>[Signature]</u> Company: <u>ELLE</u>		Date/Time: <u>6 Mar 23 1825</u>	
Relinquished by: <u>[Signature]</u>		Company: <u>ELLE</u> Date/Time: <u>6 Mar 23 2310</u>		Received by: _____ Company: _____		Date/Time: _____	
Relinquished by: _____		Company: _____ Date/Time: _____		Received in Laboratory by: <u>[Signature]</u> Company: <u>ELLE</u>		Date/Time: <u>3-6-23 2310</u>	

4.0°

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 410-117699-1

Login Number: 117699

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 1

Creator: Metzger, Katherine A

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?	True	
Sample custody seals are intact.	True	
VOA sample vials do not have headspace $>6\text{mm}$ in diameter (none, if from WV)?	True	



ANALYTICAL REPORT

PREPARED FOR

Attn: Carolyn Grogan
ARCADIS U.S., Inc.
7575 Huntington Park Drive
Suite 130
Columbus, Ohio 43235

Generated 2/11/2023 11:48:12 AM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180173-1

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
2/11/2023 11:48:12 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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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.
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, high biased.

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

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.
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.

General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Job ID: 240-180173-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180173-1

Comments

No additional comments.

Receipt

The samples were received on 2/10/2023 7:00 AM. 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 1.2° C, 1.2° C, 2.5° C and 3.8° C.

GC/MS VOA

Method 8260D: Surrogate recovery for the following sample was outside control limits: WC-01/2023-02-09/ (240-180173-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8260D: The continuing calibration verification (CCV) analyzed in batch 240-561656 was outside the method criteria for the following analyte: Dichlorodifluoromethane. An MRL 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 continuing calibration verification (CCV) analyzed in batch 240-561615 was outside the method criteria for the following analytes: Bromomethane, Chloromethane and Dichlorodifluoromethane. An MRL standard at or below the reporting limit (RL) was analyzed with the affected samples: TRIP BLANK (240-180173-6), (CCV 240-561615/4), (CCV 240-561615/5), (CCVIS 240-561615/3), (LCS 240-561615/11), (LCS 240-561615/6), (LCS 240-561615/7) and (MB 240-561615/9) 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 following sample was collected in a properly preserved vial; however, the pH was outside the required criteria when verified by the laboratory. The sample was analyzed within the 7-day holding time specified for unpreserved samples: WC-01/2023-02-09/ (240-180173-1).

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-01/2023-02-09/ (240-180173-1), WC-02/2023-02-09/ (240-180173-2), WC-03/2023-02-09/ (240-180173-3), WC-04/2023-02-09/ (240-180173-4) and WC-05/2023-02-09/ (240-180173-5). Elevated reporting limits (RLs) are provided.

Method 8270E: The RL's for Benzaldehyde and Hexachlorobenzene are below the low point of the calibration. The RL's are supported by the MDL: WC-01/2023-02-09/ (240-180173-1), WC-02/2023-02-09/ (240-180173-2), WC-03/2023-02-09/ (240-180173-3), WC-04/2023-02-09/ (240-180173-4) and WC-05/2023-02-09/ (240-180173-5).

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-561702 recovered above the upper control limit for 3-Nitroaniline, 4-Nitrophenol, Benzaldehyde, Bis(2-chloroethyl)ether, and N-Nitrosodi-n-propylamine. 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-01/2023-02-09/ (240-180173-1), WC-02/2023-02-09/ (240-180173-2), WC-03/2023-02-09/ (240-180173-3), WC-04/2023-02-09/ (240-180173-4) and WC-05/2023-02-09/ (240-180173-5).

Method 8270E: The laboratory control sample (LCS) for preparation batch 240-561604 and analytical batch 240-561702 recovered outside control limits for the following analytes: Benzaldehyde and 4-Nitroaniline. These analytes were biased high in the LCS and were not detected in the associated samples; 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 Semi VOA

Method 8015D: The following samples were diluted to bring the concentration of target analytes within the calibration range: WC-01/2023-02-09/ (240-180173-1), WC-02/2023-02-09/ (240-180173-2) and WC-03/2023-02-09/ (240-180173-3). Elevated reporting

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Job ID: 240-180173-1 (Continued)

Laboratory: Eurofins Canton (Continued)

limits (RLs) are provided.

Method 8015D: The following sample required a dilution due to an abundance of target analyte: WC-01/2023-02-09/ (240-180173-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8015D: The following sample was diluted to bring the concentration of target analytes within the calibration range: WC-04/2023-02-09/ (240-180173-4). Elevated reporting limits (RLs) are provided.

Method 8015D: The following sample required a dilution due to the nature of the sample matrix: WC-04/2023-02-09/ (240-180173-4). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

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

Method SM 2540D: The sample duplicate (DUP) precision for analytical batch 240-561611 was outside control limits. Sample non-homogeneity is suspected.

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

Organic Prep

Method 3511: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-561603.

Method 3511: Due to the matrix, the following samples could not be concentrated to the final method required volume: WC-01/2023-02-09/ (240-180173-1) and WC-04/2023-02-09/ (240-180173-4). The reporting limits (RLs) are elevated proportionately.

No additional analytical or quality issues were noted, other than those described above or 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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8015D	Diesel Range Organics (DRO) (GC)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
1010B	Ignitability, Pinsky-Martens Closed-Cup Method	SW846	EET CAN
2540D-2015	Total Suspended Solids (Dried at 103-105°C)	SM	EET CAN
5310 C-2014	Total Organic Carbon/Persulfate - Ultrav	SM	EET CAN
9040C	pH	SW846	EET CAN
1311	TCLP Extraction	SW846	EET CAN
3010A	Preparation, Total Metals	SW846	EET CAN
3510C LVI	Liquid-Liquid Extraction (Separatory Funnel) LVI	SW846	EET CAN
3511	Microextraction of Organic Compounds	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180173-1	WC-01/2023-02-09/	Water	02/09/23 15:50	02/10/23 07:00
240-180173-2	WC-02/2023-02-09/	Water	02/09/23 16:30	02/10/23 07:00
240-180173-3	WC-03/2023-02-09/	Water	02/09/23 18:20	02/10/23 07:00
240-180173-4	WC-04/2023-02-09/	Water	02/09/23 18:30	02/10/23 07:00
240-180173-5	WC-05/2023-02-09/	Water	02/09/23 18:40	02/10/23 07:00
240-180173-6	TRIP BLANK	Water	02/09/23 00:00	02/10/23 07:00

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-01/2023-02-09/

Lab Sample ID: 240-180173-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	52		20	2.3	ug/L	2		8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	15	J	20	2.0	ug/L	2		8260D	Total/NA
Acetone	850		20	11	ug/L	2		8260D	Total/NA
Benzene	2.8		2.0	0.84	ug/L	2		8260D	Total/NA
Ethylbenzene	1.1	J	2.0	0.84	ug/L	2		8260D	Total/NA
Methylcyclohexane	1.8	J	2.0	0.66	ug/L	2		8260D	Total/NA
Toluene	2.8		2.0	0.88	ug/L	2		8260D	Total/NA
Vinyl chloride	22		2.0	0.90	ug/L	2		8260D	Total/NA
Xylenes, Total	6.8		4.0	0.84	ug/L	2		8260D	Total/NA
2-Methylnaphthalene	21		18	9.9	ug/L	100		8270E	Total/NA
Acenaphthene	20		18	15	ug/L	100		8270E	Total/NA
Acenaphthylene	19		18	11	ug/L	100		8270E	Total/NA
Anthracene	25		18	12	ug/L	100		8270E	Total/NA
Benzo[a]anthracene	23		18	15	ug/L	100		8270E	Total/NA
Chrysene	23		18	17	ug/L	100		8270E	Total/NA
Fluoranthene	82		18	14	ug/L	100		8270E	Total/NA
Fluorene	23		18	15	ug/L	100		8270E	Total/NA
Naphthalene	40		18	9.7	ug/L	100		8270E	Total/NA
Phenanthrene	100		18	15	ug/L	100		8270E	Total/NA
Pyrene	84		18	16	ug/L	100		8270E	Total/NA
Diesel Range Organics [C10 - C28]	980000	B	130000	17000	ug/L	200		8015D	Total/NA
Arsenic	0.024	J	0.050	0.0041	mg/L	1		6010D	TCLP
Barium	0.022	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Chromium	0.058		0.050	0.0040	mg/L	1		6010D	TCLP
Lead	0.0031	J	0.050	0.0028	mg/L	1		6010D	TCLP
Selenium	0.018	J	0.050	0.0060	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Fahrenheit	1		1010B	Total/NA
Total Suspended Solids	18000		400	100	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	7000		200	70	mg/L	200		5310 C-2014	Total/NA
corrosivity by pH	8.8	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-02/2023-02-09/

Lab Sample ID: 240-180173-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	8.4	J	20	2.3	ug/L	2		8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	5.5	J	20	2.0	ug/L	2		8260D	Total/NA
Acetone	20		20	11	ug/L	2		8260D	Total/NA
Benzene	1.4	J	2.0	0.84	ug/L	2		8260D	Total/NA
Ethylbenzene	8.2		2.0	0.84	ug/L	2		8260D	Total/NA
Isopropylbenzene	2.4		2.0	0.98	ug/L	2		8260D	Total/NA
Methylcyclohexane	2.0		2.0	0.66	ug/L	2		8260D	Total/NA
Toluene	20		2.0	0.88	ug/L	2		8260D	Total/NA
Vinyl chloride	35		2.0	0.90	ug/L	2		8260D	Total/NA
Xylenes, Total	45		4.0	0.84	ug/L	2		8260D	Total/NA
Diesel Range Organics [C10 - C28]	160000	B	25000	3300	ug/L	50		8015D	Total/NA
Barium	0.078	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00021	J	0.050	0.00020	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	200		6.7	1.7	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	410		20	7.0	mg/L	20		5310 C-2014	Total/NA
corrosivity by pH	8.2	HF	0.1	0.1	SU	1		9040C	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-03/2023-02-09/

Lab Sample ID: 240-180173-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.4	J	5.0	2.1	ug/L	5		8260D	Total/NA
Ethylbenzene	3.3	J	5.0	2.1	ug/L	5		8260D	Total/NA
Styrene	4.4	J	5.0	2.3	ug/L	5		8260D	Total/NA
Toluene	6.6		5.0	2.2	ug/L	5		8260D	Total/NA
Vinyl chloride	910		5.0	2.3	ug/L	5		8260D	Total/NA
Xylenes, Total	32		10	2.1	ug/L	5		8260D	Total/NA
2-Methylnaphthalene	24		8.9	5.0	ug/L	50		8270E	Total/NA
Naphthalene	14		8.9	4.9	ug/L	50		8270E	Total/NA
Diesel Range Organics [C10 - C28]	28000	B	2400	330	ug/L	5		8015D	Total/NA
Barium	0.025	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	89		8.0	2.0	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	900		50	17	mg/L	50		5310 C-2014	Total/NA
corrosivity by pH	7.8	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-04/2023-02-09/

Lab Sample ID: 240-180173-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	10	J	20	2.3	ug/L	2		8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	7.2	J	20	2.0	ug/L	2		8260D	Total/NA
Acetone	15	J	20	11	ug/L	2		8260D	Total/NA
Benzene	1.8	J	2.0	0.84	ug/L	2		8260D	Total/NA
Vinyl chloride	290		2.0	0.90	ug/L	2		8260D	Total/NA
Xylenes, Total	3.0	J	4.0	0.84	ug/L	2		8260D	Total/NA
Diesel Range Organics [C10 - C28]	2300000	B	350000	47000	ug/L	500		8015D	Total/NA
Barium	0.036	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00027	J	0.050	0.00020	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	11000		80	20	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	540		20	7.0	mg/L	20		5310 C-2014	Total/NA
corrosivity by pH	7.5	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-05/2023-02-09/

Lab Sample ID: 240-180173-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	4.6	J	20	2.3	ug/L	2		8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	3.6	J	20	2.0	ug/L	2		8260D	Total/NA
Benzene	1.5	J	2.0	0.84	ug/L	2		8260D	Total/NA
Toluene	1.1	J F2	2.0	0.88	ug/L	2		8260D	Total/NA
Vinyl chloride	160		2.0	0.90	ug/L	2		8260D	Total/NA
Xylenes, Total	6.7	F1 F2	4.0	0.84	ug/L	2		8260D	Total/NA
2-Methylnaphthalene	13		3.6	2.0	ug/L	20		8270E	Total/NA
Naphthalene	6.3		3.6	1.9	ug/L	20		8270E	Total/NA
Diesel Range Organics [C10 - C28]	5600	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.038	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	28		4.0	1.0	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	280		20	7.0	mg/L	20		5310 C-2014	Total/NA
corrosivity by pH	7.5	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-180173-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-01/2023-02-09/

Lab Sample ID: 240-180173-1

Date Collected: 02/09/23 15:50

Matrix: Water

Date Received: 02/10/23 07:00

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	0.96	ug/L			02/10/23 21:23	2
1,1,1,2-Tetrachloroethane	ND		2.0	1.2	ug/L			02/10/23 21:23	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.82	ug/L			02/10/23 21:23	2
1,1,2-Trichloroethane	ND		2.0	0.96	ug/L			02/10/23 21:23	2
1,1-Dichloroethane	ND		2.0	0.94	ug/L			02/10/23 21:23	2
1,1-Dichloroethene	ND		2.0	0.98	ug/L			02/10/23 21:23	2
1,2,4-Trichlorobenzene	ND		2.0	1.5	ug/L			02/10/23 21:23	2
1,2-Dibromo-3-Chloropropane	ND		4.0	1.8	ug/L			02/10/23 21:23	2
Ethylene Dibromide	ND		2.0	0.82	ug/L			02/10/23 21:23	2
1,2-Dichlorobenzene	ND		2.0	0.96	ug/L			02/10/23 21:23	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			02/10/23 21:23	2
1,2-Dichloropropane	ND		2.0	0.94	ug/L			02/10/23 21:23	2
1,3-Dichlorobenzene	ND		2.0	0.90	ug/L			02/10/23 21:23	2
1,4-Dichlorobenzene	ND		2.0	0.82	ug/L			02/10/23 21:23	2
2-Butanone (MEK)	52		20	2.3	ug/L			02/10/23 21:23	2
2-Hexanone	ND		20	2.2	ug/L			02/10/23 21:23	2
4-Methyl-2-pentanone (MIBK)	15 J		20	2.0	ug/L			02/10/23 21:23	2
Acetone	850		20	11	ug/L			02/10/23 21:23	2
Benzene	2.8		2.0	0.84	ug/L			02/10/23 21:23	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			02/10/23 21:23	2
Bromoform	ND		2.0	1.5	ug/L			02/10/23 21:23	2
Bromomethane	ND		2.0	0.84	ug/L			02/10/23 21:23	2
Carbon disulfide	ND		2.0	1.2	ug/L			02/10/23 21:23	2
Carbon tetrachloride	ND		2.0	0.52	ug/L			02/10/23 21:23	2
Chlorobenzene	ND		2.0	0.76	ug/L			02/10/23 21:23	2
Chloroethane	ND		2.0	1.7	ug/L			02/10/23 21:23	2
Chloroform	ND		2.0	0.94	ug/L			02/10/23 21:23	2
Chloromethane	ND		2.0	1.3	ug/L			02/10/23 21:23	2
cis-1,2-Dichloroethene	ND		2.0	0.92	ug/L			02/10/23 21:23	2
cis-1,3-Dichloropropene	ND		2.0	1.2	ug/L			02/10/23 21:23	2
Cyclohexane	ND		2.0	0.96	ug/L			02/10/23 21:23	2
Chlorodibromomethane	ND		2.0	0.78	ug/L			02/10/23 21:23	2
Dichlorodifluoromethane	ND		2.0	0.70	ug/L			02/10/23 21:23	2
Ethylbenzene	1.1 J		2.0	0.84	ug/L			02/10/23 21:23	2
Isopropylbenzene	ND		2.0	0.98	ug/L			02/10/23 21:23	2
Methyl acetate	ND		20	3.4	ug/L			02/10/23 21:23	2
Methyl tert-butyl ether	ND		2.0	0.94	ug/L			02/10/23 21:23	2
Methylcyclohexane	1.8 J		2.0	0.66	ug/L			02/10/23 21:23	2
Methylene Chloride	ND		10	5.2	ug/L			02/10/23 21:23	2
Styrene	ND		2.0	0.90	ug/L			02/10/23 21:23	2
Tetrachloroethene	ND		2.0	0.88	ug/L			02/10/23 21:23	2
Toluene	2.8		2.0	0.88	ug/L			02/10/23 21:23	2
trans-1,2-Dichloroethene	ND		2.0	1.0	ug/L			02/10/23 21:23	2
trans-1,3-Dichloropropene	ND		2.0	1.3	ug/L			02/10/23 21:23	2
Trichloroethene	ND		2.0	0.88	ug/L			02/10/23 21:23	2
Trichlorofluoromethane	ND		2.0	0.90	ug/L			02/10/23 21:23	2
Vinyl chloride	22		2.0	0.90	ug/L			02/10/23 21:23	2
Xylenes, Total	6.8		4.0	0.84	ug/L			02/10/23 21:23	2

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-01/2023-02-09/

Lab Sample ID: 240-180173-1

Date Collected: 02/09/23 15:50

Matrix: Water

Date Received: 02/10/23 07:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		78 - 122		02/10/23 16:45	2500
Toluene-d8 (Surr)	89		78 - 122		02/10/23 20:18	5000
Toluene-d8 (Surr)	127	S1+	78 - 122		02/10/23 21:23	2
Dibromofluoromethane (Surr)	103		73 - 120		02/10/23 16:45	2500
Dibromofluoromethane (Surr)	98		73 - 120		02/10/23 20:18	5000
Dibromofluoromethane (Surr)	96		73 - 120		02/10/23 21:23	2
4-Bromofluorobenzene (Surr)	87		56 - 136		02/10/23 16:45	2500
4-Bromofluorobenzene (Surr)	81		56 - 136		02/10/23 20:18	5000
4-Bromofluorobenzene (Surr)	94		56 - 136		02/10/23 21:23	2
1,2-Dichloroethane-d4 (Surr)	91		62 - 137		02/10/23 16:45	2500
1,2-Dichloroethane-d4 (Surr)	85		62 - 137		02/10/23 20:18	5000
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		02/10/23 21:23	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		89	44	ug/L		02/10/23 08:46	02/11/23 08:16	100
bis (2-chloroisopropyl) ether	ND		89	49	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,4,5-Trichlorophenol	ND		450	180	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,4,6-Trichlorophenol	ND		450	160	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,4-Dichlorophenol	ND		180	23	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,4-Dimethylphenol	ND		180	46	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,4-Dinitrophenol	ND		890	550	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,4-Dinitrotoluene	ND		450	180	ug/L		02/10/23 08:46	02/11/23 08:16	100
2,6-Dinitrotoluene	ND		450	190	ug/L		02/10/23 08:46	02/11/23 08:16	100
2-Chloronaphthalene	ND		89	43	ug/L		02/10/23 08:46	02/11/23 08:16	100
2-Chlorophenol	ND		89	24	ug/L		02/10/23 08:46	02/11/23 08:16	100
2-Methylnaphthalene	21		18	9.9	ug/L		02/10/23 08:46	02/11/23 08:16	100
2-Methylphenol	ND		89	19	ug/L		02/10/23 08:46	02/11/23 08:16	100
2-Nitroaniline	ND		180	46	ug/L		02/10/23 08:46	02/11/23 08:16	100
2-Nitrophenol	ND		180	50	ug/L		02/10/23 08:46	02/11/23 08:16	100
3,3'-Dichlorobenzidine	ND		450	100	ug/L		02/10/23 08:46	02/11/23 08:16	100
3-Nitroaniline	ND		180	51	ug/L		02/10/23 08:46	02/11/23 08:16	100
4,6-Dinitro-2-methylphenol	ND		450	250	ug/L		02/10/23 08:46	02/11/23 08:16	100
4-Bromophenyl phenyl ether	ND		180	45	ug/L		02/10/23 08:46	02/11/23 08:16	100
4-Chloro-3-methylphenol	ND		180	26	ug/L		02/10/23 08:46	02/11/23 08:16	100
4-Chloroaniline	ND		180	28	ug/L		02/10/23 08:46	02/11/23 08:16	100
4-Chlorophenyl phenyl ether	ND		180	49	ug/L		02/10/23 08:46	02/11/23 08:16	100
4-Nitroaniline	ND	*+	180	82	ug/L		02/10/23 08:46	02/11/23 08:16	100
4-Nitrophenol	ND		890	190	ug/L		02/10/23 08:46	02/11/23 08:16	100
Acenaphthene	20		18	15	ug/L		02/10/23 08:46	02/11/23 08:16	100
Acenaphthylene	19		18	11	ug/L		02/10/23 08:46	02/11/23 08:16	100
Acetophenone	ND		89	33	ug/L		02/10/23 08:46	02/11/23 08:16	100
Anthracene	25		18	12	ug/L		02/10/23 08:46	02/11/23 08:16	100
Atrazine	ND		180	85	ug/L		02/10/23 08:46	02/11/23 08:16	100
Benzaldehyde	ND	*+	180	68	ug/L		02/10/23 08:46	02/11/23 08:16	100
Benzo[a]anthracene	23		18	15	ug/L		02/10/23 08:46	02/11/23 08:16	100
Benzo[a]pyrene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 08:16	100
Benzo[b]fluoranthene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 08:16	100
Benzo[g,h,i]perylene	ND		18	16	ug/L		02/10/23 08:46	02/11/23 08:16	100
Benzo[k]fluoranthene	ND		18	13	ug/L		02/10/23 08:46	02/11/23 08:16	100

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-01/2023-02-09/

Lab Sample ID: 240-180173-1

Date Collected: 02/09/23 15:50

Matrix: Water

Date Received: 02/10/23 07:00

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		89	41	ug/L		02/10/23 08:46	02/11/23 08:16	100
Bis(2-chloroethyl)ether	ND		89	36	ug/L		02/10/23 08:46	02/11/23 08:16	100
Bis(2-ethylhexyl) phthalate	ND		450	200	ug/L		02/10/23 08:46	02/11/23 08:16	100
Butyl benzyl phthalate	ND		180	59	ug/L		02/10/23 08:46	02/11/23 08:16	100
Caprolactam	ND		450	83	ug/L		02/10/23 08:46	02/11/23 08:16	100
Carbazole	ND		89	44	ug/L		02/10/23 08:46	02/11/23 08:16	100
Chrysene	23		18	17	ug/L		02/10/23 08:46	02/11/23 08:16	100
Dibenz(a,h)anthracene	ND		18	13	ug/L		02/10/23 08:46	02/11/23 08:16	100
Dibenzofuran	ND		89	50	ug/L		02/10/23 08:46	02/11/23 08:16	100
Diethyl phthalate	ND		450	340	ug/L		02/10/23 08:46	02/11/23 08:16	100
Dimethyl phthalate	ND		180	46	ug/L		02/10/23 08:46	02/11/23 08:16	100
Di-n-butyl phthalate	ND		450	160	ug/L		02/10/23 08:46	02/11/23 08:16	100
Di-n-octyl phthalate	ND		180	73	ug/L		02/10/23 08:46	02/11/23 08:16	100
Fluoranthene	82		18	14	ug/L		02/10/23 08:46	02/11/23 08:16	100
Fluorene	23		18	15	ug/L		02/10/23 08:46	02/11/23 08:16	100
Hexachlorobenzene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 08:16	100
Hexachlorobutadiene	ND		89	48	ug/L		02/10/23 08:46	02/11/23 08:16	100
Hexachlorocyclopentadiene	ND		890	160	ug/L		02/10/23 08:46	02/11/23 08:16	100
Hexachloroethane	ND		89	35	ug/L		02/10/23 08:46	02/11/23 08:16	100
Indeno[1,2,3-cd]pyrene	ND		18	12	ug/L		02/10/23 08:46	02/11/23 08:16	100
Isophorone	ND		89	29	ug/L		02/10/23 08:46	02/11/23 08:16	100
N-Nitrosodi-n-propylamine	ND		89	23	ug/L		02/10/23 08:46	02/11/23 08:16	100
N-Nitrosodiphenylamine	ND		89	39	ug/L		02/10/23 08:46	02/11/23 08:16	100
Naphthalene	40		18	9.7	ug/L		02/10/23 08:46	02/11/23 08:16	100
Nitrobenzene	ND		89	46	ug/L		02/10/23 08:46	02/11/23 08:16	100
Pentachlorophenol	ND		890	280	ug/L		02/10/23 08:46	02/11/23 08:16	100
Phenanthrene	100		18	15	ug/L		02/10/23 08:46	02/11/23 08:16	100
Phenol	ND		89	11	ug/L		02/10/23 08:46	02/11/23 08:16	100
Pyrene	84		18	16	ug/L		02/10/23 08:46	02/11/23 08:16	100
3 & 4 Methylphenol	ND		180	17	ug/L		02/10/23 08:46	02/11/23 08:16	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/10/23 08:46	02/11/23 08:16	100
Phenol-d5 (Surr)	0	S1-	26 - 120	02/10/23 08:46	02/11/23 08:16	100
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	02/10/23 08:46	02/11/23 08:16	100
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/10/23 08:46	02/11/23 08:16	100
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	02/10/23 08:46	02/11/23 08:16	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/10/23 08:46	02/11/23 08:16	100

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	980000	B	130000	17000	ug/L		02/10/23 08:41	02/10/23 11:27	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	419	S1+	52 - 121	02/10/23 08:41	02/10/23 11:27	200

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.024	J	0.050	0.0041	mg/L		02/10/23 14:00	02/11/23 09:36	1
Barium	0.022	J B	0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 09:36	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-01/2023-02-09/

Lab Sample ID: 240-180173-1

Date Collected: 02/09/23 15:50

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 09:36	1
Chromium	0.058		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 09:36	1
Lead	0.0031	J	0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 09:36	1
Selenium	0.018	J	0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 09:36	1
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 09:36	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		02/10/23 14:00	02/10/23 16:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Fahrenheit			02/10/23 13:30	1
Total Suspended Solids (SM 2540D-2015)	18000		400	100	mg/L			02/10/23 09:07	1
Total Organic Carbon (SM 5310 C-2014)	7000		200	70	mg/L			02/10/23 16:46	200
corrosivity by pH (SW846 9040C)	8.8	HF	0.1	0.1	SU			02/10/23 09:36	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-02/2023-02-09/

Lab Sample ID: 240-180173-2

Date Collected: 02/09/23 16:30

Matrix: Water

Date Received: 02/10/23 07:00

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	0.96	ug/L			02/10/23 16:45	2
1,1,1,2-Tetrachloroethane	ND		2.0	1.2	ug/L			02/10/23 16:45	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.82	ug/L			02/10/23 16:45	2
1,1,2-Trichloroethane	ND		2.0	0.96	ug/L			02/10/23 16:45	2
1,1-Dichloroethane	ND		2.0	0.94	ug/L			02/10/23 16:45	2
1,1-Dichloroethene	ND		2.0	0.98	ug/L			02/10/23 16:45	2
1,2,4-Trichlorobenzene	ND		2.0	1.5	ug/L			02/10/23 16:45	2
1,2-Dibromo-3-Chloropropane	ND		4.0	1.8	ug/L			02/10/23 16:45	2
Ethylene Dibromide	ND		2.0	0.82	ug/L			02/10/23 16:45	2
1,2-Dichlorobenzene	ND		2.0	0.96	ug/L			02/10/23 16:45	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			02/10/23 16:45	2
1,2-Dichloropropane	ND		2.0	0.94	ug/L			02/10/23 16:45	2
1,3-Dichlorobenzene	ND		2.0	0.90	ug/L			02/10/23 16:45	2
1,4-Dichlorobenzene	ND		2.0	0.82	ug/L			02/10/23 16:45	2
2-Butanone (MEK)	8.4	J	20	2.3	ug/L			02/10/23 16:45	2
2-Hexanone	ND		20	2.2	ug/L			02/10/23 16:45	2
4-Methyl-2-pentanone (MIBK)	5.5	J	20	2.0	ug/L			02/10/23 16:45	2
Acetone	20		20	11	ug/L			02/10/23 16:45	2
Benzene	1.4	J	2.0	0.84	ug/L			02/10/23 16:45	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			02/10/23 16:45	2
Bromoform	ND		2.0	1.5	ug/L			02/10/23 16:45	2
Bromomethane	ND		2.0	0.84	ug/L			02/10/23 16:45	2
Carbon disulfide	ND		2.0	1.2	ug/L			02/10/23 16:45	2
Carbon tetrachloride	ND		2.0	0.52	ug/L			02/10/23 16:45	2
Chlorobenzene	ND		2.0	0.76	ug/L			02/10/23 16:45	2
Chloroethane	ND		2.0	1.7	ug/L			02/10/23 16:45	2
Chloroform	ND		2.0	0.94	ug/L			02/10/23 16:45	2
Chloromethane	ND		2.0	1.3	ug/L			02/10/23 16:45	2
cis-1,2-Dichloroethene	ND		2.0	0.92	ug/L			02/10/23 16:45	2
cis-1,3-Dichloropropene	ND		2.0	1.2	ug/L			02/10/23 16:45	2
Cyclohexane	ND		2.0	0.96	ug/L			02/10/23 16:45	2
Chlorodibromomethane	ND		2.0	0.78	ug/L			02/10/23 16:45	2
Dichlorodifluoromethane	ND		2.0	0.70	ug/L			02/10/23 16:45	2
Ethylbenzene	8.2		2.0	0.84	ug/L			02/10/23 16:45	2
Isopropylbenzene	2.4		2.0	0.98	ug/L			02/10/23 16:45	2
Methyl acetate	ND		20	3.4	ug/L			02/10/23 16:45	2
Methyl tert-butyl ether	ND		2.0	0.94	ug/L			02/10/23 16:45	2
Methylcyclohexane	2.0		2.0	0.66	ug/L			02/10/23 16:45	2
Methylene Chloride	ND		10	5.2	ug/L			02/10/23 16:45	2
Styrene	ND		2.0	0.90	ug/L			02/10/23 16:45	2
Tetrachloroethene	ND		2.0	0.88	ug/L			02/10/23 16:45	2
Toluene	20		2.0	0.88	ug/L			02/10/23 16:45	2
trans-1,2-Dichloroethene	ND		2.0	1.0	ug/L			02/10/23 16:45	2
trans-1,3-Dichloropropene	ND		2.0	1.3	ug/L			02/10/23 16:45	2
Trichloroethene	ND		2.0	0.88	ug/L			02/10/23 16:45	2
Trichlorofluoromethane	ND		2.0	0.90	ug/L			02/10/23 16:45	2
Vinyl chloride	35		2.0	0.90	ug/L			02/10/23 16:45	2
Xylenes, Total	45		4.0	0.84	ug/L			02/10/23 16:45	2

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-02/2023-02-09/

Lab Sample ID: 240-180173-2

Date Collected: 02/09/23 16:30

Matrix: Water

Date Received: 02/10/23 07:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		78 - 122		02/10/23 15:34	1000
Toluene-d8 (Surr)	117		78 - 122		02/10/23 16:45	2
Toluene-d8 (Surr)	95		78 - 122		02/10/23 18:43	5000
Dibromofluoromethane (Surr)	102		73 - 120		02/10/23 15:34	1000
Dibromofluoromethane (Surr)	99		73 - 120		02/10/23 16:45	2
Dibromofluoromethane (Surr)	102		73 - 120		02/10/23 18:43	5000
4-Bromofluorobenzene (Surr)	88		56 - 136		02/10/23 15:34	1000
4-Bromofluorobenzene (Surr)	113		56 - 136		02/10/23 16:45	2
4-Bromofluorobenzene (Surr)	86		56 - 136		02/10/23 18:43	5000
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		02/10/23 15:34	1000
1,2-Dichloroethane-d4 (Surr)	99		62 - 137		02/10/23 16:45	2
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		02/10/23 18:43	5000

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		89	44	ug/L		02/10/23 08:46	02/11/23 08:39	100
bis (2-chloroisopropyl) ether	ND		89	49	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,4,5-Trichlorophenol	ND		450	180	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,4,6-Trichlorophenol	ND		450	160	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,4-Dichlorophenol	ND		180	23	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,4-Dimethylphenol	ND		180	46	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,4-Dinitrophenol	ND		890	550	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,4-Dinitrotoluene	ND		450	180	ug/L		02/10/23 08:46	02/11/23 08:39	100
2,6-Dinitrotoluene	ND		450	190	ug/L		02/10/23 08:46	02/11/23 08:39	100
2-Chloronaphthalene	ND		89	43	ug/L		02/10/23 08:46	02/11/23 08:39	100
2-Chlorophenol	ND		89	24	ug/L		02/10/23 08:46	02/11/23 08:39	100
2-Methylnaphthalene	ND		18	9.9	ug/L		02/10/23 08:46	02/11/23 08:39	100
2-Methylphenol	ND		89	19	ug/L		02/10/23 08:46	02/11/23 08:39	100
2-Nitroaniline	ND		180	46	ug/L		02/10/23 08:46	02/11/23 08:39	100
2-Nitrophenol	ND		180	50	ug/L		02/10/23 08:46	02/11/23 08:39	100
3,3'-Dichlorobenzidine	ND		450	100	ug/L		02/10/23 08:46	02/11/23 08:39	100
3-Nitroaniline	ND		180	51	ug/L		02/10/23 08:46	02/11/23 08:39	100
4,6-Dinitro-2-methylphenol	ND		450	250	ug/L		02/10/23 08:46	02/11/23 08:39	100
4-Bromophenyl phenyl ether	ND		180	45	ug/L		02/10/23 08:46	02/11/23 08:39	100
4-Chloro-3-methylphenol	ND		180	26	ug/L		02/10/23 08:46	02/11/23 08:39	100
4-Chloroaniline	ND		180	28	ug/L		02/10/23 08:46	02/11/23 08:39	100
4-Chlorophenyl phenyl ether	ND		180	49	ug/L		02/10/23 08:46	02/11/23 08:39	100
4-Nitroaniline	ND	+	180	82	ug/L		02/10/23 08:46	02/11/23 08:39	100
4-Nitrophenol	ND		890	190	ug/L		02/10/23 08:46	02/11/23 08:39	100
Acenaphthene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 08:39	100
Acenaphthylene	ND		18	11	ug/L		02/10/23 08:46	02/11/23 08:39	100
Acetophenone	ND		89	33	ug/L		02/10/23 08:46	02/11/23 08:39	100
Anthracene	ND		18	12	ug/L		02/10/23 08:46	02/11/23 08:39	100
Atrazine	ND		180	85	ug/L		02/10/23 08:46	02/11/23 08:39	100
Benzaldehyde	ND	+	180	68	ug/L		02/10/23 08:46	02/11/23 08:39	100
Benzo[a]anthracene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 08:39	100
Benzo[a]pyrene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 08:39	100
Benzo[b]fluoranthene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 08:39	100
Benzo[g,h,i]perylene	ND		18	16	ug/L		02/10/23 08:46	02/11/23 08:39	100
Benzo[k]fluoranthene	ND		18	13	ug/L		02/10/23 08:46	02/11/23 08:39	100

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-02/2023-02-09/

Lab Sample ID: 240-180173-2

Date Collected: 02/09/23 16:30

Matrix: Water

Date Received: 02/10/23 07:00

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		89	41	ug/L		02/10/23 08:46	02/11/23 08:39	100
Bis(2-chloroethyl)ether	ND		89	36	ug/L		02/10/23 08:46	02/11/23 08:39	100
Bis(2-ethylhexyl) phthalate	ND		450	200	ug/L		02/10/23 08:46	02/11/23 08:39	100
Butyl benzyl phthalate	ND		180	59	ug/L		02/10/23 08:46	02/11/23 08:39	100
Caprolactam	ND		450	83	ug/L		02/10/23 08:46	02/11/23 08:39	100
Carbazole	ND		89	44	ug/L		02/10/23 08:46	02/11/23 08:39	100
Chrysene	ND		18	17	ug/L		02/10/23 08:46	02/11/23 08:39	100
Dibenz(a,h)anthracene	ND		18	13	ug/L		02/10/23 08:46	02/11/23 08:39	100
Dibenzofuran	ND		89	50	ug/L		02/10/23 08:46	02/11/23 08:39	100
Diethyl phthalate	ND		450	340	ug/L		02/10/23 08:46	02/11/23 08:39	100
Dimethyl phthalate	ND		180	46	ug/L		02/10/23 08:46	02/11/23 08:39	100
Di-n-butyl phthalate	ND		450	160	ug/L		02/10/23 08:46	02/11/23 08:39	100
Di-n-octyl phthalate	ND		180	73	ug/L		02/10/23 08:46	02/11/23 08:39	100
Fluoranthene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 08:39	100
Fluorene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 08:39	100
Hexachlorobenzene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 08:39	100
Hexachlorobutadiene	ND		89	48	ug/L		02/10/23 08:46	02/11/23 08:39	100
Hexachlorocyclopentadiene	ND		890	160	ug/L		02/10/23 08:46	02/11/23 08:39	100
Hexachloroethane	ND		89	35	ug/L		02/10/23 08:46	02/11/23 08:39	100
Indeno[1,2,3-cd]pyrene	ND		18	12	ug/L		02/10/23 08:46	02/11/23 08:39	100
Isophorone	ND		89	29	ug/L		02/10/23 08:46	02/11/23 08:39	100
N-Nitrosodi-n-propylamine	ND		89	23	ug/L		02/10/23 08:46	02/11/23 08:39	100
N-Nitrosodiphenylamine	ND		89	39	ug/L		02/10/23 08:46	02/11/23 08:39	100
Naphthalene	ND		18	9.7	ug/L		02/10/23 08:46	02/11/23 08:39	100
Nitrobenzene	ND		89	46	ug/L		02/10/23 08:46	02/11/23 08:39	100
Pentachlorophenol	ND		890	280	ug/L		02/10/23 08:46	02/11/23 08:39	100
Phenanthrene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 08:39	100
Phenol	ND		89	11	ug/L		02/10/23 08:46	02/11/23 08:39	100
Pyrene	ND		18	16	ug/L		02/10/23 08:46	02/11/23 08:39	100
3 & 4 Methylphenol	ND		180	17	ug/L		02/10/23 08:46	02/11/23 08:39	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/10/23 08:46	02/11/23 08:39	100
Phenol-d5 (Surr)	0	S1-	26 - 120	02/10/23 08:46	02/11/23 08:39	100
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	02/10/23 08:46	02/11/23 08:39	100
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/10/23 08:46	02/11/23 08:39	100
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	02/10/23 08:46	02/11/23 08:39	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/10/23 08:46	02/11/23 08:39	100

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	160000	B	25000	3300	ug/L		02/10/23 08:41	02/10/23 11:55	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	113		52 - 121	02/10/23 08:41	02/10/23 11:55	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		02/10/23 14:00	02/11/23 09:40	1
Barium	0.078	J B	0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 09:40	1

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-02/2023-02-09/

Lab Sample ID: 240-180173-2

Date Collected: 02/09/23 16:30

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	0.00021	J	0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 09:40	1
Chromium	ND		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 09:40	1
Lead	ND		0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 09:40	1
Selenium	ND		0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 09:40	1
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 09:40	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		02/10/23 14:00	02/10/23 16:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/10/23 14:28	1
Total Suspended Solids (SM 2540D-2015)	200		6.7	1.7	mg/L			02/10/23 09:07	1
Total Organic Carbon (SM 5310 C-2014)	410		20	7.0	mg/L			02/10/23 16:59	20
corrosivity by pH (SW846 9040C)	8.2	HF	0.1	0.1	SU			02/10/23 10:03	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-03/2023-02-09/

Lab Sample ID: 240-180173-3

Date Collected: 02/09/23 18:20

Matrix: Water

Date Received: 02/10/23 07:00

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		5.0	2.4	ug/L			02/10/23 15:29	5
1,1,2,2-Tetrachloroethane	ND		5.0	3.0	ug/L			02/10/23 15:29	5
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		5.0	2.1	ug/L			02/10/23 15:29	5
1,1,2-Trichloroethane	ND		5.0	2.4	ug/L			02/10/23 15:29	5
1,1-Dichloroethane	ND		5.0	2.4	ug/L			02/10/23 15:29	5
1,1-Dichloroethene	ND		5.0	2.5	ug/L			02/10/23 15:29	5
1,2,4-Trichlorobenzene	ND		5.0	3.9	ug/L			02/10/23 15:29	5
1,2-Dibromo-3-Chloropropane	ND		10	4.6	ug/L			02/10/23 15:29	5
Ethylene Dibromide	ND		5.0	2.1	ug/L			02/10/23 15:29	5
1,2-Dichlorobenzene	ND		5.0	2.4	ug/L			02/10/23 15:29	5
1,2-Dichloroethane	ND		5.0	1.1	ug/L			02/10/23 15:29	5
1,2-Dichloropropane	ND		5.0	2.4	ug/L			02/10/23 15:29	5
1,3-Dichlorobenzene	ND		5.0	2.3	ug/L			02/10/23 15:29	5
1,4-Dichlorobenzene	ND		5.0	2.1	ug/L			02/10/23 15:29	5
2-Butanone (MEK)	ND		50	5.8	ug/L			02/10/23 15:29	5
2-Hexanone	ND		50	5.6	ug/L			02/10/23 15:29	5
4-Methyl-2-pentanone (MIBK)	ND		50	5.0	ug/L			02/10/23 15:29	5
Acetone	ND		50	27	ug/L			02/10/23 15:29	5
Benzene	4.4	J	5.0	2.1	ug/L			02/10/23 15:29	5
Dichlorobromomethane	ND		5.0	0.85	ug/L			02/10/23 15:29	5
Bromoform	ND		5.0	3.8	ug/L			02/10/23 15:29	5
Bromomethane	ND		5.0	2.1	ug/L			02/10/23 15:29	5
Carbon disulfide	ND		5.0	3.0	ug/L			02/10/23 15:29	5
Carbon tetrachloride	ND		5.0	1.3	ug/L			02/10/23 15:29	5
Chlorobenzene	ND		5.0	1.9	ug/L			02/10/23 15:29	5
Chloroethane	ND		5.0	4.2	ug/L			02/10/23 15:29	5
Chloroform	ND		5.0	2.4	ug/L			02/10/23 15:29	5
Chloromethane	ND		5.0	3.2	ug/L			02/10/23 15:29	5
cis-1,2-Dichloroethene	ND		5.0	2.3	ug/L			02/10/23 15:29	5
cis-1,3-Dichloropropene	ND		5.0	3.1	ug/L			02/10/23 15:29	5
Cyclohexane	ND		5.0	2.4	ug/L			02/10/23 15:29	5
Chlorodibromomethane	ND		5.0	2.0	ug/L			02/10/23 15:29	5
Dichlorodifluoromethane	ND		5.0	1.8	ug/L			02/10/23 15:29	5
Ethylbenzene	3.3	J	5.0	2.1	ug/L			02/10/23 15:29	5
Isopropylbenzene	ND		5.0	2.5	ug/L			02/10/23 15:29	5
Methyl acetate	ND		50	8.6	ug/L			02/10/23 15:29	5
Methyl tert-butyl ether	ND		5.0	2.4	ug/L			02/10/23 15:29	5
Methylcyclohexane	ND		5.0	1.7	ug/L			02/10/23 15:29	5
Methylene Chloride	ND		25	13	ug/L			02/10/23 15:29	5
Styrene	4.4	J	5.0	2.3	ug/L			02/10/23 15:29	5
Tetrachloroethene	ND		5.0	2.2	ug/L			02/10/23 15:29	5
Toluene	6.6		5.0	2.2	ug/L			02/10/23 15:29	5
trans-1,2-Dichloroethene	ND		5.0	2.6	ug/L			02/10/23 15:29	5
trans-1,3-Dichloropropene	ND		5.0	3.4	ug/L			02/10/23 15:29	5
Trichloroethene	ND		5.0	2.2	ug/L			02/10/23 15:29	5
Trichlorofluoromethane	ND		5.0	2.3	ug/L			02/10/23 15:29	5
Vinyl chloride	910		5.0	2.3	ug/L			02/10/23 15:29	5
Xylenes, Total	32		10	2.1	ug/L			02/10/23 15:29	5

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-03/2023-02-09/

Lab Sample ID: 240-180173-3

Date Collected: 02/09/23 18:20

Matrix: Water

Date Received: 02/10/23 07:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		78 - 122		02/10/23 15:10	25
Toluene-d8 (Surr)	110		78 - 122		02/10/23 15:29	5
Dibromofluoromethane (Surr)	105		73 - 120		02/10/23 15:10	25
Dibromofluoromethane (Surr)	104		73 - 120		02/10/23 15:29	5
4-Bromofluorobenzene (Surr)	97		56 - 136		02/10/23 15:10	25
4-Bromofluorobenzene (Surr)	124		56 - 136		02/10/23 15:29	5
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		02/10/23 15:10	25
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		02/10/23 15:29	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		45	22	ug/L		02/10/23 08:46	02/11/23 07:52	50
bis (2-chloroisopropyl) ether	ND		45	25	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,4,5-Trichlorophenol	ND		220	89	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,4,6-Trichlorophenol	ND		220	80	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,4-Dichlorophenol	ND		89	12	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,4-Dimethylphenol	ND		89	23	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,4-Dinitrophenol	ND		450	280	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,4-Dinitrotoluene	ND		220	92	ug/L		02/10/23 08:46	02/11/23 07:52	50
2,6-Dinitrotoluene	ND		220	95	ug/L		02/10/23 08:46	02/11/23 07:52	50
2-Chloronaphthalene	ND		45	22	ug/L		02/10/23 08:46	02/11/23 07:52	50
2-Chlorophenol	ND		45	12	ug/L		02/10/23 08:46	02/11/23 07:52	50
2-Methylnaphthalene	24		8.9	5.0	ug/L		02/10/23 08:46	02/11/23 07:52	50
2-Methylphenol	ND		45	9.3	ug/L		02/10/23 08:46	02/11/23 07:52	50
2-Nitroaniline	ND		89	23	ug/L		02/10/23 08:46	02/11/23 07:52	50
2-Nitrophenol	ND		89	25	ug/L		02/10/23 08:46	02/11/23 07:52	50
3,3'-Dichlorobenzidine	ND		220	51	ug/L		02/10/23 08:46	02/11/23 07:52	50
3-Nitroaniline	ND		89	25	ug/L		02/10/23 08:46	02/11/23 07:52	50
4,6-Dinitro-2-methylphenol	ND		220	130	ug/L		02/10/23 08:46	02/11/23 07:52	50
4-Bromophenyl phenyl ether	ND		89	22	ug/L		02/10/23 08:46	02/11/23 07:52	50
4-Chloro-3-methylphenol	ND		89	13	ug/L		02/10/23 08:46	02/11/23 07:52	50
4-Chloroaniline	ND		89	14	ug/L		02/10/23 08:46	02/11/23 07:52	50
4-Chlorophenyl phenyl ether	ND		89	25	ug/L		02/10/23 08:46	02/11/23 07:52	50
4-Nitroaniline	ND	+	89	41	ug/L		02/10/23 08:46	02/11/23 07:52	50
4-Nitrophenol	ND		450	97	ug/L		02/10/23 08:46	02/11/23 07:52	50
Acenaphthene	ND		8.9	7.7	ug/L		02/10/23 08:46	02/11/23 07:52	50
Acenaphthylene	ND		8.9	5.6	ug/L		02/10/23 08:46	02/11/23 07:52	50
Acetophenone	ND		45	16	ug/L		02/10/23 08:46	02/11/23 07:52	50
Anthracene	ND		8.9	6.0	ug/L		02/10/23 08:46	02/11/23 07:52	50
Atrazine	ND		89	43	ug/L		02/10/23 08:46	02/11/23 07:52	50
Benzaldehyde	ND	+	89	34	ug/L		02/10/23 08:46	02/11/23 07:52	50
Benzo[a]anthracene	ND		8.9	7.6	ug/L		02/10/23 08:46	02/11/23 07:52	50
Benzo[a]pyrene	ND		8.9	7.7	ug/L		02/10/23 08:46	02/11/23 07:52	50
Benzo[b]fluoranthene	ND		8.9	6.9	ug/L		02/10/23 08:46	02/11/23 07:52	50
Benzo[g,h,i]perylene	ND		8.9	7.9	ug/L		02/10/23 08:46	02/11/23 07:52	50
Benzo[k]fluoranthene	ND		8.9	6.3	ug/L		02/10/23 08:46	02/11/23 07:52	50
Bis(2-chloroethoxy)methane	ND		45	20	ug/L		02/10/23 08:46	02/11/23 07:52	50
Bis(2-chloroethyl)ether	ND		45	18	ug/L		02/10/23 08:46	02/11/23 07:52	50
Bis(2-ethylhexyl) phthalate	ND		220	99	ug/L		02/10/23 08:46	02/11/23 07:52	50
Butyl benzyl phthalate	ND		89	30	ug/L		02/10/23 08:46	02/11/23 07:52	50

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-03/2023-02-09/

Lab Sample ID: 240-180173-3

Date Collected: 02/09/23 18:20

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		220	42	ug/L		02/10/23 08:46	02/11/23 07:52	50
Carbazole	ND		45	22	ug/L		02/10/23 08:46	02/11/23 07:52	50
Chrysene	ND		8.9	8.3	ug/L		02/10/23 08:46	02/11/23 07:52	50
Dibenz(a,h)anthracene	ND		8.9	6.7	ug/L		02/10/23 08:46	02/11/23 07:52	50
Dibenzofuran	ND		45	25	ug/L		02/10/23 08:46	02/11/23 07:52	50
Diethyl phthalate	ND		220	170	ug/L		02/10/23 08:46	02/11/23 07:52	50
Dimethyl phthalate	ND		89	23	ug/L		02/10/23 08:46	02/11/23 07:52	50
Di-n-butyl phthalate	ND		220	80	ug/L		02/10/23 08:46	02/11/23 07:52	50
Di-n-octyl phthalate	ND		89	37	ug/L		02/10/23 08:46	02/11/23 07:52	50
Fluoranthene	ND		8.9	7.1	ug/L		02/10/23 08:46	02/11/23 07:52	50
Fluorene	ND		8.9	7.5	ug/L		02/10/23 08:46	02/11/23 07:52	50
Hexachlorobenzene	ND		8.9	7.2	ug/L		02/10/23 08:46	02/11/23 07:52	50
Hexachlorobutadiene	ND		45	24	ug/L		02/10/23 08:46	02/11/23 07:52	50
Hexachlorocyclopentadiene	ND		450	78	ug/L		02/10/23 08:46	02/11/23 07:52	50
Hexachloroethane	ND		45	18	ug/L		02/10/23 08:46	02/11/23 07:52	50
Indeno[1,2,3-cd]pyrene	ND		8.9	6.0	ug/L		02/10/23 08:46	02/11/23 07:52	50
Isophorone	ND		45	14	ug/L		02/10/23 08:46	02/11/23 07:52	50
N-Nitrosodi-n-propylamine	ND		45	11	ug/L		02/10/23 08:46	02/11/23 07:52	50
N-Nitrosodiphenylamine	ND		45	20	ug/L		02/10/23 08:46	02/11/23 07:52	50
Naphthalene	14		8.9	4.9	ug/L		02/10/23 08:46	02/11/23 07:52	50
Nitrobenzene	ND		45	23	ug/L		02/10/23 08:46	02/11/23 07:52	50
Pentachlorophenol	ND		450	140	ug/L		02/10/23 08:46	02/11/23 07:52	50
Phenanthrene	ND		8.9	7.5	ug/L		02/10/23 08:46	02/11/23 07:52	50
Phenol	ND		45	5.7	ug/L		02/10/23 08:46	02/11/23 07:52	50
Pyrene	ND		8.9	7.8	ug/L		02/10/23 08:46	02/11/23 07:52	50
3 & 4 Methylphenol	ND		89	8.5	ug/L		02/10/23 08:46	02/11/23 07:52	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/10/23 08:46	02/11/23 07:52	50
Phenol-d5 (Surr)	0	S1-	26 - 120	02/10/23 08:46	02/11/23 07:52	50
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	02/10/23 08:46	02/11/23 07:52	50
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/10/23 08:46	02/11/23 07:52	50
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	02/10/23 08:46	02/11/23 07:52	50
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/10/23 08:46	02/11/23 07:52	50

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	28000	B	2400	330	ug/L		02/10/23 08:41	02/10/23 12:22	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	119		52 - 121	02/10/23 08:41	02/10/23 12:22	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		02/10/23 14:00	02/11/23 09:44	1
Barium	0.025	J B	0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 09:44	1
Cadmium	ND		0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 09:44	1
Chromium	ND		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 09:44	1
Lead	ND		0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 09:44	1
Selenium	ND		0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 09:44	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-03/2023-02-09/

Lab Sample ID: 240-180173-3

Date Collected: 02/09/23 18:20

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 09:44	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		02/10/23 14:00	02/10/23 16:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/10/23 15:10	1
Total Suspended Solids (SM 2540D-2015)	89		8.0	2.0	mg/L			02/10/23 09:07	1
Total Organic Carbon (SM 5310 C-2014)	900		50	17	mg/L			02/10/23 17:11	50
corrosivity by pH (SW846 9040C)	7.8	HF	0.1	0.1	SU			02/10/23 10:16	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-04/2023-02-09/

Lab Sample ID: 240-180173-4

Date Collected: 02/09/23 18:30

Matrix: Water

Date Received: 02/10/23 07:00

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	0.96	ug/L			02/10/23 18:01	2
1,1,2,2-Tetrachloroethane	ND		2.0	1.2	ug/L			02/10/23 18:01	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.82	ug/L			02/10/23 18:01	2
1,1,2-Trichloroethane	ND		2.0	0.96	ug/L			02/10/23 18:01	2
1,1-Dichloroethane	ND		2.0	0.94	ug/L			02/10/23 18:01	2
1,1-Dichloroethene	ND		2.0	0.98	ug/L			02/10/23 18:01	2
1,2,4-Trichlorobenzene	ND		2.0	1.5	ug/L			02/10/23 18:01	2
1,2-Dibromo-3-Chloropropane	ND		4.0	1.8	ug/L			02/10/23 18:01	2
Ethylene Dibromide	ND		2.0	0.82	ug/L			02/10/23 18:01	2
1,2-Dichlorobenzene	ND		2.0	0.96	ug/L			02/10/23 18:01	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			02/10/23 18:01	2
1,2-Dichloropropane	ND		2.0	0.94	ug/L			02/10/23 18:01	2
1,3-Dichlorobenzene	ND		2.0	0.90	ug/L			02/10/23 18:01	2
1,4-Dichlorobenzene	ND		2.0	0.82	ug/L			02/10/23 18:01	2
2-Butanone (MEK)	10	J	20	2.3	ug/L			02/10/23 18:01	2
2-Hexanone	ND		20	2.2	ug/L			02/10/23 18:01	2
4-Methyl-2-pentanone (MIBK)	7.2	J	20	2.0	ug/L			02/10/23 18:01	2
Acetone	15	J	20	11	ug/L			02/10/23 18:01	2
Benzene	1.8	J	2.0	0.84	ug/L			02/10/23 18:01	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			02/10/23 18:01	2
Bromoform	ND		2.0	1.5	ug/L			02/10/23 18:01	2
Bromomethane	ND		2.0	0.84	ug/L			02/10/23 18:01	2
Carbon disulfide	ND		2.0	1.2	ug/L			02/10/23 18:01	2
Carbon tetrachloride	ND		2.0	0.52	ug/L			02/10/23 18:01	2
Chlorobenzene	ND		2.0	0.76	ug/L			02/10/23 18:01	2
Chloroethane	ND		2.0	1.7	ug/L			02/10/23 18:01	2
Chloroform	ND		2.0	0.94	ug/L			02/10/23 18:01	2
Chloromethane	ND		2.0	1.3	ug/L			02/10/23 18:01	2
cis-1,2-Dichloroethene	ND		2.0	0.92	ug/L			02/10/23 18:01	2
cis-1,3-Dichloropropene	ND		2.0	1.2	ug/L			02/10/23 18:01	2
Cyclohexane	ND		2.0	0.96	ug/L			02/10/23 18:01	2
Chlorodibromomethane	ND		2.0	0.78	ug/L			02/10/23 18:01	2
Dichlorodifluoromethane	ND		2.0	0.70	ug/L			02/10/23 18:01	2
Ethylbenzene	ND		2.0	0.84	ug/L			02/10/23 18:01	2
Isopropylbenzene	ND		2.0	0.98	ug/L			02/10/23 18:01	2
Methyl acetate	ND		20	3.4	ug/L			02/10/23 18:01	2
Methyl tert-butyl ether	ND		2.0	0.94	ug/L			02/10/23 18:01	2
Methylcyclohexane	ND		2.0	0.66	ug/L			02/10/23 18:01	2
Methylene Chloride	ND		10	5.2	ug/L			02/10/23 18:01	2
Styrene	ND		2.0	0.90	ug/L			02/10/23 18:01	2
Tetrachloroethene	ND		2.0	0.88	ug/L			02/10/23 18:01	2
Toluene	ND		2.0	0.88	ug/L			02/10/23 18:01	2
trans-1,2-Dichloroethene	ND		2.0	1.0	ug/L			02/10/23 18:01	2
trans-1,3-Dichloropropene	ND		2.0	1.3	ug/L			02/10/23 18:01	2
Trichloroethene	ND		2.0	0.88	ug/L			02/10/23 18:01	2
Trichlorofluoromethane	ND		2.0	0.90	ug/L			02/10/23 18:01	2
Vinyl chloride	290		2.0	0.90	ug/L			02/10/23 18:01	2
Xylenes, Total	3.0	J	4.0	0.84	ug/L			02/10/23 18:01	2

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-04/2023-02-09/

Lab Sample ID: 240-180173-4

Date Collected: 02/09/23 18:30

Matrix: Water

Date Received: 02/10/23 07:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	116		78 - 122		02/10/23 18:01	2
Toluene-d8 (Surr)	90		78 - 122		02/10/23 19:54	1000
Dibromofluoromethane (Surr)	101		73 - 120		02/10/23 18:01	2
Dibromofluoromethane (Surr)	101		73 - 120		02/10/23 19:54	1000
4-Bromofluorobenzene (Surr)	113		56 - 136		02/10/23 18:01	2
4-Bromofluorobenzene (Surr)	84		56 - 136		02/10/23 19:54	1000
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		02/10/23 18:01	2
1,2-Dichloroethane-d4 (Surr)	91		62 - 137		02/10/23 19:54	1000

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		89	44	ug/L		02/10/23 08:46	02/11/23 09:02	100
bis (2-chloroisopropyl) ether	ND		89	49	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,4,5-Trichlorophenol	ND		450	180	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,4,6-Trichlorophenol	ND		450	160	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,4-Dichlorophenol	ND		180	23	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,4-Dimethylphenol	ND		180	46	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,4-Dinitrophenol	ND		890	550	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,4-Dinitrotoluene	ND		450	180	ug/L		02/10/23 08:46	02/11/23 09:02	100
2,6-Dinitrotoluene	ND		450	190	ug/L		02/10/23 08:46	02/11/23 09:02	100
2-Chloronaphthalene	ND		89	43	ug/L		02/10/23 08:46	02/11/23 09:02	100
2-Chlorophenol	ND		89	24	ug/L		02/10/23 08:46	02/11/23 09:02	100
2-Methylnaphthalene	ND		18	9.9	ug/L		02/10/23 08:46	02/11/23 09:02	100
2-Methylphenol	ND		89	19	ug/L		02/10/23 08:46	02/11/23 09:02	100
2-Nitroaniline	ND		180	46	ug/L		02/10/23 08:46	02/11/23 09:02	100
2-Nitrophenol	ND		180	50	ug/L		02/10/23 08:46	02/11/23 09:02	100
3,3'-Dichlorobenzidine	ND		450	100	ug/L		02/10/23 08:46	02/11/23 09:02	100
3-Nitroaniline	ND		180	51	ug/L		02/10/23 08:46	02/11/23 09:02	100
4,6-Dinitro-2-methylphenol	ND		450	250	ug/L		02/10/23 08:46	02/11/23 09:02	100
4-Bromophenyl phenyl ether	ND		180	45	ug/L		02/10/23 08:46	02/11/23 09:02	100
4-Chloro-3-methylphenol	ND		180	26	ug/L		02/10/23 08:46	02/11/23 09:02	100
4-Chloroaniline	ND		180	28	ug/L		02/10/23 08:46	02/11/23 09:02	100
4-Chlorophenyl phenyl ether	ND		180	49	ug/L		02/10/23 08:46	02/11/23 09:02	100
4-Nitroaniline	ND	+	180	82	ug/L		02/10/23 08:46	02/11/23 09:02	100
4-Nitrophenol	ND		890	190	ug/L		02/10/23 08:46	02/11/23 09:02	100
Acenaphthene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 09:02	100
Acenaphthylene	ND		18	11	ug/L		02/10/23 08:46	02/11/23 09:02	100
Acetophenone	ND		89	33	ug/L		02/10/23 08:46	02/11/23 09:02	100
Anthracene	ND		18	12	ug/L		02/10/23 08:46	02/11/23 09:02	100
Atrazine	ND		180	85	ug/L		02/10/23 08:46	02/11/23 09:02	100
Benzaldehyde	ND	+	180	68	ug/L		02/10/23 08:46	02/11/23 09:02	100
Benzo[a]anthracene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 09:02	100
Benzo[a]pyrene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 09:02	100
Benzo[b]fluoranthene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 09:02	100
Benzo[g,h,i]perylene	ND		18	16	ug/L		02/10/23 08:46	02/11/23 09:02	100
Benzo[k]fluoranthene	ND		18	13	ug/L		02/10/23 08:46	02/11/23 09:02	100
Bis(2-chloroethoxy)methane	ND		89	41	ug/L		02/10/23 08:46	02/11/23 09:02	100
Bis(2-chloroethyl)ether	ND		89	36	ug/L		02/10/23 08:46	02/11/23 09:02	100
Bis(2-ethylhexyl) phthalate	ND		450	200	ug/L		02/10/23 08:46	02/11/23 09:02	100
Butyl benzyl phthalate	ND		180	59	ug/L		02/10/23 08:46	02/11/23 09:02	100

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-04/2023-02-09/

Lab Sample ID: 240-180173-4

Date Collected: 02/09/23 18:30

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		450	83	ug/L		02/10/23 08:46	02/11/23 09:02	100
Carbazole	ND		89	44	ug/L		02/10/23 08:46	02/11/23 09:02	100
Chrysene	ND		18	17	ug/L		02/10/23 08:46	02/11/23 09:02	100
Dibenz(a,h)anthracene	ND		18	13	ug/L		02/10/23 08:46	02/11/23 09:02	100
Dibenzofuran	ND		89	50	ug/L		02/10/23 08:46	02/11/23 09:02	100
Diethyl phthalate	ND		450	340	ug/L		02/10/23 08:46	02/11/23 09:02	100
Dimethyl phthalate	ND		180	46	ug/L		02/10/23 08:46	02/11/23 09:02	100
Di-n-butyl phthalate	ND		450	160	ug/L		02/10/23 08:46	02/11/23 09:02	100
Di-n-octyl phthalate	ND		180	73	ug/L		02/10/23 08:46	02/11/23 09:02	100
Fluoranthene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 09:02	100
Fluorene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 09:02	100
Hexachlorobenzene	ND		18	14	ug/L		02/10/23 08:46	02/11/23 09:02	100
Hexachlorobutadiene	ND		89	48	ug/L		02/10/23 08:46	02/11/23 09:02	100
Hexachlorocyclopentadiene	ND		890	160	ug/L		02/10/23 08:46	02/11/23 09:02	100
Hexachloroethane	ND		89	35	ug/L		02/10/23 08:46	02/11/23 09:02	100
Indeno[1,2,3-cd]pyrene	ND		18	12	ug/L		02/10/23 08:46	02/11/23 09:02	100
Isophorone	ND		89	29	ug/L		02/10/23 08:46	02/11/23 09:02	100
N-Nitrosodi-n-propylamine	ND		89	23	ug/L		02/10/23 08:46	02/11/23 09:02	100
N-Nitrosodiphenylamine	ND		89	39	ug/L		02/10/23 08:46	02/11/23 09:02	100
Naphthalene	ND		18	9.7	ug/L		02/10/23 08:46	02/11/23 09:02	100
Nitrobenzene	ND		89	46	ug/L		02/10/23 08:46	02/11/23 09:02	100
Pentachlorophenol	ND		890	280	ug/L		02/10/23 08:46	02/11/23 09:02	100
Phenanthrene	ND		18	15	ug/L		02/10/23 08:46	02/11/23 09:02	100
Phenol	ND		89	11	ug/L		02/10/23 08:46	02/11/23 09:02	100
Pyrene	ND		18	16	ug/L		02/10/23 08:46	02/11/23 09:02	100
3 & 4 Methylphenol	ND		180	17	ug/L		02/10/23 08:46	02/11/23 09:02	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/10/23 08:46	02/11/23 09:02	100
Phenol-d5 (Surr)	0	S1-	26 - 120	02/10/23 08:46	02/11/23 09:02	100
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	02/10/23 08:46	02/11/23 09:02	100
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/10/23 08:46	02/11/23 09:02	100
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	02/10/23 08:46	02/11/23 09:02	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/10/23 08:46	02/11/23 09:02	100

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	2300000	B	350000	47000	ug/L		02/10/23 08:41	02/10/23 11:55	500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	200	S1+	52 - 121	02/10/23 08:41	02/10/23 11:55	500

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		02/10/23 14:00	02/11/23 09:48	1
Barium	0.036	J B	0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 09:48	1
Cadmium	0.00027	J	0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 09:48	1
Chromium	ND		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 09:48	1
Lead	ND		0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 09:48	1
Selenium	ND		0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 09:48	1

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-04/2023-02-09/

Lab Sample ID: 240-180173-4

Date Collected: 02/09/23 18:30

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 09:48	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		02/10/23 14:00	02/10/23 16:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/10/23 15:47	1
Total Suspended Solids (SM 2540D-2015)	11000		80	20	mg/L			02/10/23 09:07	1
Total Organic Carbon (SM 5310 C-2014)	540		20	7.0	mg/L			02/10/23 17:24	20
corrosivity by pH (SW846 9040C)	7.5	HF	0.1	0.1	SU			02/10/23 10:30	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-05/2023-02-09/

Lab Sample ID: 240-180173-5

Date Collected: 02/09/23 18:40

Matrix: Water

Date Received: 02/10/23 07:00

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	0.96	ug/L			02/10/23 19:17	2
1,1,1,2-Tetrachloroethane	ND		2.0	1.2	ug/L			02/10/23 19:17	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		2.0	0.82	ug/L			02/10/23 19:17	2
1,1,2-Trichloroethane	ND		2.0	0.96	ug/L			02/10/23 19:17	2
1,1-Dichloroethane	ND		2.0	0.94	ug/L			02/10/23 19:17	2
1,1-Dichloroethene	ND		2.0	0.98	ug/L			02/10/23 19:17	2
1,2,4-Trichlorobenzene	ND		2.0	1.5	ug/L			02/10/23 19:17	2
1,2-Dibromo-3-Chloropropane	ND		4.0	1.8	ug/L			02/10/23 19:17	2
Ethylene Dibromide	ND		2.0	0.82	ug/L			02/10/23 19:17	2
1,2-Dichlorobenzene	ND	F1 F2	2.0	0.96	ug/L			02/10/23 19:17	2
1,2-Dichloroethane	ND		2.0	0.42	ug/L			02/10/23 19:17	2
1,2-Dichloropropane	ND		2.0	0.94	ug/L			02/10/23 19:17	2
1,3-Dichlorobenzene	ND	F1 F2	2.0	0.90	ug/L			02/10/23 19:17	2
1,4-Dichlorobenzene	ND	F1	2.0	0.82	ug/L			02/10/23 19:17	2
2-Butanone (MEK)	4.6	J	20	2.3	ug/L			02/10/23 19:17	2
2-Hexanone	ND		20	2.2	ug/L			02/10/23 19:17	2
4-Methyl-2-pentanone (MIBK)	3.6	J	20	2.0	ug/L			02/10/23 19:17	2
Acetone	ND		20	11	ug/L			02/10/23 19:17	2
Benzene	1.5	J	2.0	0.84	ug/L			02/10/23 19:17	2
Dichlorobromomethane	ND		2.0	0.34	ug/L			02/10/23 19:17	2
Bromoform	ND		2.0	1.5	ug/L			02/10/23 19:17	2
Bromomethane	ND		2.0	0.84	ug/L			02/10/23 19:17	2
Carbon disulfide	ND		2.0	1.2	ug/L			02/10/23 19:17	2
Carbon tetrachloride	ND		2.0	0.52	ug/L			02/10/23 19:17	2
Chlorobenzene	ND	F1 F2	2.0	0.76	ug/L			02/10/23 19:17	2
Chloroethane	ND		2.0	1.7	ug/L			02/10/23 19:17	2
Chloroform	ND		2.0	0.94	ug/L			02/10/23 19:17	2
Chloromethane	ND		2.0	1.3	ug/L			02/10/23 19:17	2
cis-1,2-Dichloroethene	ND		2.0	0.92	ug/L			02/10/23 19:17	2
cis-1,3-Dichloropropene	ND		2.0	1.2	ug/L			02/10/23 19:17	2
Cyclohexane	ND		2.0	0.96	ug/L			02/10/23 19:17	2
Chlorodibromomethane	ND		2.0	0.78	ug/L			02/10/23 19:17	2
Dichlorodifluoromethane	ND		2.0	0.70	ug/L			02/10/23 19:17	2
Ethylbenzene	ND	F1 F2	2.0	0.84	ug/L			02/10/23 19:17	2
Isopropylbenzene	ND	F1 F2	2.0	0.98	ug/L			02/10/23 19:17	2
Methyl acetate	ND		20	3.4	ug/L			02/10/23 19:17	2
Methyl tert-butyl ether	ND		2.0	0.94	ug/L			02/10/23 19:17	2
Methylcyclohexane	ND		2.0	0.66	ug/L			02/10/23 19:17	2
Methylene Chloride	ND		10	5.2	ug/L			02/10/23 19:17	2
Styrene	ND	F1 F2	2.0	0.90	ug/L			02/10/23 19:17	2
Tetrachloroethene	ND	F2	2.0	0.88	ug/L			02/10/23 19:17	2
Toluene	1.1	J F2	2.0	0.88	ug/L			02/10/23 19:17	2
trans-1,2-Dichloroethene	ND	F2	2.0	1.0	ug/L			02/10/23 19:17	2
trans-1,3-Dichloropropene	ND		2.0	1.3	ug/L			02/10/23 19:17	2
Trichloroethene	ND		2.0	0.88	ug/L			02/10/23 19:17	2
Trichlorofluoromethane	ND		2.0	0.90	ug/L			02/10/23 19:17	2
Vinyl chloride	160		2.0	0.90	ug/L			02/10/23 19:17	2
Xylenes, Total	6.7	F1 F2	4.0	0.84	ug/L			02/10/23 19:17	2

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-05/2023-02-09/

Lab Sample ID: 240-180173-5

Date Collected: 02/09/23 18:40

Matrix: Water

Date Received: 02/10/23 07:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		78 - 122		02/10/23 16:21	1000
Toluene-d8 (Surr)	93		78 - 122		02/10/23 19:07	5000
Toluene-d8 (Surr)	115		78 - 122		02/10/23 19:17	2
Dibromofluoromethane (Surr)	104		73 - 120		02/10/23 16:21	1000
Dibromofluoromethane (Surr)	101		73 - 120		02/10/23 19:07	5000
Dibromofluoromethane (Surr)	102		73 - 120		02/10/23 19:17	2
4-Bromofluorobenzene (Surr)	89		56 - 136		02/10/23 16:21	1000
4-Bromofluorobenzene (Surr)	85		56 - 136		02/10/23 19:07	5000
4-Bromofluorobenzene (Surr)	115		56 - 136		02/10/23 19:17	2
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		02/10/23 16:21	1000
1,2-Dichloroethane-d4 (Surr)	90		62 - 137		02/10/23 19:07	5000
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		02/10/23 19:17	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		18	8.8	ug/L		02/10/23 08:46	02/11/23 07:29	20
bis (2-chloroisopropyl) ether	ND		18	9.8	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,4,5-Trichlorophenol	ND		89	35	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,4,6-Trichlorophenol	ND		89	32	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,4-Dichlorophenol	ND		36	4.7	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,4-Dimethylphenol	ND		36	9.3	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,4-Dinitrophenol	ND		180	110	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,4-Dinitrotoluene	ND		89	37	ug/L		02/10/23 08:46	02/11/23 07:29	20
2,6-Dinitrotoluene	ND		89	38	ug/L		02/10/23 08:46	02/11/23 07:29	20
2-Chloronaphthalene	ND		18	8.6	ug/L		02/10/23 08:46	02/11/23 07:29	20
2-Chlorophenol	ND		18	4.9	ug/L		02/10/23 08:46	02/11/23 07:29	20
2-Methylnaphthalene	13		3.6	2.0	ug/L		02/10/23 08:46	02/11/23 07:29	20
2-Methylphenol	ND		18	3.7	ug/L		02/10/23 08:46	02/11/23 07:29	20
2-Nitroaniline	ND		36	9.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
2-Nitrophenol	ND		36	10	ug/L		02/10/23 08:46	02/11/23 07:29	20
3,3'-Dichlorobenzidine	ND		89	21	ug/L		02/10/23 08:46	02/11/23 07:29	20
3-Nitroaniline	ND		36	10	ug/L		02/10/23 08:46	02/11/23 07:29	20
4,6-Dinitro-2-methylphenol	ND		89	50	ug/L		02/10/23 08:46	02/11/23 07:29	20
4-Bromophenyl phenyl ether	ND		36	8.9	ug/L		02/10/23 08:46	02/11/23 07:29	20
4-Chloro-3-methylphenol	ND		36	5.3	ug/L		02/10/23 08:46	02/11/23 07:29	20
4-Chloroaniline	ND		36	5.6	ug/L		02/10/23 08:46	02/11/23 07:29	20
4-Chlorophenyl phenyl ether	ND		36	9.8	ug/L		02/10/23 08:46	02/11/23 07:29	20
4-Nitroaniline	ND	+	36	16	ug/L		02/10/23 08:46	02/11/23 07:29	20
4-Nitrophenol	ND		180	39	ug/L		02/10/23 08:46	02/11/23 07:29	20
Acenaphthene	ND		3.6	3.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
Acenaphthylene	ND		3.6	2.2	ug/L		02/10/23 08:46	02/11/23 07:29	20
Acetophenone	ND		18	6.5	ug/L		02/10/23 08:46	02/11/23 07:29	20
Anthracene	ND		3.6	2.4	ug/L		02/10/23 08:46	02/11/23 07:29	20
Atrazine	ND		36	17	ug/L		02/10/23 08:46	02/11/23 07:29	20
Benzaldehyde	ND	+	36	14	ug/L		02/10/23 08:46	02/11/23 07:29	20
Benzo[a]anthracene	ND		3.6	3.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
Benzo[a]pyrene	ND		3.6	3.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
Benzo[b]fluoranthene	ND		3.6	2.8	ug/L		02/10/23 08:46	02/11/23 07:29	20
Benzo[g,h,i]perylene	ND		3.6	3.2	ug/L		02/10/23 08:46	02/11/23 07:29	20
Benzo[k]fluoranthene	ND		3.6	2.5	ug/L		02/10/23 08:46	02/11/23 07:29	20

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-05/2023-02-09/

Lab Sample ID: 240-180173-5

Date Collected: 02/09/23 18:40

Matrix: Water

Date Received: 02/10/23 07:00

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		18	8.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
Bis(2-chloroethyl)ether	ND		18	7.2	ug/L		02/10/23 08:46	02/11/23 07:29	20
Bis(2-ethylhexyl) phthalate	ND		89	40	ug/L		02/10/23 08:46	02/11/23 07:29	20
Butyl benzyl phthalate	ND		36	12	ug/L		02/10/23 08:46	02/11/23 07:29	20
Caprolactam	ND		89	17	ug/L		02/10/23 08:46	02/11/23 07:29	20
Carbazole	ND		18	8.8	ug/L		02/10/23 08:46	02/11/23 07:29	20
Chrysene	ND		3.6	3.3	ug/L		02/10/23 08:46	02/11/23 07:29	20
Dibenz(a,h)anthracene	ND		3.6	2.7	ug/L		02/10/23 08:46	02/11/23 07:29	20
Dibenzofuran	ND		18	10	ug/L		02/10/23 08:46	02/11/23 07:29	20
Diethyl phthalate	ND		89	68	ug/L		02/10/23 08:46	02/11/23 07:29	20
Dimethyl phthalate	ND		36	9.2	ug/L		02/10/23 08:46	02/11/23 07:29	20
Di-n-butyl phthalate	ND		89	32	ug/L		02/10/23 08:46	02/11/23 07:29	20
Di-n-octyl phthalate	ND		36	15	ug/L		02/10/23 08:46	02/11/23 07:29	20
Fluoranthene	ND		3.6	2.9	ug/L		02/10/23 08:46	02/11/23 07:29	20
Fluorene	ND		3.6	3.0	ug/L		02/10/23 08:46	02/11/23 07:29	20
Hexachlorobenzene	ND		3.6	2.9	ug/L		02/10/23 08:46	02/11/23 07:29	20
Hexachlorobutadiene	ND		18	9.7	ug/L		02/10/23 08:46	02/11/23 07:29	20
Hexachlorocyclopentadiene	ND		180	31	ug/L		02/10/23 08:46	02/11/23 07:29	20
Hexachloroethane	ND		18	7.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
Indeno[1,2,3-cd]pyrene	ND		3.6	2.4	ug/L		02/10/23 08:46	02/11/23 07:29	20
Isophorone	ND		18	5.8	ug/L		02/10/23 08:46	02/11/23 07:29	20
N-Nitrosodi-n-propylamine	ND		18	4.5	ug/L		02/10/23 08:46	02/11/23 07:29	20
N-Nitrosodiphenylamine	ND		18	7.9	ug/L		02/10/23 08:46	02/11/23 07:29	20
Naphthalene	6.3		3.6	1.9	ug/L		02/10/23 08:46	02/11/23 07:29	20
Nitrobenzene	ND		18	9.2	ug/L		02/10/23 08:46	02/11/23 07:29	20
Pentachlorophenol	ND		180	55	ug/L		02/10/23 08:46	02/11/23 07:29	20
Phenanthrene	ND		3.6	3.0	ug/L		02/10/23 08:46	02/11/23 07:29	20
Phenol	ND		18	2.3	ug/L		02/10/23 08:46	02/11/23 07:29	20
Pyrene	ND		3.6	3.1	ug/L		02/10/23 08:46	02/11/23 07:29	20
3 & 4 Methylphenol	ND		36	3.4	ug/L		02/10/23 08:46	02/11/23 07:29	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	56		46 - 137	02/10/23 08:46	02/11/23 07:29	20
Phenol-d5 (Surr)	46		26 - 120	02/10/23 08:46	02/11/23 07:29	20
Nitrobenzene-d5 (Surr)	83		24 - 120	02/10/23 08:46	02/11/23 07:29	20
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/10/23 08:46	02/11/23 07:29	20
2-Fluorobiphenyl (Surr)	91		33 - 120	02/10/23 08:46	02/11/23 07:29	20
2,4,6-Tribromophenol (Surr)	80		10 - 120	02/10/23 08:46	02/11/23 07:29	20

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	5600	B	490	67	ug/L		02/10/23 08:41	02/10/23 11:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	81		52 - 121	02/10/23 08:41	02/10/23 11:27	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		02/10/23 14:00	02/11/23 09:53	1
Barium	0.038	J B	0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 09:53	1

Eurofins Canton

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-05/2023-02-09/

Lab Sample ID: 240-180173-5

Date Collected: 02/09/23 18:40

Matrix: Water

Date Received: 02/10/23 07:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 09:53	1
Chromium	ND		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 09:53	1
Lead	ND		0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 09:53	1
Selenium	ND		0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 09:53	1
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 09:53	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		02/10/23 14:00	02/10/23 16:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/10/23 16:12	1
Total Suspended Solids (SM 2540D-2015)	28		4.0	1.0	mg/L			02/10/23 09:07	1
Total Organic Carbon (SM 5310 C-2014)	280		20	7.0	mg/L			02/10/23 17:36	20
corrosivity by pH (SW846 9040C)	7.5	HF	0.1	0.1	SU			02/10/23 10:43	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-180173-6

Date Collected: 02/09/23 00:00

Matrix: Water

Date Received: 02/10/23 07:00

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		1.0	0.48	ug/L			02/10/23 14:47	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.60	ug/L			02/10/23 14:47	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.41	ug/L			02/10/23 14:47	1
1,1,2-Trichloroethane	ND		1.0	0.48	ug/L			02/10/23 14:47	1
1,1-Dichloroethane	ND		1.0	0.47	ug/L			02/10/23 14:47	1
1,1-Dichloroethene	ND		1.0	0.49	ug/L			02/10/23 14:47	1
1,2,4-Trichlorobenzene	ND		1.0	0.77	ug/L			02/10/23 14:47	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.91	ug/L			02/10/23 14:47	1
Ethylene Dibromide	ND		1.0	0.41	ug/L			02/10/23 14:47	1
1,2-Dichlorobenzene	ND		1.0	0.48	ug/L			02/10/23 14:47	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			02/10/23 14:47	1
1,2-Dichloropropane	ND		1.0	0.47	ug/L			02/10/23 14:47	1
1,3-Dichlorobenzene	ND		1.0	0.45	ug/L			02/10/23 14:47	1
1,4-Dichlorobenzene	ND		1.0	0.41	ug/L			02/10/23 14:47	1
2-Butanone (MEK)	ND		10	1.2	ug/L			02/10/23 14:47	1
2-Hexanone	ND		10	1.1	ug/L			02/10/23 14:47	1
4-Methyl-2-pentanone (MIBK)	ND		10	0.99	ug/L			02/10/23 14:47	1
Acetone	ND		10	5.4	ug/L			02/10/23 14:47	1
Benzene	ND		1.0	0.42	ug/L			02/10/23 14:47	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			02/10/23 14:47	1
Bromoform	ND		1.0	0.76	ug/L			02/10/23 14:47	1
Bromomethane	ND		1.0	0.42	ug/L			02/10/23 14:47	1
Carbon disulfide	ND		1.0	0.59	ug/L			02/10/23 14:47	1
Carbon tetrachloride	ND		1.0	0.26	ug/L			02/10/23 14:47	1
Chlorobenzene	ND		1.0	0.38	ug/L			02/10/23 14:47	1
Chloroethane	ND		1.0	0.83	ug/L			02/10/23 14:47	1
Chloroform	ND		1.0	0.47	ug/L			02/10/23 14:47	1
Chloromethane	ND		1.0	0.63	ug/L			02/10/23 14:47	1
cis-1,2-Dichloroethene	ND		1.0	0.46	ug/L			02/10/23 14:47	1
cis-1,3-Dichloropropene	ND		1.0	0.61	ug/L			02/10/23 14:47	1
Cyclohexane	ND		1.0	0.48	ug/L			02/10/23 14:47	1
Chlorodibromomethane	ND		1.0	0.39	ug/L			02/10/23 14:47	1
Dichlorodifluoromethane	ND		1.0	0.35	ug/L			02/10/23 14:47	1
Ethylbenzene	ND		1.0	0.42	ug/L			02/10/23 14:47	1
Isopropylbenzene	ND		1.0	0.49	ug/L			02/10/23 14:47	1
Methyl acetate	ND		10	1.7	ug/L			02/10/23 14:47	1
Methyl tert-butyl ether	ND		1.0	0.47	ug/L			02/10/23 14:47	1
Methylcyclohexane	ND		1.0	0.33	ug/L			02/10/23 14:47	1
Methylene Chloride	ND		5.0	2.6	ug/L			02/10/23 14:47	1
Styrene	ND		1.0	0.45	ug/L			02/10/23 14:47	1
Tetrachloroethene	ND		1.0	0.44	ug/L			02/10/23 14:47	1
Toluene	ND		1.0	0.44	ug/L			02/10/23 14:47	1
trans-1,2-Dichloroethene	ND		1.0	0.51	ug/L			02/10/23 14:47	1
trans-1,3-Dichloropropene	ND		1.0	0.67	ug/L			02/10/23 14:47	1
Trichloroethene	ND		1.0	0.44	ug/L			02/10/23 14:47	1
Trichlorofluoromethane	ND		1.0	0.45	ug/L			02/10/23 14:47	1
Vinyl chloride	ND		1.0	0.45	ug/L			02/10/23 14:47	1
Xylenes, Total	ND		2.0	0.42	ug/L			02/10/23 14:47	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-180173-6

Date Collected: 02/09/23 00:00

Matrix: Water

Date Received: 02/10/23 07:00

<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		02/10/23 14:47	1
Dibromofluoromethane (Surr)	102		73 - 120		02/10/23 14:47	1
4-Bromofluorobenzene (Surr)	84		56 - 136		02/10/23 14:47	1
1,2-Dichloroethane-d4 (Surr)	92		62 - 137		02/10/23 14:47	1

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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)
240-180173-1	WC-01/2023-02-09/	97	103	87	91
240-180173-1	WC-01/2023-02-09/	89	98	81	85
240-180173-1	WC-01/2023-02-09/	127 S1+	96	94	98
240-180173-2	WC-02/2023-02-09/	95	102	88	93
240-180173-2	WC-02/2023-02-09/	95	102	86	92
240-180173-2	WC-02/2023-02-09/	117	99	113	99
240-180173-3	WC-03/2023-02-09/	99	105	97	93
240-180173-3	WC-03/2023-02-09/	110	104	124	100
240-180173-4	WC-04/2023-02-09/	90	101	84	91
240-180173-4	WC-04/2023-02-09/	116	101	113	101
240-180173-5	WC-05/2023-02-09/	96	104	89	93
240-180173-5	WC-05/2023-02-09/	93	101	85	90
240-180173-5	WC-05/2023-02-09/	115	102	115	101
240-180173-5 MS	WC-05/2023-02-09/	97	94	89	86
240-180173-5 MS	WC-05/2023-02-09/	119	97	110	92
240-180173-5 MSD	WC-05/2023-02-09/	97	93	88	86
240-180173-5 MSD	WC-05/2023-02-09/	119	97	110	89
240-180173-6	TRIP BLANK	98	102	84	92
LCS 240-561615/11	Lab Control Sample	96	105	91	94
LCS 240-561615/6	Lab Control Sample	104	96	90	86
LCS 240-561656/5	Lab Control Sample	114	100	111	91
MB 240-561615/9	Method Blank	99	103	86	93
MB 240-561656/8	Method Blank	112	103	105	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: Water

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)
240-180173-1	WC-01/2023-02-09/	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180173-2	WC-02/2023-02-09/	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180173-3	WC-03/2023-02-09/	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180173-4	WC-04/2023-02-09/	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180173-5	WC-05/2023-02-09/	56	46	83	0 S1-	91	80
LCS 240-561604/19-A	Lab Control Sample	95	69	100	92	81	79
MB 240-561604/18-A	Method Blank	106	57	87	58	78	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)

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Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTPH (52-121)
240-180173-1	WC-01/2023-02-09/	419 S1+
240-180173-2	WC-02/2023-02-09/	113
240-180173-3	WC-03/2023-02-09/	119
240-180173-4	WC-04/2023-02-09/	200 S1+
240-180173-5	WC-05/2023-02-09/	81
LCS 240-561603/2-A	Lab Control Sample	91
MB 240-561603/1-A	Method Blank	78

Surrogate Legend

OTPH = o-Terphenyl

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: MB 240-561615/9
Matrix: Water
Analysis Batch: 561615

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		1.0	0.48	ug/L			02/10/23 12:49	1
1,1,1,2-Tetrachloroethane	ND		1.0	0.60	ug/L			02/10/23 12:49	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.41	ug/L			02/10/23 12:49	1
1,1,2-Trichloroethane	ND		1.0	0.48	ug/L			02/10/23 12:49	1
1,1-Dichloroethane	ND		1.0	0.47	ug/L			02/10/23 12:49	1
1,1-Dichloroethene	ND		1.0	0.49	ug/L			02/10/23 12:49	1
1,2,4-Trichlorobenzene	ND		1.0	0.77	ug/L			02/10/23 12:49	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.91	ug/L			02/10/23 12:49	1
Ethylene Dibromide	ND		1.0	0.41	ug/L			02/10/23 12:49	1
1,2-Dichlorobenzene	ND		1.0	0.48	ug/L			02/10/23 12:49	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			02/10/23 12:49	1
1,2-Dichloropropane	ND		1.0	0.47	ug/L			02/10/23 12:49	1
1,3-Dichlorobenzene	ND		1.0	0.45	ug/L			02/10/23 12:49	1
1,4-Dichlorobenzene	ND		1.0	0.41	ug/L			02/10/23 12:49	1
2-Butanone (MEK)	1.54	J	10	1.2	ug/L			02/10/23 12:49	1
2-Hexanone	ND		10	1.1	ug/L			02/10/23 12:49	1
4-Methyl-2-pentanone (MIBK)	ND		10	0.99	ug/L			02/10/23 12:49	1
Acetone	ND		10	5.4	ug/L			02/10/23 12:49	1
Benzene	ND		1.0	0.42	ug/L			02/10/23 12:49	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			02/10/23 12:49	1
Bromoform	ND		1.0	0.76	ug/L			02/10/23 12:49	1
Bromomethane	ND		1.0	0.42	ug/L			02/10/23 12:49	1
Carbon disulfide	ND		1.0	0.59	ug/L			02/10/23 12:49	1
Carbon tetrachloride	ND		1.0	0.26	ug/L			02/10/23 12:49	1
Chlorobenzene	ND		1.0	0.38	ug/L			02/10/23 12:49	1
Chloroethane	ND		1.0	0.83	ug/L			02/10/23 12:49	1
Chloroform	ND		1.0	0.47	ug/L			02/10/23 12:49	1
Chloromethane	ND		1.0	0.63	ug/L			02/10/23 12:49	1
cis-1,2-Dichloroethene	ND		1.0	0.46	ug/L			02/10/23 12:49	1
cis-1,3-Dichloropropene	ND		1.0	0.61	ug/L			02/10/23 12:49	1
Cyclohexane	ND		1.0	0.48	ug/L			02/10/23 12:49	1
Chlorodibromomethane	ND		1.0	0.39	ug/L			02/10/23 12:49	1
Dichlorodifluoromethane	ND		1.0	0.35	ug/L			02/10/23 12:49	1
Ethylbenzene	ND		1.0	0.42	ug/L			02/10/23 12:49	1
Isopropylbenzene	ND		1.0	0.49	ug/L			02/10/23 12:49	1
Methyl acetate	ND		10	1.7	ug/L			02/10/23 12:49	1
Methyl tert-butyl ether	ND		1.0	0.47	ug/L			02/10/23 12:49	1
Methylcyclohexane	ND		1.0	0.33	ug/L			02/10/23 12:49	1
Methylene Chloride	ND		5.0	2.6	ug/L			02/10/23 12:49	1
Styrene	ND		1.0	0.45	ug/L			02/10/23 12:49	1
Tetrachloroethene	ND		1.0	0.44	ug/L			02/10/23 12:49	1
Toluene	ND		1.0	0.44	ug/L			02/10/23 12:49	1
trans-1,2-Dichloroethene	ND		1.0	0.51	ug/L			02/10/23 12:49	1
trans-1,3-Dichloropropene	ND		1.0	0.67	ug/L			02/10/23 12:49	1
Trichloroethene	ND		1.0	0.44	ug/L			02/10/23 12:49	1
Trichlorofluoromethane	ND		1.0	0.45	ug/L			02/10/23 12:49	1
Vinyl chloride	ND		1.0	0.45	ug/L			02/10/23 12:49	1
Xylenes, Total	ND		2.0	0.42	ug/L			02/10/23 12:49	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: MB 240-561615/9
Matrix: Water
Analysis Batch: 561615

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	99		78 - 122		02/10/23 12:49	1
Dibromofluoromethane (Surr)	103		73 - 120		02/10/23 12:49	1
4-Bromofluorobenzene (Surr)	86		56 - 136		02/10/23 12:49	1
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		02/10/23 12:49	1

Lab Sample ID: LCS 240-561615/11
Matrix: Water
Analysis Batch: 561615

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	96		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120
4-Bromofluorobenzene (Surr)	91		56 - 136
1,2-Dichloroethane-d4 (Surr)	94		62 - 137

Lab Sample ID: LCS 240-561615/6
Matrix: Water
Analysis Batch: 561615

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	25.0	22.6		ug/L		91	64 - 131
1,1,1,2-Tetrachloroethane	25.0	27.4		ug/L		110	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	25.0	25.1		ug/L		100	51 - 146
1,1,2-Trichloroethane	25.0	26.2		ug/L		105	70 - 138
1,1-Dichloroethane	25.0	24.2		ug/L		97	72 - 127
1,1-Dichloroethene	25.0	24.1		ug/L		96	63 - 134
1,2,4-Trichlorobenzene	25.0	24.9		ug/L		100	44 - 147
1,2-Dibromo-3-Chloropropane	25.0	22.9		ug/L		91	53 - 135
Ethylene Dibromide	25.0	25.6		ug/L		102	71 - 134
1,2-Dichlorobenzene	25.0	26.9		ug/L		108	78 - 120
1,2-Dichloroethane	25.0	23.7		ug/L		95	66 - 128
1,2-Dichloropropane	25.0	24.7		ug/L		99	75 - 133
1,3-Dichlorobenzene	25.0	27.5		ug/L		110	80 - 120
1,4-Dichlorobenzene	25.0	27.4		ug/L		109	80 - 120
2-Butanone (MEK)	50.0	47.2		ug/L		94	54 - 156
2-Hexanone	50.0	47.7		ug/L		95	43 - 167
4-Methyl-2-pentanone (MIBK)	50.0	45.0		ug/L		90	46 - 158
Acetone	50.0	47.6		ug/L		95	50 - 149
Benzene	25.0	24.9		ug/L		100	77 - 123
Dichlorobromomethane	25.0	23.6		ug/L		94	69 - 126
Bromoform	25.0	27.0		ug/L		108	57 - 129
Bromomethane	25.0	18.8		ug/L		75	36 - 142
Carbon disulfide	25.0	23.5		ug/L		94	43 - 140
Carbon tetrachloride	25.0	24.5		ug/L		98	55 - 137
Chlorobenzene	25.0	26.6		ug/L		106	80 - 121
Chloroethane	25.0	24.7		ug/L		99	38 - 152
Chloroform	25.0	24.5		ug/L		98	74 - 122

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: LCS 240-561615/6
Matrix: Water
Analysis Batch: 561615

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloromethane	25.0	23.9		ug/L		96	47 - 143
cis-1,2-Dichloroethene	25.0	24.9		ug/L		99	77 - 123
cis-1,3-Dichloropropene	25.0	22.7		ug/L		91	64 - 130
Cyclohexane	25.0	24.6		ug/L		98	58 - 146
Chlorodibromomethane	25.0	26.5		ug/L		106	70 - 124
Dichlorodifluoromethane	25.0	22.6		ug/L		90	34 - 153
Ethylbenzene	25.0	25.7		ug/L		103	80 - 121
Isopropylbenzene	25.0	25.4		ug/L		101	74 - 128
Methyl acetate	50.0	45.7		ug/L		91	42 - 169
Methyl tert-butyl ether	25.0	22.1		ug/L		88	65 - 126
Methylcyclohexane	25.0	23.4		ug/L		94	62 - 136
Methylene Chloride	25.0	25.4		ug/L		102	71 - 125
Styrene	25.0	26.1		ug/L		104	80 - 135
Tetrachloroethene	25.0	26.8		ug/L		107	76 - 123
Toluene	25.0	26.4		ug/L		106	80 - 123
trans-1,2-Dichloroethene	25.0	24.4		ug/L		97	75 - 124
trans-1,3-Dichloropropene	25.0	23.5		ug/L		94	57 - 129
Trichloroethene	25.0	24.8		ug/L		99	70 - 122
Trichlorofluoromethane	25.0	24.5		ug/L		98	30 - 170
Vinyl chloride	25.0	26.3		ug/L		105	60 - 144
Xylenes, Total	50.0	51.2		ug/L		102	80 - 121
m-Xylene & p-Xylene	25.0	25.7		ug/L		103	80 - 120
o-Xylene	25.0	25.5		ug/L		102	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	96		73 - 120
4-Bromofluorobenzene (Surr)	90		56 - 136
1,2-Dichloroethane-d4 (Surr)	86		62 - 137

Lab Sample ID: 240-180173-5 MS
Matrix: Water
Analysis Batch: 561615

Client Sample ID: WC-05/2023-02-09/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		25000	22600		ug/L		91	60 - 130
1,1,2,2-Tetrachloroethane	ND		25000	27100		ug/L		108	54 - 145
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25000	23400		ug/L		93	41 - 147
1,1,2-Trichloroethane	ND		25000	26500		ug/L		106	69 - 131
1,1-Dichloroethane	ND		25000	24600		ug/L		99	68 - 125
1,1-Dichloroethene	ND		25000	23300		ug/L		93	56 - 135
1,2,4-Trichlorobenzene	ND		25000	25000		ug/L		100	29 - 156
1,2-Dibromo-3-Chloropropane	ND		25000	21800		ug/L		87	41 - 129
Ethylene Dibromide	ND		25000	25600		ug/L		102	69 - 125
1,2-Dichlorobenzene	ND		25000	26400		ug/L		106	73 - 120
1,2-Dichloroethane	ND		25000	24400		ug/L		98	63 - 126
1,2-Dichloropropane	ND		25000	25400		ug/L		102	69 - 130
1,3-Dichlorobenzene	ND		25000	26700		ug/L		107	73 - 120

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: 240-180173-5 MS

Client Sample ID: WC-05/2023-02-09/

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 561615

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	ND		25000	26700		ug/L		107	74 - 120
2-Butanone (MEK)	ND		50000	47400		ug/L		95	40 - 151
2-Hexanone	ND		50000	45600		ug/L		91	35 - 156
4-Methyl-2-pentanone (MIBK)	ND		50000	46800		ug/L		94	31 - 153
Acetone	ND		50000	46500		ug/L		93	33 - 149
Benzene	ND		25000	25600		ug/L		102	64 - 128
Dichlorobromomethane	ND		25000	24400		ug/L		97	62 - 125
Bromoform	ND		25000	26400		ug/L		106	47 - 125
Bromomethane	ND		25000	17900		ug/L		72	28 - 150
Carbon disulfide	ND		25000	22700		ug/L		91	38 - 140
Carbon tetrachloride	ND		25000	23900		ug/L		95	51 - 133
Chlorobenzene	ND		25000	26600		ug/L		106	74 - 121
Chloroethane	ND		25000	25800		ug/L		103	10 - 199
Chloroform	ND		25000	24700		ug/L		99	70 - 122
Chloromethane	ND		25000	25400		ug/L		101	32 - 149
cis-1,2-Dichloroethene	ND		25000	25200		ug/L		101	66 - 128
cis-1,3-Dichloropropene	ND		25000	23900		ug/L		96	47 - 125
Cyclohexane	ND		25000	24300		ug/L		97	42 - 147
Chlorodibromomethane	ND		25000	26200		ug/L		105	65 - 120
Dichlorodifluoromethane	ND		25000	21300		ug/L		85	38 - 139
Ethylbenzene	ND		25000	25400		ug/L		101	67 - 127
Isopropylbenzene	ND		25000	24600		ug/L		98	64 - 129
Methyl acetate	ND		50000	45700		ug/L		91	37 - 155
Methyl tert-butyl ether	ND		25000	22200		ug/L		89	47 - 134
Methylcyclohexane	ND		25000	23200		ug/L		93	39 - 144
Methylene Chloride	ND		25000	26100		ug/L		104	62 - 129
Styrene	ND		25000	25900		ug/L		104	70 - 139
Tetrachloroethene	ND		25000	28400		ug/L		113	62 - 131
Toluene	ND		25000	25400		ug/L		101	58 - 135
trans-1,2-Dichloroethene	ND		25000	24100		ug/L		96	56 - 136
trans-1,3-Dichloropropene	ND		25000	23600		ug/L		95	47 - 120
Trichloroethene	ND		25000	25000		ug/L		100	61 - 124
Trichlorofluoromethane	ND		25000	24300		ug/L		97	24 - 177
Vinyl chloride	ND		25000	26000		ug/L		104	43 - 157
Xylenes, Total	ND		50000	51800		ug/L		104	71 - 123
m-Xylene & p-Xylene	ND		25000	25100		ug/L		100	71 - 123
o-Xylene	ND		25000	26700		ug/L		107	70 - 125

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	94		73 - 120
4-Bromofluorobenzene (Surr)	89		56 - 136
1,2-Dichloroethane-d4 (Surr)	86		62 - 137

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: 240-180173-5 MSD

Matrix: Water

Analysis Batch: 561615

Client Sample ID: WC-05/2023-02-09/

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		25000	22400		ug/L		90	60 - 130	1	17
1,1,2,2-Tetrachloroethane	ND		25000	26900		ug/L		108	54 - 145	1	15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		25000	23000		ug/L		92	41 - 147	2	35
1,1,2-Trichloroethane	ND		25000	25800		ug/L		103	69 - 131	3	14
1,1-Dichloroethane	ND		25000	24500		ug/L		98	68 - 125	1	13
1,1-Dichloroethene	ND		25000	23400		ug/L		94	56 - 135	1	26
1,2,4-Trichlorobenzene	ND		25000	24800		ug/L		99	29 - 156	1	19
1,2-Dibromo-3-Chloropropane	ND		25000	21700		ug/L		87	41 - 129	0	22
Ethylene Dibromide	ND		25000	25400		ug/L		102	69 - 125	1	14
1,2-Dichlorobenzene	ND		25000	26300		ug/L		105	73 - 120	0	14
1,2-Dichloroethane	ND		25000	23900		ug/L		96	63 - 126	2	12
1,2-Dichloropropane	ND		25000	25300		ug/L		101	69 - 130	1	13
1,3-Dichlorobenzene	ND		25000	26500		ug/L		106	73 - 120	1	14
1,4-Dichlorobenzene	ND		25000	25900		ug/L		104	74 - 120	3	15
2-Butanone (MEK)	ND		50000	47200		ug/L		94	40 - 151	0	20
2-Hexanone	ND		50000	45400		ug/L		91	35 - 156	0	17
4-Methyl-2-pentanone (MIBK)	ND		50000	45700		ug/L		91	31 - 153	2	15
Acetone	ND		50000	44600		ug/L		89	33 - 149	4	34
Benzene	ND		25000	24700		ug/L		99	64 - 128	3	14
Dichlorobromomethane	ND		25000	23800		ug/L		95	62 - 125	2	13
Bromoform	ND		25000	26600		ug/L		106	47 - 125	0	15
Bromomethane	ND		25000	20500		ug/L		82	28 - 150	13	26
Carbon disulfide	ND		25000	22200		ug/L		89	38 - 140	3	23
Carbon tetrachloride	ND		25000	23700		ug/L		95	51 - 133	1	24
Chlorobenzene	ND		25000	26000		ug/L		104	74 - 121	2	14
Chloroethane	ND		25000	25000		ug/L		100	10 - 199	3	30
Chloroform	ND		25000	24100		ug/L		97	70 - 122	2	14
Chloromethane	ND		25000	23600		ug/L		95	32 - 149	7	27
cis-1,2-Dichloroethene	ND		25000	24800		ug/L		99	66 - 128	2	14
cis-1,3-Dichloropropene	ND		25000	23300		ug/L		93	47 - 125	3	13
Cyclohexane	ND		25000	23900		ug/L		96	42 - 147	2	35
Chlorodibromomethane	ND		25000	25800		ug/L		103	65 - 120	1	13
Dichlorodifluoromethane	ND		25000	20700		ug/L		83	38 - 139	3	35
Ethylbenzene	ND		25000	25200		ug/L		101	67 - 127	1	15
Isopropylbenzene	ND		25000	24500		ug/L		98	64 - 129	0	18
Methyl acetate	ND		50000	44500		ug/L		89	37 - 155	3	18
Methyl tert-butyl ether	ND		25000	21900		ug/L		88	47 - 134	2	16
Methylcyclohexane	ND		25000	22500		ug/L		90	39 - 144	3	35
Methylene Chloride	ND		25000	24900		ug/L		100	62 - 129	5	17
Styrene	ND		25000	25300		ug/L		101	70 - 139	2	18
Tetrachloroethene	ND		25000	28100		ug/L		112	62 - 131	1	20
Toluene	ND		25000	25000		ug/L		100	58 - 135	1	14
trans-1,2-Dichloroethene	ND		25000	23800		ug/L		95	56 - 136	1	15
trans-1,3-Dichloropropene	ND		25000	23000		ug/L		92	47 - 120	3	14
Trichloroethene	ND		25000	24800		ug/L		99	61 - 124	1	15
Trichlorofluoromethane	ND		25000	23600		ug/L		95	24 - 177	3	34
Vinyl chloride	ND		25000	25600		ug/L		102	43 - 157	2	24
Xylenes, Total	ND		50000	51200		ug/L		102	71 - 123	1	15

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: 240-180173-5 MSD

Client Sample ID: WC-05/2023-02-09/

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 561615

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	ND		25000	24800		ug/L		99	71 - 123	1	16
o-Xylene	ND		25000	26400		ug/L		106	70 - 125	1	15
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
Toluene-d8 (Surr)	97		78 - 122								
Dibromofluoromethane (Surr)	93		73 - 120								
4-Bromofluorobenzene (Surr)	88		56 - 136								
1,2-Dichloroethane-d4 (Surr)	86		62 - 137								

Lab Sample ID: MB 240-561656/8

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 561656

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.48	ug/L			02/10/23 15:04	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.60	ug/L			02/10/23 15:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.41	ug/L			02/10/23 15:04	1
1,1,2-Trichloroethane	ND		1.0	0.48	ug/L			02/10/23 15:04	1
1,1-Dichloroethane	ND		1.0	0.47	ug/L			02/10/23 15:04	1
1,1-Dichloroethene	ND		1.0	0.49	ug/L			02/10/23 15:04	1
1,2,4-Trichlorobenzene	ND		1.0	0.77	ug/L			02/10/23 15:04	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.91	ug/L			02/10/23 15:04	1
Ethylene Dibromide	ND		1.0	0.41	ug/L			02/10/23 15:04	1
1,2-Dichlorobenzene	ND		1.0	0.48	ug/L			02/10/23 15:04	1
1,2-Dichloroethane	ND		1.0	0.21	ug/L			02/10/23 15:04	1
1,2-Dichloropropane	ND		1.0	0.47	ug/L			02/10/23 15:04	1
1,3-Dichlorobenzene	ND		1.0	0.45	ug/L			02/10/23 15:04	1
1,4-Dichlorobenzene	ND		1.0	0.41	ug/L			02/10/23 15:04	1
2-Butanone (MEK)	ND		10	1.2	ug/L			02/10/23 15:04	1
2-Hexanone	ND		10	1.1	ug/L			02/10/23 15:04	1
4-Methyl-2-pentanone (MIBK)	ND		10	0.99	ug/L			02/10/23 15:04	1
Acetone	ND		10	5.4	ug/L			02/10/23 15:04	1
Benzene	ND		1.0	0.42	ug/L			02/10/23 15:04	1
Dichlorobromomethane	ND		1.0	0.17	ug/L			02/10/23 15:04	1
Bromoform	ND		1.0	0.76	ug/L			02/10/23 15:04	1
Bromomethane	ND		1.0	0.42	ug/L			02/10/23 15:04	1
Carbon disulfide	ND		1.0	0.59	ug/L			02/10/23 15:04	1
Carbon tetrachloride	ND		1.0	0.26	ug/L			02/10/23 15:04	1
Chlorobenzene	ND		1.0	0.38	ug/L			02/10/23 15:04	1
Chloroethane	ND		1.0	0.83	ug/L			02/10/23 15:04	1
Chloroform	ND		1.0	0.47	ug/L			02/10/23 15:04	1
Chloromethane	ND		1.0	0.63	ug/L			02/10/23 15:04	1
cis-1,2-Dichloroethene	ND		1.0	0.46	ug/L			02/10/23 15:04	1
cis-1,3-Dichloropropene	ND		1.0	0.61	ug/L			02/10/23 15:04	1
Cyclohexane	ND		1.0	0.48	ug/L			02/10/23 15:04	1
Chlorodibromomethane	ND		1.0	0.39	ug/L			02/10/23 15:04	1
Dichlorodifluoromethane	ND		1.0	0.35	ug/L			02/10/23 15:04	1
Ethylbenzene	ND		1.0	0.42	ug/L			02/10/23 15:04	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: MB 240-561656/8
Matrix: Water
Analysis Batch: 561656

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0	0.49	ug/L			02/10/23 15:04	1
Methyl acetate	ND		10	1.7	ug/L			02/10/23 15:04	1
Methyl tert-butyl ether	ND		1.0	0.47	ug/L			02/10/23 15:04	1
Methylcyclohexane	ND		1.0	0.33	ug/L			02/10/23 15:04	1
Methylene Chloride	ND		5.0	2.6	ug/L			02/10/23 15:04	1
Styrene	ND		1.0	0.45	ug/L			02/10/23 15:04	1
Tetrachloroethene	ND		1.0	0.44	ug/L			02/10/23 15:04	1
Toluene	ND		1.0	0.44	ug/L			02/10/23 15:04	1
trans-1,2-Dichloroethene	ND		1.0	0.51	ug/L			02/10/23 15:04	1
trans-1,3-Dichloropropene	ND		1.0	0.67	ug/L			02/10/23 15:04	1
Trichloroethene	ND		1.0	0.44	ug/L			02/10/23 15:04	1
Trichlorofluoromethane	ND		1.0	0.45	ug/L			02/10/23 15:04	1
Vinyl chloride	ND		1.0	0.45	ug/L			02/10/23 15:04	1
Xylenes, Total	ND		2.0	0.42	ug/L			02/10/23 15:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	112		78 - 122		02/10/23 15:04	1
Dibromofluoromethane (Surr)	103		73 - 120		02/10/23 15:04	1
4-Bromofluorobenzene (Surr)	105		56 - 136		02/10/23 15:04	1
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		02/10/23 15:04	1

Lab Sample ID: LCS 240-561656/5
Matrix: Water
Analysis Batch: 561656

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	20.0	20.4		ug/L		102	64 - 131
1,1,2,2-Tetrachloroethane	20.0	23.3		ug/L		116	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	21.7		ug/L		109	51 - 146
1,1,2-Trichloroethane	20.0	21.3		ug/L		106	70 - 138
1,1-Dichloroethane	20.0	21.3		ug/L		107	72 - 127
1,1-Dichloroethene	20.0	22.3		ug/L		111	63 - 134
1,2,4-Trichlorobenzene	20.0	21.3		ug/L		107	44 - 147
1,2-Dibromo-3-Chloropropane	20.0	22.1		ug/L		110	53 - 135
Ethylene Dibromide	20.0	20.3		ug/L		101	71 - 134
1,2-Dichlorobenzene	20.0	22.8		ug/L		114	78 - 120
1,2-Dichloroethane	20.0	19.9		ug/L		99	66 - 128
1,2-Dichloropropane	20.0	22.5		ug/L		112	75 - 133
1,3-Dichlorobenzene	20.0	22.2		ug/L		111	80 - 120
1,4-Dichlorobenzene	20.0	21.1		ug/L		106	80 - 120
2-Butanone (MEK)	40.0	47.6		ug/L		119	54 - 156
2-Hexanone	40.0	49.0		ug/L		123	43 - 167
4-Methyl-2-pentanone (MIBK)	40.0	46.0		ug/L		115	46 - 158
Acetone	40.0	45.4		ug/L		113	50 - 149
Benzene	20.0	22.3		ug/L		111	77 - 123
Dichlorobromomethane	20.0	19.2		ug/L		96	69 - 126
Bromoform	20.0	19.5		ug/L		98	57 - 129
Bromomethane	20.0	20.4		ug/L		102	36 - 142

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: LCS 240-561656/5
Matrix: Water
Analysis Batch: 561656

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Carbon disulfide	20.0	19.2		ug/L		96	43 - 140
Carbon tetrachloride	20.0	20.7		ug/L		104	55 - 137
Chlorobenzene	20.0	21.5		ug/L		108	80 - 121
Chloroethane	20.0	21.1		ug/L		106	38 - 152
Chloroform	20.0	20.6		ug/L		103	74 - 122
Chloromethane	20.0	23.5		ug/L		118	47 - 143
cis-1,2-Dichloroethene	20.0	20.8		ug/L		104	77 - 123
cis-1,3-Dichloropropene	20.0	19.7		ug/L		99	64 - 130
Cyclohexane	20.0	22.7		ug/L		113	58 - 146
Chlorodibromomethane	20.0	20.2		ug/L		101	70 - 124
Dichlorodifluoromethane	20.0	20.1		ug/L		101	34 - 153
Ethylbenzene	20.0	22.1		ug/L		111	80 - 121
Isopropylbenzene	20.0	21.3		ug/L		107	74 - 128
Methyl acetate	40.0	39.7		ug/L		99	42 - 169
Methyl tert-butyl ether	20.0	18.1		ug/L		91	65 - 126
Methylcyclohexane	20.0	20.7		ug/L		103	62 - 136
Methylene Chloride	20.0	21.9		ug/L		110	71 - 125
Styrene	20.0	21.3		ug/L		106	80 - 135
Tetrachloroethene	20.0	22.6		ug/L		113	76 - 123
Toluene	20.0	22.1		ug/L		111	80 - 123
trans-1,2-Dichloroethene	20.0	21.5		ug/L		108	75 - 124
trans-1,3-Dichloropropene	20.0	20.0		ug/L		100	57 - 129
Trichloroethene	20.0	20.7		ug/L		104	70 - 122
Trichlorofluoromethane	20.0	21.1		ug/L		105	30 - 170
Vinyl chloride	20.0	21.4		ug/L		107	60 - 144
Xylenes, Total	40.0	44.5		ug/L		111	80 - 121
m-Xylene & p-Xylene	20.0	23.2		ug/L		116	80 - 120
o-Xylene	20.0	21.3		ug/L		107	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	114		78 - 122
Dibromofluoromethane (Surr)	100		73 - 120
4-Bromofluorobenzene (Surr)	111		56 - 136
1,2-Dichloroethane-d4 (Surr)	91		62 - 137

Lab Sample ID: 240-180173-5 MS
Matrix: Water
Analysis Batch: 561656

Client Sample ID: WC-05/2023-02-09/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	ND		40.0	36.0		ug/L		90	60 - 130
1,1,2,2-Tetrachloroethane	ND		40.0	40.1		ug/L		100	54 - 145
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		40.0	37.9		ug/L		95	41 - 147
1,1,2-Trichloroethane	ND		40.0	37.5		ug/L		94	69 - 131
1,1-Dichloroethane	ND		40.0	37.9		ug/L		95	68 - 125
1,1-Dichloroethene	ND		40.0	39.5		ug/L		99	56 - 135
1,2,4-Trichlorobenzene	ND		40.0	21.4		ug/L		54	29 - 156
1,2-Dibromo-3-Chloropropane	ND		40.0	37.1		ug/L		93	41 - 129

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: 240-180173-5 MS

Client Sample ID: WC-05/2023-02-09/

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 561656

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Ethylene Dibromide	ND		40.0	33.8		ug/L		85	69 - 125
1,2-Dichlorobenzene	ND	F1 F2	40.0	23.0	F1	ug/L		58	73 - 120
1,2-Dichloroethane	ND		40.0	37.5		ug/L		94	63 - 126
1,2-Dichloropropane	ND		40.0	38.4		ug/L		96	69 - 130
1,3-Dichlorobenzene	ND	F1 F2	40.0	20.7	F1	ug/L		52	73 - 120
1,4-Dichlorobenzene	ND	F1	40.0	20.0	F1	ug/L		50	74 - 120
2-Butanone (MEK)	4.6	J	80.0	116		ug/L		139	40 - 151
2-Hexanone	ND		80.0	95.6		ug/L		120	35 - 156
4-Methyl-2-pentanone (MIBK)	3.6	J	80.0	103		ug/L		125	31 - 153
Acetone	ND		80.0	102		ug/L		128	33 - 149
Benzene	1.5	J	40.0	38.2		ug/L		92	64 - 128
Dichlorobromomethane	ND		40.0	31.4		ug/L		78	62 - 125
Bromoform	ND		40.0	25.1		ug/L		63	47 - 125
Bromomethane	ND		40.0	35.0		ug/L		87	28 - 150
Carbon disulfide	ND		40.0	29.0		ug/L		73	38 - 140
Carbon tetrachloride	ND		40.0	32.6		ug/L		81	51 - 133
Chlorobenzene	ND	F1 F2	40.0	26.6	F1	ug/L		66	74 - 121
Chloroethane	ND		40.0	39.6		ug/L		99	10 - 199
Chloroform	ND		40.0	36.7		ug/L		92	70 - 122
Chloromethane	ND		40.0	46.0		ug/L		115	32 - 149
cis-1,2-Dichloroethene	ND		40.0	38.1		ug/L		95	66 - 128
cis-1,3-Dichloropropene	ND		40.0	32.4		ug/L		81	47 - 125
Cyclohexane	ND		40.0	38.9		ug/L		97	42 - 147
Chlorodibromomethane	ND		40.0	31.6		ug/L		79	65 - 120
Dichlorodifluoromethane	ND		40.0	37.9		ug/L		95	38 - 139
Ethylbenzene	ND	F1 F2	40.0	25.8	F1	ug/L		64	67 - 127
Isopropylbenzene	ND	F1 F2	40.0	23.7	F1	ug/L		59	64 - 129
Methyl acetate	ND		80.0	84.5		ug/L		106	37 - 155
Methyl tert-butyl ether	ND		40.0	38.1		ug/L		95	47 - 134
Methylcyclohexane	ND		40.0	34.5		ug/L		86	39 - 144
Methylene Chloride	ND		40.0	40.0		ug/L		100	62 - 129
Styrene	ND	F1 F2	40.0	25.3	F1	ug/L		63	70 - 139
Tetrachloroethene	ND	F2	40.0	28.5		ug/L		71	62 - 131
Toluene	1.1	J F2	40.0	33.1		ug/L		80	58 - 135
trans-1,2-Dichloroethene	ND	F2	40.0	36.1		ug/L		90	56 - 136
trans-1,3-Dichloropropene	ND		40.0	32.7		ug/L		82	47 - 120
Trichloroethene	ND		40.0	34.4		ug/L		86	61 - 124
Trichlorofluoromethane	ND		40.0	38.1		ug/L		95	24 - 177
Vinyl chloride	160		40.0	177	4	ug/L		35	43 - 157
Xylenes, Total	6.7	F1 F2	80.0	53.4	F1	ug/L		58	71 - 123
m-Xylene & p-Xylene	3.1	J F1 F2	40.0	26.2	F1	ug/L		58	71 - 123
o-Xylene	3.6	F1 F2	40.0	27.2	F1	ug/L		59	70 - 125
	MS MS								
Surrogate	%Recovery	Qualifier	Limits						
<i>Toluene-d8 (Surr)</i>	119		78 - 122						
<i>Dibromofluoromethane (Surr)</i>	97		73 - 120						
<i>4-Bromofluorobenzene (Surr)</i>	110		56 - 136						
<i>1,2-Dichloroethane-d4 (Surr)</i>	92		62 - 137						

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: 240-180173-5 MSD

Matrix: Water

Analysis Batch: 561656

Client Sample ID: WC-05/2023-02-09/

Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
1,1,1-Trichloroethane	ND		40.0	41.2		ug/L		103	60 - 130	13	17
1,1,2,2-Tetrachloroethane	ND		40.0	39.9		ug/L		100	54 - 145	0	15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		40.0	42.0		ug/L		105	41 - 147	10	35
1,1,2-Trichloroethane	ND		40.0	39.5		ug/L		99	69 - 131	5	14
1,1-Dichloroethane	ND		40.0	42.3		ug/L		106	68 - 125	11	13
1,1-Dichloroethene	ND		40.0	43.3		ug/L		108	56 - 135	9	26
1,2,4-Trichlorobenzene	ND		40.0	24.0		ug/L		60	29 - 156	11	19
1,2-Dibromo-3-Chloropropane	ND		40.0	33.0		ug/L		82	41 - 129	12	22
Ethylene Dibromide	ND		40.0	37.2		ug/L		93	69 - 125	10	14
1,2-Dichlorobenzene	ND	F1 F2	40.0	27.3	F1 F2	ug/L		68	73 - 120	17	14
1,2-Dichloroethane	ND		40.0	38.6		ug/L		96	63 - 126	3	12
1,2-Dichloropropane	ND		40.0	43.0		ug/L		108	69 - 130	11	13
1,3-Dichlorobenzene	ND	F1 F2	40.0	24.8	F1 F2	ug/L		62	73 - 120	18	14
1,4-Dichlorobenzene	ND	F1	40.0	23.0	F1	ug/L		58	74 - 120	14	15
2-Butanone (MEK)	4.6	J	80.0	118		ug/L		142	40 - 151	2	20
2-Hexanone	ND		80.0	97.4		ug/L		122	35 - 156	2	17
4-Methyl-2-pentanone (MIBK)	3.6	J	80.0	103		ug/L		125	31 - 153	0	15
Acetone	ND		80.0	110		ug/L		137	33 - 149	7	34
Benzene	1.5	J	40.0	43.9		ug/L		106	64 - 128	14	14
Dichlorobromomethane	ND		40.0	33.5		ug/L		84	62 - 125	7	13
Bromoform	ND		40.0	25.7		ug/L		64	47 - 125	2	15
Bromomethane	ND		40.0	40.8		ug/L		102	28 - 150	15	26
Carbon disulfide	ND		40.0	33.7		ug/L		84	38 - 140	15	23
Carbon tetrachloride	ND		40.0	38.4		ug/L		96	51 - 133	16	24
Chlorobenzene	ND	F1 F2	40.0	31.4	F2	ug/L		78	74 - 121	17	14
Chloroethane	ND		40.0	43.1		ug/L		108	10 - 199	8	30
Chloroform	ND		40.0	39.1		ug/L		98	70 - 122	6	14
Chloromethane	ND		40.0	49.3		ug/L		123	32 - 149	7	27
cis-1,2-Dichloroethene	ND		40.0	41.9		ug/L		105	66 - 128	9	14
cis-1,3-Dichloropropene	ND		40.0	35.6		ug/L		89	47 - 125	9	13
Cyclohexane	ND		40.0	44.8		ug/L		112	42 - 147	14	35
Chlorodibromomethane	ND		40.0	33.9		ug/L		85	65 - 120	7	13
Dichlorodifluoromethane	ND		40.0	40.9		ug/L		102	38 - 139	8	35
Ethylbenzene	ND	F1 F2	40.0	31.6	F2	ug/L		79	67 - 127	20	15
Isopropylbenzene	ND	F1 F2	40.0	29.3	F2	ug/L		73	64 - 129	21	18
Methyl acetate	ND		80.0	87.9		ug/L		110	37 - 155	4	18
Methyl tert-butyl ether	ND		40.0	38.4		ug/L		96	47 - 134	1	16
Methylcyclohexane	ND		40.0	41.6		ug/L		104	39 - 144	19	35
Methylene Chloride	ND		40.0	44.4		ug/L		111	62 - 129	10	17
Styrene	ND	F1 F2	40.0	30.7	F2	ug/L		77	70 - 139	19	18
Tetrachloroethene	ND	F2	40.0	35.1	F2	ug/L		88	62 - 131	21	20
Toluene	1.1	J F2	40.0	38.5	F2	ug/L		93	58 - 135	15	14
trans-1,2-Dichloroethene	ND	F2	40.0	42.4	F2	ug/L		106	56 - 136	16	15
trans-1,3-Dichloropropene	ND		40.0	36.3		ug/L		91	47 - 120	10	14
Trichloroethene	ND		40.0	39.8		ug/L		99	61 - 124	15	15
Trichlorofluoromethane	ND		40.0	41.3		ug/L		103	24 - 177	8	34
Vinyl chloride	160		40.0	194	4	ug/L		78	43 - 157	9	24
Xylenes, Total	6.7	F1 F2	80.0	64.2	F2	ug/L		72	71 - 123	18	15

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: 240-180173-5 MSD

Client Sample ID: WC-05/2023-02-09/

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 561656

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	3.1	J F1 F2	40.0	31.8	F2	ug/L		72	71 - 123	19	16
o-Xylene	3.6	F1 F2	40.0	32.4	F2	ug/L		72	70 - 125	17	15
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Toluene-d8 (Surr)	119		78 - 122								
Dibromofluoromethane (Surr)	97		73 - 120								
4-Bromofluorobenzene (Surr)	110		56 - 136								
1,2-Dichloroethane-d4 (Surr)	89		62 - 137								

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

Lab Sample ID: MB 240-561604/18-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 561702

Prep Batch: 561604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.0	0.49	ug/L		02/10/23 08:46	02/11/23 06:40	1
bis (2-chloroisopropyl) ether	ND		1.0	0.55	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,4,5-Trichlorophenol	ND		5.0	2.0	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,4,6-Trichlorophenol	ND		5.0	1.8	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,4-Dichlorophenol	ND		2.0	0.26	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,4-Dimethylphenol	ND		2.0	0.52	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,4-Dinitrophenol	ND		10	6.2	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,4-Dinitrotoluene	ND		5.0	2.1	ug/L		02/10/23 08:46	02/11/23 06:40	1
2,6-Dinitrotoluene	ND		5.0	2.1	ug/L		02/10/23 08:46	02/11/23 06:40	1
2-Chloronaphthalene	ND		1.0	0.48	ug/L		02/10/23 08:46	02/11/23 06:40	1
2-Chlorophenol	ND		1.0	0.27	ug/L		02/10/23 08:46	02/11/23 06:40	1
2-Methylnaphthalene	ND		0.20	0.11	ug/L		02/10/23 08:46	02/11/23 06:40	1
2-Methylphenol	ND		1.0	0.21	ug/L		02/10/23 08:46	02/11/23 06:40	1
2-Nitroaniline	ND		2.0	0.51	ug/L		02/10/23 08:46	02/11/23 06:40	1
2-Nitrophenol	ND		2.0	0.56	ug/L		02/10/23 08:46	02/11/23 06:40	1
3,3'-Dichlorobenzidine	ND		5.0	1.2	ug/L		02/10/23 08:46	02/11/23 06:40	1
3-Nitroaniline	ND		2.0	0.57	ug/L		02/10/23 08:46	02/11/23 06:40	1
4,6-Dinitro-2-methylphenol	ND		5.0	2.8	ug/L		02/10/23 08:46	02/11/23 06:40	1
4-Bromophenyl phenyl ether	ND		2.0	0.50	ug/L		02/10/23 08:46	02/11/23 06:40	1
4-Chloro-3-methylphenol	ND		2.0	0.30	ug/L		02/10/23 08:46	02/11/23 06:40	1
4-Chloroaniline	ND		2.0	0.32	ug/L		02/10/23 08:46	02/11/23 06:40	1
4-Chlorophenyl phenyl ether	ND		2.0	0.55	ug/L		02/10/23 08:46	02/11/23 06:40	1
4-Nitroaniline	ND		2.0	0.92	ug/L		02/10/23 08:46	02/11/23 06:40	1
4-Nitrophenol	ND		10	2.2	ug/L		02/10/23 08:46	02/11/23 06:40	1
Acenaphthene	ND		0.20	0.17	ug/L		02/10/23 08:46	02/11/23 06:40	1
Acenaphthylene	ND		0.20	0.13	ug/L		02/10/23 08:46	02/11/23 06:40	1
Acetophenone	ND		1.0	0.37	ug/L		02/10/23 08:46	02/11/23 06:40	1
Anthracene	ND		0.20	0.14	ug/L		02/10/23 08:46	02/11/23 06:40	1
Atrazine	ND		2.0	0.95	ug/L		02/10/23 08:46	02/11/23 06:40	1
Benzaldehyde	ND		2.0	0.76	ug/L		02/10/23 08:46	02/11/23 06:40	1
Benzo[a]anthracene	ND		0.20	0.17	ug/L		02/10/23 08:46	02/11/23 06:40	1
Benzo[a]pyrene	ND		0.20	0.17	ug/L		02/10/23 08:46	02/11/23 06:40	1
Benzo[b]fluoranthene	ND		0.20	0.15	ug/L		02/10/23 08:46	02/11/23 06:40	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: MB 240-561604/18-A
Matrix: Water
Analysis Batch: 561702

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561604

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzo[g,h,i]perylene	ND		0.20	0.18	ug/L		02/10/23 08:46	02/11/23 06:40	1
Benzo[k]fluoranthene	ND		0.20	0.14	ug/L		02/10/23 08:46	02/11/23 06:40	1
Bis(2-chloroethoxy)methane	ND		1.0	0.46	ug/L		02/10/23 08:46	02/11/23 06:40	1
Bis(2-chloroethyl)ether	ND		1.0	0.40	ug/L		02/10/23 08:46	02/11/23 06:40	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.2	ug/L		02/10/23 08:46	02/11/23 06:40	1
Butyl benzyl phthalate	ND		2.0	0.67	ug/L		02/10/23 08:46	02/11/23 06:40	1
Caprolactam	ND		5.0	0.93	ug/L		02/10/23 08:46	02/11/23 06:40	1
Carbazole	ND		1.0	0.49	ug/L		02/10/23 08:46	02/11/23 06:40	1
Chrysene	ND		0.20	0.19	ug/L		02/10/23 08:46	02/11/23 06:40	1
Dibenz(a,h)anthracene	ND		0.20	0.15	ug/L		02/10/23 08:46	02/11/23 06:40	1
Dibenzofuran	ND		1.0	0.56	ug/L		02/10/23 08:46	02/11/23 06:40	1
Diethyl phthalate	ND		5.0	3.8	ug/L		02/10/23 08:46	02/11/23 06:40	1
Dimethyl phthalate	ND		2.0	0.52	ug/L		02/10/23 08:46	02/11/23 06:40	1
Di-n-butyl phthalate	ND		5.0	1.8	ug/L		02/10/23 08:46	02/11/23 06:40	1
Di-n-octyl phthalate	ND		2.0	0.82	ug/L		02/10/23 08:46	02/11/23 06:40	1
Fluoranthene	ND		0.20	0.16	ug/L		02/10/23 08:46	02/11/23 06:40	1
Fluorene	ND		0.20	0.17	ug/L		02/10/23 08:46	02/11/23 06:40	1
Hexachlorobenzene	ND		0.20	0.16	ug/L		02/10/23 08:46	02/11/23 06:40	1
Hexachlorobutadiene	ND		1.0	0.54	ug/L		02/10/23 08:46	02/11/23 06:40	1
Hexachlorocyclopentadiene	ND		10	1.8	ug/L		02/10/23 08:46	02/11/23 06:40	1
Hexachloroethane	ND		1.0	0.40	ug/L		02/10/23 08:46	02/11/23 06:40	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.14	ug/L		02/10/23 08:46	02/11/23 06:40	1
Isophorone	ND		1.0	0.32	ug/L		02/10/23 08:46	02/11/23 06:40	1
N-Nitrosodi-n-propylamine	ND		1.0	0.25	ug/L		02/10/23 08:46	02/11/23 06:40	1
N-Nitrosodiphenylamine	ND		1.0	0.44	ug/L		02/10/23 08:46	02/11/23 06:40	1
Naphthalene	ND		0.20	0.11	ug/L		02/10/23 08:46	02/11/23 06:40	1
Nitrobenzene	ND		1.0	0.51	ug/L		02/10/23 08:46	02/11/23 06:40	1
Pentachlorophenol	ND		10	3.1	ug/L		02/10/23 08:46	02/11/23 06:40	1
Phenanthrene	ND		0.20	0.17	ug/L		02/10/23 08:46	02/11/23 06:40	1
Phenol	ND		1.0	0.13	ug/L		02/10/23 08:46	02/11/23 06:40	1
Pyrene	ND		0.20	0.18	ug/L		02/10/23 08:46	02/11/23 06:40	1
3 & 4 Methylphenol	ND		2.0	0.19	ug/L		02/10/23 08:46	02/11/23 06:40	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	106		46 - 137	02/10/23 08:46	02/11/23 06:40	1
Phenol-d5 (Surr)	57		26 - 120	02/10/23 08:46	02/11/23 06:40	1
Nitrobenzene-d5 (Surr)	87		24 - 120	02/10/23 08:46	02/11/23 06:40	1
2-Fluorophenol (Surr)	58		19 - 120	02/10/23 08:46	02/11/23 06:40	1
2-Fluorobiphenyl (Surr)	78		33 - 120	02/10/23 08:46	02/11/23 06:40	1
2,4,6-Tribromophenol (Surr)	62		10 - 120	02/10/23 08:46	02/11/23 06:40	1

Lab Sample ID: LCS 240-561604/19-A
Matrix: Water
Analysis Batch: 561702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
bis (2-chloroisopropyl) ether	32.0	24.7		ug/L		77	41 - 120

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: LCS 240-561604/19-A
Matrix: Water
Analysis Batch: 561702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,5-Trichlorophenol	32.0	29.1		ug/L		91	52 - 123
2,4,6-Trichlorophenol	32.0	27.4		ug/L		86	51 - 120
2,4-Dichlorophenol	32.0	28.4		ug/L		89	53 - 120
2,4-Dimethylphenol	32.0	23.8		ug/L		74	44 - 120
2,4-Dinitrophenol	64.0	46.8		ug/L		73	11 - 139
2,4-Dinitrotoluene	32.0	27.4		ug/L		86	58 - 125
2,6-Dinitrotoluene	32.0	27.6		ug/L		86	54 - 132
2-Chloronaphthalene	32.0	27.7		ug/L		87	51 - 120
2-Chlorophenol	32.0	28.5		ug/L		89	46 - 120
2-Methylnaphthalene	32.0	25.0		ug/L		78	49 - 120
2-Methylphenol	32.0	27.0		ug/L		84	45 - 120
2-Nitroaniline	32.0	30.8		ug/L		96	57 - 121
2-Nitrophenol	32.0	26.2		ug/L		82	51 - 120
3,3'-Dichlorobenzidine	64.0	53.0		ug/L		83	51 - 154
3-Nitroaniline	32.0	31.1		ug/L		97	47 - 123
4,6-Dinitro-2-methylphenol	64.0	56.3		ug/L		88	49 - 130
4-Bromophenyl phenyl ether	32.0	25.0		ug/L		78	58 - 125
4-Chloro-3-methylphenol	32.0	26.6		ug/L		83	52 - 120
4-Chloroaniline	32.0	3.74		ug/L		12	10 - 126
4-Chlorophenyl phenyl ether	32.0	25.2		ug/L		79	55 - 120
4-Nitroaniline	32.0	44.9	+	ug/L		140	56 - 127
4-Nitrophenol	64.0	46.1		ug/L		72	10 - 120
Acenaphthene	32.0	30.1		ug/L		94	54 - 120
Acenaphthylene	32.0	26.7		ug/L		83	50 - 120
Acetophenone	32.0	24.4		ug/L		76	47 - 120
Anthracene	32.0	25.5		ug/L		80	58 - 121
Atrazine	32.0	28.4		ug/L		89	68 - 126
Benzaldehyde	32.0	56.0	+	ug/L		175	26 - 147
Benzo[a]anthracene	32.0	28.5		ug/L		89	61 - 120
Benzo[a]pyrene	32.0	26.7		ug/L		83	56 - 131
Benzo[b]fluoranthene	32.0	25.5		ug/L		80	57 - 130
Benzo[g,h,i]perylene	32.0	26.9		ug/L		84	58 - 120
Benzo[k]fluoranthene	32.0	26.3		ug/L		82	53 - 137
Bis(2-chloroethoxy)methane	32.0	26.9		ug/L		84	49 - 120
Bis(2-chloroethyl)ether	32.0	24.5		ug/L		76	40 - 120
Bis(2-ethylhexyl) phthalate	32.0	27.3		ug/L		85	60 - 126
Butyl benzyl phthalate	32.0	28.9		ug/L		90	58 - 124
Caprolactam	32.0	6.97		ug/L		22	10 - 120
Carbazole	32.0	27.7		ug/L		87	60 - 130
Chrysene	32.0	28.6		ug/L		89	57 - 120
Dibenz(a,h)anthracene	32.0	29.0		ug/L		91	58 - 120
Dibenzofuran	32.0	25.1		ug/L		78	54 - 120
Diethyl phthalate	32.0	29.9		ug/L		94	55 - 120
Dimethyl phthalate	32.0	26.5		ug/L		83	49 - 125
Di-n-butyl phthalate	32.0	28.2		ug/L		88	59 - 130
Di-n-octyl phthalate	32.0	25.8		ug/L		81	57 - 126
Fluoranthene	32.0	26.4		ug/L		82	58 - 128
Fluorene	32.0	28.1		ug/L		88	55 - 120
Hexachlorobenzene	32.0	27.4		ug/L		86	55 - 120

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: LCS 240-561604/19-A
Matrix: Water
Analysis Batch: 561702

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorobutadiene	32.0	23.1		ug/L		72	41 - 120
Hexachlorocyclopentadiene	32.0	25.7		ug/L		80	15 - 120
Hexachloroethane	32.0	24.8		ug/L		77	39 - 120
Indeno[1,2,3-cd]pyrene	32.0	29.2		ug/L		91	59 - 122
Isophorone	32.0	26.6		ug/L		83	51 - 120
N-Nitrosodi-n-propylamine	32.0	26.2		ug/L		82	49 - 120
N-Nitrosodiphenylamine	32.0	26.0		ug/L		81	56 - 125
Naphthalene	32.0	23.7		ug/L		74	46 - 120
Nitrobenzene	32.0	27.2		ug/L		85	47 - 120
Pentachlorophenol	64.0	49.1		ug/L		77	19 - 132
Phenanthrene	32.0	24.5		ug/L		76	55 - 120
Phenol	32.0	21.4		ug/L		67	10 - 120
Pyrene	32.0	26.7		ug/L		83	59 - 120
3 & 4 Methylphenol	32.0	25.3		ug/L		79	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	95		46 - 137
Phenol-d5 (Surr)	69		26 - 120
Nitrobenzene-d5 (Surr)	100		24 - 120
2-Fluorophenol (Surr)	92		19 - 120
2-Fluorobiphenyl (Surr)	81		33 - 120
2,4,6-Tribromophenol (Surr)	79		10 - 120

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 240-561603/1-A
Matrix: Water
Analysis Batch: 561534

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561603

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	122	J	500	68	ug/L		02/10/23 08:41	02/10/23 10:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	78		52 - 121	02/10/23 08:41	02/10/23 10:10	1

Lab Sample ID: LCS 240-561603/2-A
Matrix: Water
Analysis Batch: 561536

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561603

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10 - C28]	2000	1550		ug/L		77	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	91		52 - 121

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-561653/2-A
Matrix: Water
Analysis Batch: 561721

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561653

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/10/23 14:00	02/11/23 08:47	1
Barium	ND		0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 08:47	1
Cadmium	ND		0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 08:47	1
Chromium	ND		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 08:47	1
Lead	ND		0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 08:47	1
Selenium	ND		0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 08:47	1
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 08:47	1

Lab Sample ID: LCS 240-561653/3-A
Matrix: Water
Analysis Batch: 561721

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561653

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	1.83		mg/L		92	50 - 150
Cadmium	1.00	1.01		mg/L		101	50 - 150
Chromium	1.00	0.924		mg/L		92	50 - 150
Lead	1.00	0.870		mg/L		87	50 - 150
Selenium	2.00	2.09		mg/L		105	50 - 150
Silver	0.100	0.101		mg/L		101	50 - 150

Lab Sample ID: LB 240-561562/1-B
Matrix: Water
Analysis Batch: 561721

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 561653

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		02/10/23 14:00	02/11/23 08:43	1
Barium	0.00205	J	0.50	0.0013	mg/L		02/10/23 14:00	02/11/23 08:43	1
Cadmium	ND		0.050	0.00020	mg/L		02/10/23 14:00	02/11/23 08:43	1
Chromium	ND		0.050	0.0040	mg/L		02/10/23 14:00	02/11/23 08:43	1
Lead	ND		0.050	0.0028	mg/L		02/10/23 14:00	02/11/23 08:43	1
Selenium	ND		0.050	0.0060	mg/L		02/10/23 14:00	02/11/23 08:43	1
Silver	ND		0.050	0.00062	mg/L		02/10/23 14:00	02/11/23 08:43	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-561655/2-A
Matrix: Water
Analysis Batch: 561714

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/10/23 14:00	02/10/23 16:09	1

Lab Sample ID: LCS 240-561655/3-A
Matrix: Water
Analysis Batch: 561714

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00540		mg/L		108	80 - 120

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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

Lab Sample ID: LB 240-561562/1-C
Matrix: Water
Analysis Batch: 561714

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 561655

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		02/10/23 14:00	02/10/23 16:07	1

Method: 1010B - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 240-561674/1
Matrix: Water
Analysis Batch: 561674

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ignitability (Flashpoint)	81.0	82.7		Fahrenheit		102	97 - 103

Lab Sample ID: 240-180173-1 DU
Matrix: Water
Analysis Batch: 561674

Client Sample ID: WC-01/2023-02-09/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ignitability (Flashpoint)	>200		>200		Degrees F		NC	20

Method: 2540D-2015 - Total Suspended Solids (Dried at 103-105°C)

Lab Sample ID: MB 240-561611/1
Matrix: Water
Analysis Batch: 561611

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.0	mg/L			02/10/23 09:07	1

Lab Sample ID: LCS 240-561611/2
Matrix: Water
Analysis Batch: 561611

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	66.2	60.5		mg/L		91	64 - 120

Lab Sample ID: 240-180173-1 DU
Matrix: Water
Analysis Batch: 561611

Client Sample ID: WC-01/2023-02-09/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	18000		26500	F3	mg/L		38	10

Method: 5310 C-2014 - Total Organic Carbon/Persulfate - Ultrav

Lab Sample ID: MB 240-561717/4
Matrix: Water
Analysis Batch: 561717

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.35	mg/L			02/10/23 16:21	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Method: 5310 C-2014 - Total Organic Carbon/Persulfate - Ultrav (Continued)

Lab Sample ID: LCS 240-561717/5
Matrix: Water
Analysis Batch: 561717

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	18.3	17.1		mg/L		93	85 - 115
TOC Result 1	18.3	17.4		mg/L		95	85 - 115
TOC Result 2	18.3	16.9		mg/L		92	85 - 115

Method: 9040C - pH

Lab Sample ID: LCS 240-561612/2
Matrix: Water
Analysis Batch: 561612

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

Lab Sample ID: 240-180173-1 DU
Matrix: Water
Analysis Batch: 561612

Client Sample ID: WC-01/2023-02-09/
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
corrosivity by pH	8.8	HF	8.8		SU		0.2	20

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

GC/MS VOA

Analysis Batch: 561615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	8260D	
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	8260D	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	8260D	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	8260D	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	8260D	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	8260D	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	8260D	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	8260D	
240-180173-6	TRIP BLANK	Total/NA	Water	8260D	
MB 240-561615/9	Method Blank	Total/NA	Water	8260D	
LCS 240-561615/11	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-561615/6	Lab Control Sample	Total/NA	Water	8260D	
240-180173-5 MS	WC-05/2023-02-09/	Total/NA	Water	8260D	
240-180173-5 MSD	WC-05/2023-02-09/	Total/NA	Water	8260D	

Analysis Batch: 561656

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	8260D	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	8260D	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	8260D	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	8260D	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	8260D	
MB 240-561656/8	Method Blank	Total/NA	Water	8260D	
LCS 240-561656/5	Lab Control Sample	Total/NA	Water	8260D	
240-180173-5 MS	WC-05/2023-02-09/	Total/NA	Water	8260D	
240-180173-5 MSD	WC-05/2023-02-09/	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 561604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	3510C LVI	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	3510C LVI	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	3510C LVI	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	3510C LVI	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	3510C LVI	
MB 240-561604/18-A	Method Blank	Total/NA	Water	3510C LVI	
LCS 240-561604/19-A	Lab Control Sample	Total/NA	Water	3510C LVI	

Analysis Batch: 561702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	8270E	561604
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	8270E	561604
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	8270E	561604
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	8270E	561604
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	8270E	561604
MB 240-561604/18-A	Method Blank	Total/NA	Water	8270E	561604
LCS 240-561604/19-A	Lab Control Sample	Total/NA	Water	8270E	561604

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

GC Semi VOA

Analysis Batch: 561534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	8015D	561603
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	8015D	561603
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	8015D	561603
MB 240-561603/1-A	Method Blank	Total/NA	Water	8015D	561603

Analysis Batch: 561536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	8015D	561603
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	8015D	561603
LCS 240-561603/2-A	Lab Control Sample	Total/NA	Water	8015D	561603

Prep Batch: 561603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	3511	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	3511	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	3511	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	3511	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	3511	
MB 240-561603/1-A	Method Blank	Total/NA	Water	3511	
LCS 240-561603/2-A	Lab Control Sample	Total/NA	Water	3511	

Metals

Leach Batch: 561562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	TCLP	Water	1311	
240-180173-2	WC-02/2023-02-09/	TCLP	Water	1311	
240-180173-3	WC-03/2023-02-09/	TCLP	Water	1311	
240-180173-4	WC-04/2023-02-09/	TCLP	Water	1311	
240-180173-5	WC-05/2023-02-09/	TCLP	Water	1311	
LB 240-561562/1-B	Method Blank	TCLP	Water	1311	
LB 240-561562/1-C	Method Blank	TCLP	Water	1311	

Prep Batch: 561653

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	TCLP	Water	3010A	561562
240-180173-2	WC-02/2023-02-09/	TCLP	Water	3010A	561562
240-180173-3	WC-03/2023-02-09/	TCLP	Water	3010A	561562
240-180173-4	WC-04/2023-02-09/	TCLP	Water	3010A	561562
240-180173-5	WC-05/2023-02-09/	TCLP	Water	3010A	561562
LB 240-561562/1-B	Method Blank	TCLP	Water	3010A	561562
MB 240-561653/2-A	Method Blank	Total/NA	Water	3010A	
LCS 240-561653/3-A	Lab Control Sample	Total/NA	Water	3010A	

Prep Batch: 561655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	TCLP	Water	7470A	561562
240-180173-2	WC-02/2023-02-09/	TCLP	Water	7470A	561562
240-180173-3	WC-03/2023-02-09/	TCLP	Water	7470A	561562
240-180173-4	WC-04/2023-02-09/	TCLP	Water	7470A	561562
240-180173-5	WC-05/2023-02-09/	TCLP	Water	7470A	561562

Eurofins Canton

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Metals (Continued)

Prep Batch: 561655 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 240-561562/1-C	Method Blank	TCLP	Water	7470A	561562
MB 240-561655/2-A	Method Blank	Total/NA	Water	7470A	
LCS 240-561655/3-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 561714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	TCLP	Water	7470A	561655
240-180173-2	WC-02/2023-02-09/	TCLP	Water	7470A	561655
240-180173-3	WC-03/2023-02-09/	TCLP	Water	7470A	561655
240-180173-4	WC-04/2023-02-09/	TCLP	Water	7470A	561655
240-180173-5	WC-05/2023-02-09/	TCLP	Water	7470A	561655
LB 240-561562/1-C	Method Blank	TCLP	Water	7470A	561655
MB 240-561655/2-A	Method Blank	Total/NA	Water	7470A	561655
LCS 240-561655/3-A	Lab Control Sample	Total/NA	Water	7470A	561655

Analysis Batch: 561721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	TCLP	Water	6010D	561653
240-180173-2	WC-02/2023-02-09/	TCLP	Water	6010D	561653
240-180173-3	WC-03/2023-02-09/	TCLP	Water	6010D	561653
240-180173-4	WC-04/2023-02-09/	TCLP	Water	6010D	561653
240-180173-5	WC-05/2023-02-09/	TCLP	Water	6010D	561653
LB 240-561562/1-B	Method Blank	TCLP	Water	6010D	561653
MB 240-561653/2-A	Method Blank	Total/NA	Water	6010D	561653
LCS 240-561653/3-A	Lab Control Sample	Total/NA	Water	6010D	561653

General Chemistry

Analysis Batch: 561611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	2540D-2015	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	2540D-2015	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	2540D-2015	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	2540D-2015	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	2540D-2015	
MB 240-561611/1	Method Blank	Total/NA	Water	2540D-2015	
LCS 240-561611/2	Lab Control Sample	Total/NA	Water	2540D-2015	
240-180173-1 DU	WC-01/2023-02-09/	Total/NA	Water	2540D-2015	

Analysis Batch: 561612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	9040C	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	9040C	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	9040C	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	9040C	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	9040C	
LCS 240-561612/2	Lab Control Sample	Total/NA	Water	9040C	
240-180173-1 DU	WC-01/2023-02-09/	Total/NA	Water	9040C	

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

General Chemistry

Analysis Batch: 561674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	1010B	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	1010B	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	1010B	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	1010B	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	1010B	
LCS 240-561674/1	Lab Control Sample	Total/NA	Water	1010B	
240-180173-1 DU	WC-01/2023-02-09/	Total/NA	Water	1010B	

Analysis Batch: 561717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-1	WC-01/2023-02-09/	Total/NA	Water	5310 C-2014	
240-180173-2	WC-02/2023-02-09/	Total/NA	Water	5310 C-2014	
240-180173-3	WC-03/2023-02-09/	Total/NA	Water	5310 C-2014	
240-180173-4	WC-04/2023-02-09/	Total/NA	Water	5310 C-2014	
240-180173-5	WC-05/2023-02-09/	Total/NA	Water	5310 C-2014	
MB 240-561717/4	Method Blank	Total/NA	Water	5310 C-2014	
LCS 240-561717/5	Lab Control Sample	Total/NA	Water	5310 C-2014	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-01/2023-02-09/
Date Collected: 02/09/23 15:50
Date Received: 02/10/23 07:00

Lab Sample ID: 240-180173-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		2	561656	SAM	EET CAN	02/10/23 21:23
Total/NA	Analysis	8260D		2500	561615	SAM	EET CAN	02/10/23 16:45
Total/NA	Analysis	8260D		5000	561615	SAM	EET CAN	02/10/23 20:18
Total/NA	Prep	3510C LVI			561604	MDH	EET CAN	02/10/23 08:46
Total/NA	Analysis	8270E		100	561702	TMH	EET CAN	02/11/23 08:16
Total/NA	Prep	3511			561603	LKG	EET CAN	02/10/23 08:41
Total/NA	Analysis	8015D		200	561534	EPF	EET CAN	02/10/23 11:27
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	3010A			561653	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	6010D		1	561721	KLC	EET CAN	02/11/23 09:36
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	7470A			561655	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	7470A		1	561714	AJC	EET CAN	02/10/23 16:21
Total/NA	Analysis	1010B		1	561674	JWW	EET CAN	02/10/23 13:30
Total/NA	Analysis	2540D-2015		1	561611	MED	EET CAN	02/10/23 09:07
Total/NA	Analysis	5310 C-2014		200	561717	JMB	EET CAN	02/10/23 16:46
Total/NA	Analysis	9040C		1	561612	BLW	EET CAN	02/10/23 09:36

Client Sample ID: WC-02/2023-02-09/
Date Collected: 02/09/23 16:30
Date Received: 02/10/23 07:00

Lab Sample ID: 240-180173-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		2	561656	SAM	EET CAN	02/10/23 16:45
Total/NA	Analysis	8260D		1000	561615	SAM	EET CAN	02/10/23 15:34
Total/NA	Analysis	8260D		5000	561615	SAM	EET CAN	02/10/23 18:43
Total/NA	Prep	3510C LVI			561604	MDH	EET CAN	02/10/23 08:46
Total/NA	Analysis	8270E		100	561702	TMH	EET CAN	02/11/23 08:39
Total/NA	Prep	3511			561603	LKG	EET CAN	02/10/23 08:41
Total/NA	Analysis	8015D		50	561534	EPF	EET CAN	02/10/23 11:55
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	3010A			561653	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	6010D		1	561721	KLC	EET CAN	02/11/23 09:40
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	7470A			561655	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	7470A		1	561714	AJC	EET CAN	02/10/23 16:23
Total/NA	Analysis	1010B		1	561674	JWW	EET CAN	02/10/23 14:28
Total/NA	Analysis	2540D-2015		1	561611	MED	EET CAN	02/10/23 09:07
Total/NA	Analysis	5310 C-2014		20	561717	JMB	EET CAN	02/10/23 16:59
Total/NA	Analysis	9040C		1	561612	BLW	EET CAN	02/10/23 10:03

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-03/2023-02-09/

Lab Sample ID: 240-180173-3

Date Collected: 02/09/23 18:20

Matrix: Water

Date Received: 02/10/23 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		5	561656	SAM	EET CAN	02/10/23 15:29
Total/NA	Analysis	8260D		25	561615	SAM	EET CAN	02/10/23 15:10
Total/NA	Prep	3510C LVI			561604	MDH	EET CAN	02/10/23 08:46
Total/NA	Analysis	8270E		50	561702	TMH	EET CAN	02/11/23 07:52
Total/NA	Prep	3511			561603	LKG	EET CAN	02/10/23 08:41
Total/NA	Analysis	8015D		5	561534	EPF	EET CAN	02/10/23 12:22
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	3010A			561653	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	6010D		1	561721	KLC	EET CAN	02/11/23 09:44
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	7470A			561655	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	7470A		1	561714	AJC	EET CAN	02/10/23 16:25
Total/NA	Analysis	1010B		1	561674	JWW	EET CAN	02/10/23 15:10
Total/NA	Analysis	2540D-2015		1	561611	MED	EET CAN	02/10/23 09:07
Total/NA	Analysis	5310 C-2014		50	561717	JMB	EET CAN	02/10/23 17:11
Total/NA	Analysis	9040C		1	561612	BLW	EET CAN	02/10/23 10:16

Client Sample ID: WC-04/2023-02-09/

Lab Sample ID: 240-180173-4

Date Collected: 02/09/23 18:30

Matrix: Water

Date Received: 02/10/23 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		2	561656	SAM	EET CAN	02/10/23 18:01
Total/NA	Analysis	8260D		1000	561615	SAM	EET CAN	02/10/23 19:54
Total/NA	Prep	3510C LVI			561604	MDH	EET CAN	02/10/23 08:46
Total/NA	Analysis	8270E		100	561702	TMH	EET CAN	02/11/23 09:02
Total/NA	Prep	3511			561603	LKG	EET CAN	02/10/23 08:41
Total/NA	Analysis	8015D		500	561536	EPF	EET CAN	02/10/23 11:55
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	3010A			561653	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	6010D		1	561721	KLC	EET CAN	02/11/23 09:48
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	7470A			561655	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	7470A		1	561714	AJC	EET CAN	02/10/23 16:32
Total/NA	Analysis	1010B		1	561674	JWW	EET CAN	02/10/23 15:47
Total/NA	Analysis	2540D-2015		1	561611	MED	EET CAN	02/10/23 09:07
Total/NA	Analysis	5310 C-2014		20	561717	JMB	EET CAN	02/10/23 17:24
Total/NA	Analysis	9040C		1	561612	BLW	EET CAN	02/10/23 10:30

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

Client Sample ID: WC-05/2023-02-09/

Lab Sample ID: 240-180173-5

Date Collected: 02/09/23 18:40

Matrix: Water

Date Received: 02/10/23 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		2	561656	SAM	EET CAN	02/10/23 19:17
Total/NA	Analysis	8260D		1000	561615	SAM	EET CAN	02/10/23 16:21
Total/NA	Analysis	8260D		5000	561615	SAM	EET CAN	02/10/23 19:07
Total/NA	Prep	3510C LVI			561604	MDH	EET CAN	02/10/23 08:46
Total/NA	Analysis	8270E		20	561702	TMH	EET CAN	02/11/23 07:29
Total/NA	Prep	3511			561603	LKG	EET CAN	02/10/23 08:41
Total/NA	Analysis	8015D		1	561536	EPF	EET CAN	02/10/23 11:27
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	3010A			561653	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	6010D		1	561721	KLC	EET CAN	02/11/23 09:53
TCLP	Leach	1311			561562	KLE	EET CAN	02/10/23 09:00 - 02/10/23 09:00 ¹
TCLP	Prep	7470A			561655	MRL	EET CAN	02/10/23 14:00
TCLP	Analysis	7470A		1	561714	AJC	EET CAN	02/10/23 16:34
Total/NA	Analysis	1010B		1	561674	JWW	EET CAN	02/10/23 16:12
Total/NA	Analysis	2540D-2015		1	561611	MED	EET CAN	02/10/23 09:07
Total/NA	Analysis	5310 C-2014		20	561717	JMB	EET CAN	02/10/23 17:36
Total/NA	Analysis	9040C		1	561612	BLW	EET CAN	02/10/23 10:43

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-180173-6

Date Collected: 02/09/23 00:00

Matrix: Water

Date Received: 02/10/23 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	561615	SAM	EET CAN	02/10/23 14:47

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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-1

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: <u>Adam Svensson</u> Phone: <u>716-909-9063</u> Company: <u>ARCADIS U.S., Inc.</u>		Lab PM: <u>DelMonico, Michael</u> E-Mail: <u>Michael.DelMonico@eurofins.com</u>		Carrier Tracking No(s): State of Origin: <u>OH</u>		COC No: <u>240-104718-37543.1</u> Page: <u>Page 1 of 1</u> Job #:			
Due Date Requested: TAT Requested (days): <u>1-day</u> Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: <u>304-396-9424</u> Purchase Order not required WO #: <u>24030745</u> Project #: <u>SSOWH:</u>		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 8260 - TCL OLM03.1/4.2 Volatile Analyte List <input checked="" type="checkbox"/> 8270E - OLM03.1/4.2 Semivolatile Analyte List <input checked="" type="checkbox"/> 6010D, 7470A <input checked="" type="checkbox"/> 1010A - Flashpoint <input checked="" type="checkbox"/> 9040C - pH <input checked="" type="checkbox"/> 2540D - Solids, Total Suspended (TSS) <input checked="" type="checkbox"/> 5310C - TOC <input checked="" type="checkbox"/> 8015D_DRO - Diesel Range Organics [C10-C28] <input checked="" type="checkbox"/>		Analysis Requested		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		Special Instructions/Note: Total Number of containers: <u>15</u>	
Sample Identification Sample Date: <u>2/9/23</u> Sample Time: <u>1550</u> Sample Type (C=Comp, G=grab): <u>G</u> Matrix (W=water, S=solid, O=wastefoil, BT=Resin, AA=): <u>Water</u>		Sample Date: <u>2/9/23</u> Sample Time: <u>1630</u> Sample Type (C=Comp, G=grab): <u>G</u> Matrix (W=water, S=solid, O=wastefoil, BT=Resin, AA=): <u>Water</u>		Sample Date: <u>2/9/23</u> Sample Time: <u>1820</u> Sample Type (C=Comp, G=grab): <u>G</u> Matrix (W=water, S=solid, O=wastefoil, BT=Resin, AA=): <u>Water</u>		Sample Date: <u>2/9/23</u> Sample Time: <u>1830</u> Sample Type (C=Comp, G=grab): <u>G</u> Matrix (W=water, S=solid, O=wastefoil, BT=Resin, AA=): <u>Water</u>		Sample Date: <u>2/9/23</u> Sample Time: <u>1840</u> Sample Type (C=Comp, G=grab): <u>G</u> Matrix (W=water, S=solid, O=wastefoil, BT=Resin, AA=): <u>Water</u>	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input checked="" type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological									
Deliverable Requested: I, II, III, IV, Other (specify)									
Empty Kit Relinquished by:									
Relinquished by: <u>Adam Svensson / Arcadis</u> Date/Time: <u>2/9/23 / 1910</u>		Relinquished by: <u>Debra Lee</u> Date/Time: <u>2-9-23 2045</u>		Relinquished by: <u>Debra Lee</u> Date/Time: <u>2-10-23 0700</u>		Relinquished by: <u>Debra Lee</u> Date/Time:			
Company: <u>Arcadis</u>		Company: <u>EETNC</u>		Company: <u>EETNC</u>		Company:			
Custody Seal No.: <u>Yes</u> <input type="checkbox"/> <u>No</u> <input type="checkbox"/>		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:			



Barberton Facility

Client Arcadis Site Name _____

Cooler unpacked by: JWR

Cooler Received on 2-10-23 Opened on 2-10-23

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. _____ °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 _____ 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

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# HC203064-291590
- 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 # 01042010 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: _____

A TB was included but is not on the COC, logged last. JWR 2-10-23

Sample coolers were stored in cold storage and on ice overnight JWR 2-10-23

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: _____

Cooler Description (Circle)					IR Gun # (Circle)			Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
EC	Client	Box	Other		IR-13	IR-16	IR-17	2.7	2.5	Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other		IR-13	IR-16	IR-17	1.4	1.2	Water	None	
EC	Client	Box	Other		IR-13	IR-16	IR-17	4.0	3.8	Wet Ice	Blue Ice	Dry Ice
EC	Client	Box	Other		IR-13	IR-16	IR-17	1.4	1.2	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	
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



ANALYTICAL REPORT

PREPARED FOR

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

Generated 2/28/2023 2:55:01 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180852-1

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
2/28/2023 2:55:01 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: 240-180852-1

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
S1-	Surrogate recovery exceeds control limits, low 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.
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: 240-180852-1

Job ID: 240-180852-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-180852-1

Comments

No additional comments.

Receipt

The samples were received on 2/24/2023 1:19 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 2.6° C.

GC/MS VOA

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

GC/MS Semi VOA

Method 8270E: The RL's for Benzaldehyde and Hexachlorobenzene are below the low point of the calibration. The RL's are supported by the MDL.

WC-257225-PLEASANT (240-180852-1), WC-251068-BLUE BLDG EAST (240-180852-2) and WC-257516- GAS STATION (240-180852-3)

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-563439 recovered above the upper control limit for Atrazine. 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-257225-PLEASANT (240-180852-1), WC-251068-BLUE BLDG EAST (240-180852-2) and WC-257516- GAS STATION (240-180852-3).

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

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

Organic Prep

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-563384 and 240-563384.

No additional analytical or quality issues were noted, other than those described above or 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: 240-180852-1

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
1010B	Ignitability, Pensky-Martens Closed-Cup Method	SW846	EET CAN
1311	TCLP Extraction	SW846	EET CAN
3010A	Preparation, Total Metals	SW846	EET CAN
3510C LVI	Liquid-Liquid Extraction (Separatory Funnel) LVI	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

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: 240-180852-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180852-1	WC-257225-PLEASANT	Water	02/23/23 17:58	02/24/23 13:19
240-180852-2	WC-251068-BLUE BLDG EAST	Water	02/23/23 17:40	02/24/23 13:19
240-180852-3	WC-257516- GAS STATION	Water	02/23/23 17:45	02/24/23 13:19
240-180852-4	NS-TB022323	Water	02/23/23 00:00	02/24/23 13:19

- 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: 240-180852-1

Client Sample ID: WC-257225-PLEASANT

Lab Sample ID: 240-180852-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0019	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.011		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.00067	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
Barium	0.035	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00024	J	0.050	0.00020	mg/L	1		6010D	TCLP
Mercury	0.00023	J	0.0020	0.00013	mg/L	1		7470A	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA

Client Sample ID: WC-251068-BLUE BLDG EAST

Lab Sample ID: 240-180852-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.0066	J	0.010	0.0054	mg/L	1		8260D	Total/NA
Toluene	0.00065	J	0.0010	0.00044	mg/L	1		8260D	Total/NA
Xylenes, Total	0.0035		0.0020	0.00042	mg/L	1		8260D	Total/NA
Barium	0.061	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Mercury	0.00013	J	0.0020	0.00013	mg/L	1		7470A	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.00095	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Toluene	0.0017		0.0010	0.00044	mg/L	1		8260D	Total/NA
Xylenes, Total	0.0081		0.0020	0.00042	mg/L	1		8260D	Total/NA
Barium	0.036	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00020	J	0.050	0.00020	mg/L	1		6010D	TCLP
Mercury	0.00013	J	0.0020	0.00013	mg/L	1		7470A	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA

Client Sample ID: NS-TB022323

Lab Sample ID: 240-180852-4

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: 240-180852-1

Client Sample ID: WC-257225-PLEASANT

Lab Sample ID: 240-180852-1

Date Collected: 02/23/23 17:58

Matrix: Water

Date Received: 02/24/23 13:19

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			02/26/23 16:48	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			02/26/23 16:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			02/26/23 16:48	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			02/26/23 16:48	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			02/26/23 16:48	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			02/26/23 16:48	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			02/26/23 16:48	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			02/26/23 16:48	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			02/26/23 16:48	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			02/26/23 16:48	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/26/23 16:48	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			02/26/23 16:48	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			02/26/23 16:48	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			02/26/23 16:48	1
2-Butanone (MEK)	0.0019	J	0.010	0.0012	mg/L			02/26/23 16:48	1
2-Hexanone	ND		0.010	0.0011	mg/L			02/26/23 16:48	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			02/26/23 16:48	1
Acetone	0.011		0.010	0.0054	mg/L			02/26/23 16:48	1
Benzene	0.00067	J	0.0010	0.00042	mg/L			02/26/23 16:48	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			02/26/23 16:48	1
Bromoform	ND		0.0010	0.00076	mg/L			02/26/23 16:48	1
Bromomethane	ND		0.0010	0.00042	mg/L			02/26/23 16:48	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			02/26/23 16:48	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			02/26/23 16:48	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/26/23 16:48	1
Chloroethane	ND		0.0010	0.00083	mg/L			02/26/23 16:48	1
Chloroform	ND		0.0010	0.00047	mg/L			02/26/23 16:48	1
Chloromethane	ND		0.0010	0.00063	mg/L			02/26/23 16:48	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			02/26/23 16:48	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			02/26/23 16:48	1
Cyclohexane	ND		0.0010	0.00048	mg/L			02/26/23 16:48	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			02/26/23 16:48	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			02/26/23 16:48	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			02/26/23 16:48	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			02/26/23 16:48	1
Methyl acetate	ND		0.010	0.0017	mg/L			02/26/23 16:48	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			02/26/23 16:48	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			02/26/23 16:48	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			02/26/23 16:48	1
Styrene	ND		0.0010	0.00045	mg/L			02/26/23 16:48	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			02/26/23 16:48	1
Toluene	ND		0.0010	0.00044	mg/L			02/26/23 16:48	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			02/26/23 16:48	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			02/26/23 16:48	1
Trichloroethene	ND		0.0010	0.00044	mg/L			02/26/23 16:48	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			02/26/23 16:48	1
Vinyl chloride	0.0037		0.0010	0.00045	mg/L			02/26/23 16:48	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			02/26/23 16:48	1

Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-257225-PLEASANT

Lab Sample ID: 240-180852-1

Date Collected: 02/23/23 17:58

Matrix: Water

Date Received: 02/24/23 13:19

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		78 - 122		02/26/23 16:48	1
Toluene-d8 (Surr)	95		78 - 122		02/27/23 14:39	10
Dibromofluoromethane (Surr)	117		73 - 120		02/26/23 16:48	1
Dibromofluoromethane (Surr)	104		73 - 120		02/27/23 14:39	10
4-Bromofluorobenzene (Surr)	117		56 - 136		02/26/23 16:48	1
4-Bromofluorobenzene (Surr)	94		56 - 136		02/27/23 14:39	10
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		02/26/23 16:48	1
1,2-Dichloroethane-d4 (Surr)	96		62 - 137		02/27/23 14:39	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.5	1.2	mg/L		02/24/23 17:45	02/26/23 09:03	2500
bis (2-chloroisopropyl) ether	ND		2.5	1.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,4,5-Trichlorophenol	ND		13	5.0	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,4,6-Trichlorophenol	ND		13	4.5	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,4-Dichlorophenol	ND		5.0	0.66	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,4-Dimethylphenol	ND		5.0	1.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,4-Dinitrophenol	ND		25	16	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,4-Dinitrotoluene	ND		13	5.2	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2,6-Dinitrotoluene	ND		13	5.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2-Chloronaphthalene	ND		2.5	1.2	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2-Chlorophenol	ND		2.5	0.68	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2-Methylnaphthalene	ND		0.50	0.28	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2-Methylphenol	ND		2.5	0.52	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2-Nitroaniline	ND		5.0	1.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
2-Nitrophenol	ND		5.0	1.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
3,3'-Dichlorobenzidine	ND		13	2.9	mg/L		02/24/23 17:45	02/26/23 09:03	2500
3-Nitroaniline	ND		5.0	1.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4,6-Dinitro-2-methylphenol	ND		13	7.1	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4-Bromophenyl phenyl ether	ND		5.0	1.2	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4-Chloro-3-methylphenol	ND		5.0	0.74	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4-Chloroaniline	ND		5.0	0.79	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4-Chlorophenyl phenyl ether	ND		5.0	1.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4-Nitroaniline	ND		5.0	2.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
4-Nitrophenol	ND		25	5.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Acenaphthene	ND		0.50	0.43	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Acenaphthylene	ND		0.50	0.31	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Acetophenone	ND		2.5	0.92	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Anthracene	ND		0.50	0.34	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Atrazine	ND		5.0	2.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Benzaldehyde	ND		5.0	1.9	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Benzo[a]anthracene	ND		0.50	0.43	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Benzo[a]pyrene	ND		0.50	0.43	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Benzo[b]fluoranthene	ND		0.50	0.39	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Benzo[g,h,i]perylene	ND		0.50	0.45	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Benzo[k]fluoranthene	ND		0.50	0.35	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Bis(2-chloroethoxy)methane	ND		2.5	1.1	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Bis(2-chloroethyl)ether	ND		2.5	1.0	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Bis(2-ethylhexyl) phthalate	ND		13	5.6	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Butyl benzyl phthalate	ND		5.0	1.7	mg/L		02/24/23 17:45	02/26/23 09:03	2500

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-257225-PLEASANT

Lab Sample ID: 240-180852-1

Date Collected: 02/23/23 17:58

Matrix: Water

Date Received: 02/24/23 13:19

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		13	2.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Carbazole	ND		2.5	1.2	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Chrysene	ND		0.50	0.47	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Dibenz(a,h)anthracene	ND		0.50	0.38	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Dibenzofuran	ND		2.5	1.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Diethyl phthalate	ND		13	9.5	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Dimethyl phthalate	ND		5.0	1.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Di-n-butyl phthalate	ND		13	4.5	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Di-n-octyl phthalate	ND		5.0	2.1	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Fluoranthene	ND		0.50	0.40	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Fluorene	ND		0.50	0.42	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Hexachlorobenzene	ND		0.50	0.40	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Hexachlorobutadiene	ND		2.5	1.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Hexachlorocyclopentadiene	ND		25	4.4	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Hexachloroethane	ND		2.5	0.99	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Indeno[1,2,3-cd]pyrene	ND		0.50	0.34	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Isophorone	ND		2.5	0.81	mg/L		02/24/23 17:45	02/26/23 09:03	2500
N-Nitrosodi-n-propylamine	ND		2.5	0.63	mg/L		02/24/23 17:45	02/26/23 09:03	2500
N-Nitrosodiphenylamine	ND		2.5	1.1	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Naphthalene	ND		0.50	0.27	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Nitrobenzene	ND		2.5	1.3	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Pentachlorophenol	ND		25	7.8	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Phenanthrene	ND		0.50	0.42	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Phenol	ND		2.5	0.32	mg/L		02/24/23 17:45	02/26/23 09:03	2500
Pyrene	ND		0.50	0.44	mg/L		02/24/23 17:45	02/26/23 09:03	2500
3 & 4 Methylphenol	ND		5.0	0.48	mg/L		02/24/23 17:45	02/26/23 09:03	2500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/24/23 17:45	02/26/23 09:03	2500
Phenol-d5 (Surr)	0	S1-	26 - 120	02/24/23 17:45	02/26/23 09:03	2500
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	02/24/23 17:45	02/26/23 09:03	2500
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/24/23 17:45	02/26/23 09:03	2500
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	02/24/23 17:45	02/26/23 09:03	2500
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/24/23 17:45	02/26/23 09:03	2500

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 11:29	1
Barium	0.035	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:29	1
Cadmium	0.00024	J	0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:29	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:29	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:29	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:29	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00023	J	0.0020	0.00013	mg/L		02/24/23 14:00	02/27/23 17:58	1

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-257225-PLEASANT

Lab Sample ID: 240-180852-1

Date Collected: 02/23/23 17:58

Matrix: Water

Date Received: 02/24/23 13:19

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/28/23 11:38	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: 240-180852-1

Client Sample ID: WC-251068-BLUE BLDG EAST

Lab Sample ID: 240-180852-2

Date Collected: 02/23/23 17:40

Matrix: Water

Date Received: 02/24/23 13:19

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			02/27/23 19:51	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			02/27/23 19:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			02/27/23 19:51	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			02/27/23 19:51	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			02/27/23 19:51	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			02/27/23 19:51	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			02/27/23 19:51	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			02/27/23 19:51	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			02/27/23 19:51	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			02/27/23 19:51	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/27/23 19:51	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			02/27/23 19:51	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			02/27/23 19:51	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			02/27/23 19:51	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			02/27/23 19:51	1
2-Hexanone	ND		0.010	0.0011	mg/L			02/27/23 19:51	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			02/27/23 19:51	1
Acetone	0.0066	J	0.010	0.0054	mg/L			02/27/23 19:51	1
Benzene	ND		0.0010	0.00042	mg/L			02/27/23 19:51	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			02/27/23 19:51	1
Bromoform	ND		0.0010	0.00076	mg/L			02/27/23 19:51	1
Bromomethane	ND		0.0010	0.00042	mg/L			02/27/23 19:51	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			02/27/23 19:51	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			02/27/23 19:51	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/27/23 19:51	1
Chloroethane	ND		0.0010	0.00083	mg/L			02/27/23 19:51	1
Chloroform	ND		0.0010	0.00047	mg/L			02/27/23 19:51	1
Chloromethane	ND		0.0010	0.00063	mg/L			02/27/23 19:51	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			02/27/23 19:51	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			02/27/23 19:51	1
Cyclohexane	ND		0.0010	0.00048	mg/L			02/27/23 19:51	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			02/27/23 19:51	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			02/27/23 19:51	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			02/27/23 19:51	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			02/27/23 19:51	1
Methyl acetate	ND		0.010	0.0017	mg/L			02/27/23 19:51	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			02/27/23 19:51	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			02/27/23 19:51	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			02/27/23 19:51	1
Styrene	ND		0.0010	0.00045	mg/L			02/27/23 19:51	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			02/27/23 19:51	1
Toluene	0.00065	J	0.0010	0.00044	mg/L			02/27/23 19:51	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			02/27/23 19:51	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			02/27/23 19:51	1
Trichloroethene	ND		0.0010	0.00044	mg/L			02/27/23 19:51	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			02/27/23 19:51	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			02/27/23 19:51	1
Xylenes, Total	0.0035		0.0020	0.00042	mg/L			02/27/23 19:51	1

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-251068-BLUE BLDG EAST

Lab Sample ID: 240-180852-2

Date Collected: 02/23/23 17:40

Matrix: Water

Date Received: 02/24/23 13:19

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		78 - 122		02/26/23 20:46	4
Toluene-d8 (Surr)	97		78 - 122		02/27/23 15:28	40
Toluene-d8 (Surr)	95		78 - 122		02/27/23 19:51	1
Dibromofluoromethane (Surr)	110		73 - 120		02/26/23 20:46	4
Dibromofluoromethane (Surr)	108		73 - 120		02/27/23 15:28	40
Dibromofluoromethane (Surr)	107		73 - 120		02/27/23 19:51	1
4-Bromofluorobenzene (Surr)	107		56 - 136		02/26/23 20:46	4
4-Bromofluorobenzene (Surr)	99		56 - 136		02/27/23 15:28	40
4-Bromofluorobenzene (Surr)	109		56 - 136		02/27/23 19:51	1
1,2-Dichloroethane-d4 (Surr)	103		62 - 137		02/26/23 20:46	4
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		02/27/23 15:28	40
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		02/27/23 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		2.5	1.2	mg/L		02/24/23 17:45	02/26/23 09:26	2500
bis (2-chloroisopropyl) ether	ND		2.5	1.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,4,5-Trichlorophenol	ND		13	5.0	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,4,6-Trichlorophenol	ND		13	4.5	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,4-Dichlorophenol	ND		5.0	0.66	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,4-Dimethylphenol	ND		5.0	1.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,4-Dinitrophenol	ND		25	16	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,4-Dinitrotoluene	ND		13	5.2	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2,6-Dinitrotoluene	ND		13	5.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2-Chloronaphthalene	ND		2.5	1.2	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2-Chlorophenol	ND		2.5	0.68	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2-Methylnaphthalene	ND		0.50	0.28	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2-Methylphenol	ND		2.5	0.52	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2-Nitroaniline	ND		5.0	1.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
2-Nitrophenol	ND		5.0	1.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
3,3'-Dichlorobenzidine	ND		13	2.9	mg/L		02/24/23 17:45	02/26/23 09:26	2500
3-Nitroaniline	ND		5.0	1.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4,6-Dinitro-2-methylphenol	ND		13	7.1	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4-Bromophenyl phenyl ether	ND		5.0	1.2	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4-Chloro-3-methylphenol	ND		5.0	0.74	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4-Chloroaniline	ND		5.0	0.79	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4-Chlorophenyl phenyl ether	ND		5.0	1.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4-Nitroaniline	ND		5.0	2.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
4-Nitrophenol	ND		25	5.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Acenaphthene	ND		0.50	0.43	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Acenaphthylene	ND		0.50	0.31	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Acetophenone	ND		2.5	0.92	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Anthracene	ND		0.50	0.34	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Atrazine	ND		5.0	2.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Benzaldehyde	ND		5.0	1.9	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Benzo[a]anthracene	ND		0.50	0.43	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Benzo[a]pyrene	ND		0.50	0.43	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Benzo[b]fluoranthene	ND		0.50	0.39	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Benzo[g,h,i]perylene	ND		0.50	0.45	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Benzo[k]fluoranthene	ND		0.50	0.35	mg/L		02/24/23 17:45	02/26/23 09:26	2500

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-251068-BLUE BLDG EAST

Lab Sample ID: 240-180852-2

Date Collected: 02/23/23 17:40

Matrix: Water

Date Received: 02/24/23 13:19

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	1.1	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Bis(2-chloroethyl)ether	ND		2.5	1.0	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Bis(2-ethylhexyl) phthalate	ND		13	5.6	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Butyl benzyl phthalate	ND		5.0	1.7	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Caprolactam	ND		13	2.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Carbazole	ND		2.5	1.2	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Chrysene	ND		0.50	0.47	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Dibenz(a,h)anthracene	ND		0.50	0.38	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Dibenzofuran	ND		2.5	1.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Diethyl phthalate	ND		13	9.5	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Dimethyl phthalate	ND		5.0	1.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Di-n-butyl phthalate	ND		13	4.5	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Di-n-octyl phthalate	ND		5.0	2.1	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Fluoranthene	ND		0.50	0.40	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Fluorene	ND		0.50	0.42	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Hexachlorobenzene	ND		0.50	0.40	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Hexachlorobutadiene	ND		2.5	1.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Hexachlorocyclopentadiene	ND		25	4.4	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Hexachloroethane	ND		2.5	0.99	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Indeno[1,2,3-cd]pyrene	ND		0.50	0.34	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Isophorone	ND		2.5	0.81	mg/L		02/24/23 17:45	02/26/23 09:26	2500
N-Nitrosodi-n-propylamine	ND		2.5	0.63	mg/L		02/24/23 17:45	02/26/23 09:26	2500
N-Nitrosodiphenylamine	ND		2.5	1.1	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Naphthalene	ND		0.50	0.27	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Nitrobenzene	ND		2.5	1.3	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Pentachlorophenol	ND		25	7.8	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Phenanthrene	ND		0.50	0.42	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Phenol	ND		2.5	0.32	mg/L		02/24/23 17:45	02/26/23 09:26	2500
Pyrene	ND		0.50	0.44	mg/L		02/24/23 17:45	02/26/23 09:26	2500
3 & 4 Methylphenol	ND		5.0	0.48	mg/L		02/24/23 17:45	02/26/23 09:26	2500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	02/24/23 17:45	02/26/23 09:26	2500
Phenol-d5 (Surr)	0	S1-	26 - 120	02/24/23 17:45	02/26/23 09:26	2500
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	02/24/23 17:45	02/26/23 09:26	2500
2-Fluorophenol (Surr)	0	S1-	19 - 120	02/24/23 17:45	02/26/23 09:26	2500
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	02/24/23 17:45	02/26/23 09:26	2500
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	02/24/23 17:45	02/26/23 09:26	2500

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 11:33	1
Barium	0.061	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:33	1
Cadmium	ND		0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:33	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:33	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:33	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:33	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:33	1

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-251068-BLUE BLDG EAST

Lab Sample ID: 240-180852-2

Date Collected: 02/23/23 17:40

Matrix: Water

Date Received: 02/24/23 13:19

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		02/24/23 14:00	02/27/23 18:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/28/23 12:15	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: 240-180852-1

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Date Collected: 02/23/23 17:45

Matrix: Water

Date Received: 02/24/23 13:19

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			02/27/23 20:38	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			02/27/23 20:38	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			02/27/23 20:38	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			02/27/23 20:38	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			02/27/23 20:38	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			02/27/23 20:38	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			02/27/23 20:38	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			02/27/23 20:38	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			02/27/23 20:38	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			02/27/23 20:38	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/27/23 20:38	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			02/27/23 20:38	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			02/27/23 20:38	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			02/27/23 20:38	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			02/27/23 20:38	1
2-Hexanone	ND		0.010	0.0011	mg/L			02/27/23 20:38	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			02/27/23 20:38	1
Acetone	ND		0.010	0.0054	mg/L			02/27/23 20:38	1
Benzene	ND		0.0010	0.00042	mg/L			02/27/23 20:38	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			02/27/23 20:38	1
Bromoform	ND		0.0010	0.00076	mg/L			02/27/23 20:38	1
Bromomethane	ND		0.0010	0.00042	mg/L			02/27/23 20:38	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			02/27/23 20:38	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			02/27/23 20:38	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/27/23 20:38	1
Chloroethane	ND		0.0010	0.00083	mg/L			02/27/23 20:38	1
Chloroform	ND		0.0010	0.00047	mg/L			02/27/23 20:38	1
Chloromethane	ND		0.0010	0.00063	mg/L			02/27/23 20:38	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			02/27/23 20:38	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			02/27/23 20:38	1
Cyclohexane	ND		0.0010	0.00048	mg/L			02/27/23 20:38	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			02/27/23 20:38	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			02/27/23 20:38	1
Ethylbenzene	0.00095	J	0.0010	0.00042	mg/L			02/27/23 20:38	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			02/27/23 20:38	1
Methyl acetate	ND		0.010	0.0017	mg/L			02/27/23 20:38	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			02/27/23 20:38	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			02/27/23 20:38	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			02/27/23 20:38	1
Styrene	ND		0.0010	0.00045	mg/L			02/27/23 20:38	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			02/27/23 20:38	1
Toluene	0.0017		0.0010	0.00044	mg/L			02/27/23 20:38	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			02/27/23 20:38	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			02/27/23 20:38	1
Trichloroethene	ND		0.0010	0.00044	mg/L			02/27/23 20:38	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			02/27/23 20:38	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			02/27/23 20:38	1
Xylenes, Total	0.0081		0.0020	0.00042	mg/L			02/27/23 20:38	1

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Date Collected: 02/23/23 17:45

Matrix: Water

Date Received: 02/24/23 13:19

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		78 - 122		02/26/23 21:09	4
Toluene-d8 (Surr)	96		78 - 122		02/27/23 15:04	20
Toluene-d8 (Surr)	95		78 - 122		02/27/23 20:38	1
Dibromofluoromethane (Surr)	113		73 - 120		02/26/23 21:09	4
Dibromofluoromethane (Surr)	107		73 - 120		02/27/23 15:04	20
Dibromofluoromethane (Surr)	105		73 - 120		02/27/23 20:38	1
4-Bromofluorobenzene (Surr)	103		56 - 136		02/26/23 21:09	4
4-Bromofluorobenzene (Surr)	99		56 - 136		02/27/23 15:04	20
4-Bromofluorobenzene (Surr)	104		56 - 136		02/27/23 20:38	1
1,2-Dichloroethane-d4 (Surr)	108		62 - 137		02/26/23 21:09	4
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		02/27/23 15:04	20
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		02/27/23 20:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.020	0.0098	mg/L		02/24/23 17:46	02/26/23 09:50	20
bis (2-chloroisopropyl) ether	ND		0.020	0.011	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,4,5-Trichlorophenol	ND		0.10	0.040	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,4,6-Trichlorophenol	ND		0.10	0.036	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,4-Dichlorophenol	ND		0.040	0.0052	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,4-Dimethylphenol	ND		0.040	0.010	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,4-Dinitrophenol	ND		0.20	0.12	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,4-Dinitrotoluene	ND		0.10	0.041	mg/L		02/24/23 17:46	02/26/23 09:50	20
2,6-Dinitrotoluene	ND		0.10	0.043	mg/L		02/24/23 17:46	02/26/23 09:50	20
2-Chloronaphthalene	ND		0.020	0.0097	mg/L		02/24/23 17:46	02/26/23 09:50	20
2-Chlorophenol	ND		0.020	0.0055	mg/L		02/24/23 17:46	02/26/23 09:50	20
2-Methylnaphthalene	ND		0.0040	0.0022	mg/L		02/24/23 17:46	02/26/23 09:50	20
2-Methylphenol	ND		0.020	0.0042	mg/L		02/24/23 17:46	02/26/23 09:50	20
2-Nitroaniline	ND		0.040	0.010	mg/L		02/24/23 17:46	02/26/23 09:50	20
2-Nitrophenol	ND		0.040	0.011	mg/L		02/24/23 17:46	02/26/23 09:50	20
3,3'-Dichlorobenzidine	ND		0.10	0.023	mg/L		02/24/23 17:46	02/26/23 09:50	20
3-Nitroaniline	ND		0.040	0.011	mg/L		02/24/23 17:46	02/26/23 09:50	20
4,6-Dinitro-2-methylphenol	ND		0.10	0.056	mg/L		02/24/23 17:46	02/26/23 09:50	20
4-Bromophenyl phenyl ether	ND		0.040	0.010	mg/L		02/24/23 17:46	02/26/23 09:50	20
4-Chloro-3-methylphenol	ND		0.040	0.0059	mg/L		02/24/23 17:46	02/26/23 09:50	20
4-Chloroaniline	ND		0.040	0.0063	mg/L		02/24/23 17:46	02/26/23 09:50	20
4-Chlorophenyl phenyl ether	ND		0.040	0.011	mg/L		02/24/23 17:46	02/26/23 09:50	20
4-Nitroaniline	ND		0.040	0.018	mg/L		02/24/23 17:46	02/26/23 09:50	20
4-Nitrophenol	ND		0.20	0.043	mg/L		02/24/23 17:46	02/26/23 09:50	20
Acenaphthene	ND		0.0040	0.0034	mg/L		02/24/23 17:46	02/26/23 09:50	20
Acenaphthylene	ND		0.0040	0.0025	mg/L		02/24/23 17:46	02/26/23 09:50	20
Acetophenone	ND		0.020	0.0073	mg/L		02/24/23 17:46	02/26/23 09:50	20
Anthracene	ND		0.0040	0.0027	mg/L		02/24/23 17:46	02/26/23 09:50	20
Atrazine	ND		0.040	0.019	mg/L		02/24/23 17:46	02/26/23 09:50	20
Benzaldehyde	ND		0.040	0.015	mg/L		02/24/23 17:46	02/26/23 09:50	20
Benzo[a]anthracene	ND		0.0040	0.0034	mg/L		02/24/23 17:46	02/26/23 09:50	20
Benzo[a]pyrene	ND		0.0040	0.0035	mg/L		02/24/23 17:46	02/26/23 09:50	20
Benzo[b]fluoranthene	ND		0.0040	0.0031	mg/L		02/24/23 17:46	02/26/23 09:50	20
Benzo[g,h,i]perylene	ND		0.0040	0.0036	mg/L		02/24/23 17:46	02/26/23 09:50	20
Benzo[k]fluoranthene	ND		0.0040	0.0028	mg/L		02/24/23 17:46	02/26/23 09:50	20

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Date Collected: 02/23/23 17:45

Matrix: Water

Date Received: 02/24/23 13:19

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		0.020	0.0091	mg/L		02/24/23 17:46	02/26/23 09:50	20
Bis(2-chloroethyl)ether	ND		0.020	0.0080	mg/L		02/24/23 17:46	02/26/23 09:50	20
Bis(2-ethylhexyl) phthalate	ND		0.10	0.044	mg/L		02/24/23 17:46	02/26/23 09:50	20
Butyl benzyl phthalate	ND		0.040	0.013	mg/L		02/24/23 17:46	02/26/23 09:50	20
Caprolactam	ND		0.10	0.019	mg/L		02/24/23 17:46	02/26/23 09:50	20
Carbazole	ND		0.020	0.0098	mg/L		02/24/23 17:46	02/26/23 09:50	20
Chrysene	ND		0.0040	0.0037	mg/L		02/24/23 17:46	02/26/23 09:50	20
Dibenz(a,h)anthracene	ND		0.0040	0.0030	mg/L		02/24/23 17:46	02/26/23 09:50	20
Dibenzofuran	ND		0.020	0.011	mg/L		02/24/23 17:46	02/26/23 09:50	20
Diethyl phthalate	ND		0.10	0.076	mg/L		02/24/23 17:46	02/26/23 09:50	20
Dimethyl phthalate	ND		0.040	0.010	mg/L		02/24/23 17:46	02/26/23 09:50	20
Di-n-butyl phthalate	ND		0.10	0.036	mg/L		02/24/23 17:46	02/26/23 09:50	20
Di-n-octyl phthalate	ND		0.040	0.016	mg/L		02/24/23 17:46	02/26/23 09:50	20
Fluoranthene	ND		0.0040	0.0032	mg/L		02/24/23 17:46	02/26/23 09:50	20
Fluorene	ND		0.0040	0.0034	mg/L		02/24/23 17:46	02/26/23 09:50	20
Hexachlorobenzene	ND		0.0040	0.0032	mg/L		02/24/23 17:46	02/26/23 09:50	20
Hexachlorobutadiene	ND		0.020	0.011	mg/L		02/24/23 17:46	02/26/23 09:50	20
Hexachlorocyclopentadiene	ND		0.20	0.035	mg/L		02/24/23 17:46	02/26/23 09:50	20
Hexachloroethane	ND		0.020	0.0079	mg/L		02/24/23 17:46	02/26/23 09:50	20
Indeno[1,2,3-cd]pyrene	ND		0.0040	0.0027	mg/L		02/24/23 17:46	02/26/23 09:50	20
Isophorone	ND		0.020	0.0065	mg/L		02/24/23 17:46	02/26/23 09:50	20
N-Nitrosodi-n-propylamine	ND		0.020	0.0051	mg/L		02/24/23 17:46	02/26/23 09:50	20
N-Nitrosodiphenylamine	ND		0.020	0.0088	mg/L		02/24/23 17:46	02/26/23 09:50	20
Naphthalene	ND		0.0040	0.0022	mg/L		02/24/23 17:46	02/26/23 09:50	20
Nitrobenzene	ND		0.020	0.010	mg/L		02/24/23 17:46	02/26/23 09:50	20
Pentachlorophenol	ND		0.20	0.062	mg/L		02/24/23 17:46	02/26/23 09:50	20
Phenanthrene	ND		0.0040	0.0033	mg/L		02/24/23 17:46	02/26/23 09:50	20
Phenol	ND		0.020	0.0026	mg/L		02/24/23 17:46	02/26/23 09:50	20
Pyrene	ND		0.0040	0.0035	mg/L		02/24/23 17:46	02/26/23 09:50	20
3 & 4 Methylphenol	ND		0.040	0.0038	mg/L		02/24/23 17:46	02/26/23 09:50	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	39	S1-	46 - 137	02/24/23 17:46	02/26/23 09:50	20
Phenol-d5 (Surr)	61		26 - 120	02/24/23 17:46	02/26/23 09:50	20
Nitrobenzene-d5 (Surr)	39		24 - 120	02/24/23 17:46	02/26/23 09:50	20
2-Fluorophenol (Surr)	49		19 - 120	02/24/23 17:46	02/26/23 09:50	20
2-Fluorobiphenyl (Surr)	79		33 - 120	02/24/23 17:46	02/26/23 09:50	20
2,4,6-Tribromophenol (Surr)	63		10 - 120	02/24/23 17:46	02/26/23 09:50	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		02/24/23 14:00	02/27/23 11:38	1
Barium	0.036	J B	0.50	0.0013	mg/L		02/24/23 14:00	02/27/23 11:38	1
Cadmium	0.00020	J	0.050	0.00020	mg/L		02/24/23 14:00	02/27/23 11:38	1
Chromium	ND		0.050	0.0040	mg/L		02/24/23 14:00	02/27/23 11:38	1
Lead	ND		0.050	0.0028	mg/L		02/24/23 14:00	02/27/23 11:38	1
Selenium	ND		0.050	0.0060	mg/L		02/24/23 14:00	02/27/23 11:38	1
Silver	ND		0.050	0.00062	mg/L		02/24/23 14:00	02/27/23 11:38	1

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Date Collected: 02/23/23 17:45

Matrix: Water

Date Received: 02/24/23 13:19

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		02/24/23 14:00	02/27/23 18:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			02/28/23 12:34	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: 240-180852-1

Client Sample ID: NS-TB022323

Lab Sample ID: 240-180852-4

Date Collected: 02/23/23 00:00

Matrix: Water

Date Received: 02/24/23 13:19

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			02/26/23 14:26	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			02/26/23 14:26	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			02/26/23 14:26	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			02/26/23 14:26	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			02/26/23 14:26	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			02/26/23 14:26	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			02/26/23 14:26	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			02/26/23 14:26	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			02/26/23 14:26	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			02/26/23 14:26	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/26/23 14:26	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			02/26/23 14:26	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			02/26/23 14:26	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			02/26/23 14:26	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			02/26/23 14:26	1
2-Hexanone	ND		0.010	0.0011	mg/L			02/26/23 14:26	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			02/26/23 14:26	1
Acetone	ND		0.010	0.0054	mg/L			02/26/23 14:26	1
Benzene	ND		0.0010	0.00042	mg/L			02/26/23 14:26	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			02/26/23 14:26	1
Bromoform	ND		0.0010	0.00076	mg/L			02/26/23 14:26	1
Bromomethane	ND		0.0010	0.00042	mg/L			02/26/23 14:26	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			02/26/23 14:26	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			02/26/23 14:26	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/26/23 14:26	1
Chloroethane	ND		0.0010	0.00083	mg/L			02/26/23 14:26	1
Chloroform	ND		0.0010	0.00047	mg/L			02/26/23 14:26	1
Chloromethane	ND		0.0010	0.00063	mg/L			02/26/23 14:26	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			02/26/23 14:26	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			02/26/23 14:26	1
Cyclohexane	ND		0.0010	0.00048	mg/L			02/26/23 14:26	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			02/26/23 14:26	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			02/26/23 14:26	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			02/26/23 14:26	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			02/26/23 14:26	1
Methyl acetate	ND		0.010	0.0017	mg/L			02/26/23 14:26	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			02/26/23 14:26	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			02/26/23 14:26	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			02/26/23 14:26	1
Styrene	ND		0.0010	0.00045	mg/L			02/26/23 14:26	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			02/26/23 14:26	1
Toluene	ND		0.0010	0.00044	mg/L			02/26/23 14:26	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			02/26/23 14:26	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			02/26/23 14:26	1
Trichloroethene	ND		0.0010	0.00044	mg/L			02/26/23 14:26	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			02/26/23 14:26	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			02/26/23 14:26	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			02/26/23 14:26	1
Butyl acrylate	ND		0.010	0.0023	mg/L			02/26/23 14:26	1

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Client Sample Results

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

Job ID: 240-180852-1

Client Sample ID: NS-TB022323

Lab Sample ID: 240-180852-4

Date Collected: 02/23/23 00:00

Matrix: Water

Date Received: 02/24/23 13:19

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			02/26/23 14:26	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			02/26/23 14:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	102		78 - 122		02/26/23 14:26	1
<i>Dibromofluoromethane (Surr)</i>	117		73 - 120		02/26/23 14:26	1
<i>4-Bromofluorobenzene (Surr)</i>	98		56 - 136		02/26/23 14:26	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	111		62 - 137		02/26/23 14:26	1



Surrogate Summary

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

Job ID: 240-180852-1

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)
240-180852-1	WC-257225-PLEASANT	104	117	117	106
240-180852-1	WC-257225-PLEASANT	95	104	94	96
240-180852-2	WC-251068-BLUE BLDG EAST	98	110	107	103
240-180852-2	WC-251068-BLUE BLDG EAST	97	108	99	101
240-180852-2	WC-251068-BLUE BLDG EAST	95	107	109	98
240-180852-3	WC-257516- GAS STATION	95	113	103	108
240-180852-3	WC-257516- GAS STATION	96	107	99	100
240-180852-3	WC-257516- GAS STATION	95	105	104	98
240-180852-3 MS	WC-257516- GAS STATION	98	100	100	93
240-180852-3 MSD	WC-257516- GAS STATION	97	101	100	92
240-180852-4	NS-TB022323	102	117	98	111
LCS 240-563444/5	Lab Control Sample	108	107	107	101
LCS 240-563444/6	Lab Control Sample	99	108	104	102
LCS 240-563547/5	Lab Control Sample	102	101	102	94
LCS 240-563547/6	Lab Control Sample	95	101	99	94
MB 240-563444/8	Method Blank	100	114	96	108
MB 240-563547/8	Method Blank	95	109	93	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: Water

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)
240-180852-1	WC-257225-PLEASANT	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180852-2	WC-251068-BLUE BLDG EAST	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-180852-3	WC-257516- GAS STATION	39 S1-	61	39	49	79	63
LCS 240-563384/2-A	Lab Control Sample	95	80	79	94	80	81
LCS 240-563384/3-A	Lab Control Sample	113	66	78	58	85	83
MB 240-563384/1-A	Method Blank	106	54	72	51	78	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)

QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: MB 240-563444/8
Matrix: Water
Analysis Batch: 563444

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			02/26/23 13:15	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			02/26/23 13:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			02/26/23 13:15	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			02/26/23 13:15	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			02/26/23 13:15	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			02/26/23 13:15	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			02/26/23 13:15	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			02/26/23 13:15	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			02/26/23 13:15	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			02/26/23 13:15	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/26/23 13:15	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			02/26/23 13:15	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			02/26/23 13:15	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			02/26/23 13:15	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			02/26/23 13:15	1
2-Hexanone	ND		0.010	0.0011	mg/L			02/26/23 13:15	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			02/26/23 13:15	1
Acetone	ND		0.010	0.0054	mg/L			02/26/23 13:15	1
Benzene	ND		0.0010	0.00042	mg/L			02/26/23 13:15	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			02/26/23 13:15	1
Bromoform	ND		0.0010	0.00076	mg/L			02/26/23 13:15	1
Bromomethane	ND		0.0010	0.00042	mg/L			02/26/23 13:15	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			02/26/23 13:15	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			02/26/23 13:15	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/26/23 13:15	1
Chloroethane	ND		0.0010	0.00083	mg/L			02/26/23 13:15	1
Chloroform	ND		0.0010	0.00047	mg/L			02/26/23 13:15	1
Chloromethane	ND		0.0010	0.00063	mg/L			02/26/23 13:15	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			02/26/23 13:15	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			02/26/23 13:15	1
Cyclohexane	ND		0.0010	0.00048	mg/L			02/26/23 13:15	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			02/26/23 13:15	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			02/26/23 13:15	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			02/26/23 13:15	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			02/26/23 13:15	1
Methyl acetate	ND		0.010	0.0017	mg/L			02/26/23 13:15	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			02/26/23 13:15	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			02/26/23 13:15	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			02/26/23 13:15	1
Styrene	ND		0.0010	0.00045	mg/L			02/26/23 13:15	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			02/26/23 13:15	1
Toluene	ND		0.0010	0.00044	mg/L			02/26/23 13:15	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			02/26/23 13:15	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			02/26/23 13:15	1
Trichloroethene	ND		0.0010	0.00044	mg/L			02/26/23 13:15	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			02/26/23 13:15	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			02/26/23 13:15	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			02/26/23 13:15	1

Eurofins Canton

QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: MB 240-563444/8
Matrix: Water
Analysis Batch: 563444

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Butyl acrylate	ND		0.010	0.0023	mg/L			02/26/23 13:15	1
Methyl acrylate	ND		0.0020	0.00062	mg/L			02/26/23 13:15	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			02/26/23 13:15	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
Toluene-d8 (Surr)	100		78 - 122				02/26/23 13:15	1	
Dibromofluoromethane (Surr)	114		73 - 120				02/26/23 13:15	1	
4-Bromofluorobenzene (Surr)	96		56 - 136				02/26/23 13:15	1	
1,2-Dichloroethane-d4 (Surr)	108		62 - 137				02/26/23 13:15	1	

Lab Sample ID: LCS 240-563444/5
Matrix: Water
Analysis Batch: 563444

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	0.0259		mg/L		104	64 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0282		mg/L		113	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0270		mg/L		108	51 - 146
1,1,2-Trichloroethane	0.0250	0.0265		mg/L		106	70 - 138
1,1-Dichloroethane	0.0250	0.0248		mg/L		99	72 - 127
1,1-Dichloroethene	0.0250	0.0267		mg/L		107	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0279		mg/L		112	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0256		mg/L		103	53 - 135
Ethylene Dibromide	0.0250	0.0263		mg/L		105	71 - 134
1,2-Dichlorobenzene	0.0250	0.0269		mg/L		108	78 - 120
1,2-Dichloroethane	0.0250	0.0252		mg/L		101	66 - 128
1,2-Dichloropropane	0.0250	0.0255		mg/L		102	75 - 133
1,3-Dichlorobenzene	0.0250	0.0269		mg/L		107	80 - 120
1,4-Dichlorobenzene	0.0250	0.0265		mg/L		106	80 - 120
2-Butanone (MEK)	0.0500	0.0534		mg/L		107	54 - 156
2-Hexanone	0.0500	0.0582		mg/L		116	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0588		mg/L		118	46 - 158
Acetone	0.0500	0.0550		mg/L		110	50 - 149
Benzene	0.0250	0.0262		mg/L		105	77 - 123
Dichlorobromomethane	0.0250	0.0252		mg/L		101	69 - 126
Bromoform	0.0250	0.0264		mg/L		106	57 - 129
Bromomethane	0.0125	0.0157		mg/L		126	36 - 142
Carbon disulfide	0.0250	0.0265		mg/L		106	43 - 140
Carbon tetrachloride	0.0250	0.0257		mg/L		103	55 - 137
Chlorobenzene	0.0250	0.0264		mg/L		105	80 - 121
Chloroethane	0.0125	0.0127		mg/L		101	38 - 152
Chloroform	0.0250	0.0253		mg/L		101	74 - 122
Chloromethane	0.0125	0.0151		mg/L		121	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0253		mg/L		101	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0254		mg/L		101	64 - 130
Cyclohexane	0.0250	0.0278		mg/L		111	58 - 146
Chlorodibromomethane	0.0250	0.0255		mg/L		102	70 - 124
Dichlorodifluoromethane	0.0125	0.0148		mg/L		118	34 - 153

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: LCS 240-563444/5
Matrix: Water
Analysis Batch: 563444

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	0.0250	0.0269		mg/L		108	80 - 121
Isopropylbenzene	0.0250	0.0280		mg/L		112	74 - 128
Methyl acetate	0.0500	0.0458		mg/L		92	42 - 169
Methyl tert-butyl ether	0.0250	0.0257		mg/L		103	65 - 126
Methylcyclohexane	0.0250	0.0289		mg/L		116	62 - 136
Methylene Chloride	0.0250	0.0265		mg/L		106	71 - 125
Styrene	0.0250	0.0280		mg/L		112	80 - 135
Tetrachloroethene	0.0250	0.0274		mg/L		109	76 - 123
Toluene	0.0250	0.0266		mg/L		106	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0259		mg/L		104	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0262		mg/L		105	57 - 129
Trichloroethene	0.0250	0.0258		mg/L		103	70 - 122
Trichlorofluoromethane	0.0125	0.0129		mg/L		103	30 - 170
Vinyl chloride	0.0125	0.0140		mg/L		112	60 - 144
Xylenes, Total	0.0500	0.0538		mg/L		108	80 - 121
m-Xylene & p-Xylene	0.0250	0.0271		mg/L		109	80 - 120
o-Xylene	0.0250	0.0267		mg/L		107	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	107		73 - 120
4-Bromofluorobenzene (Surr)	107		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: LCS 240-563444/6
Matrix: Water
Analysis Batch: 563444

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Butyl acrylate	0.0250	0.0231		mg/L		93	10 - 120
Methyl acrylate	0.0250	0.0256		mg/L		102	10 - 120
2-Ethylhexyl acrylate	0.0250	0.0204		mg/L		82	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	108		73 - 120
4-Bromofluorobenzene (Surr)	104		56 - 136
1,2-Dichloroethane-d4 (Surr)	102		62 - 137

Lab Sample ID: 240-180852-3 MS
Matrix: Water
Analysis Batch: 563444

Client Sample ID: WC-257516- GAS STATION
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2-Ethylhexyl acrylate	0.066		0.100	0.133		mg/L		68	10 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
Toluene-d8 (Surr)	98		78 - 122

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: 240-180852-3 MS
Matrix: Water
Analysis Batch: 563444

Client Sample ID: WC-257516- GAS STATION
Prep Type: Total/NA

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Dibromofluoromethane (Surr)</i>	100		73 - 120
<i>4-Bromofluorobenzene (Surr)</i>	100		56 - 136
<i>1,2-Dichloroethane-d4 (Surr)</i>	93		62 - 137

Lab Sample ID: 240-180852-3 MSD
Matrix: Water
Analysis Batch: 563444

Client Sample ID: WC-257516- GAS STATION
Prep Type: Total/NA

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
2-Ethylhexyl acrylate	0.066		0.100	0.140		mg/L		74	10 - 120	5	35

<i>Surrogate</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
<i>Toluene-d8 (Surr)</i>	97		78 - 122
<i>Dibromofluoromethane (Surr)</i>	101		73 - 120
<i>4-Bromofluorobenzene (Surr)</i>	100		56 - 136
<i>1,2-Dichloroethane-d4 (Surr)</i>	92		62 - 137

Lab Sample ID: MB 240-563547/8
Matrix: Water
Analysis Batch: 563547

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

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			02/27/23 13:51	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			02/27/23 13:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			02/27/23 13:51	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			02/27/23 13:51	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			02/27/23 13:51	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			02/27/23 13:51	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			02/27/23 13:51	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			02/27/23 13:51	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			02/27/23 13:51	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			02/27/23 13:51	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			02/27/23 13:51	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			02/27/23 13:51	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			02/27/23 13:51	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			02/27/23 13:51	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			02/27/23 13:51	1
2-Hexanone	ND		0.010	0.0011	mg/L			02/27/23 13:51	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			02/27/23 13:51	1
Acetone	ND		0.010	0.0054	mg/L			02/27/23 13:51	1
Benzene	ND		0.0010	0.00042	mg/L			02/27/23 13:51	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			02/27/23 13:51	1
Bromoform	ND		0.0010	0.00076	mg/L			02/27/23 13:51	1
Bromomethane	ND		0.0010	0.00042	mg/L			02/27/23 13:51	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			02/27/23 13:51	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			02/27/23 13:51	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			02/27/23 13:51	1
Chloroethane	ND		0.0010	0.00083	mg/L			02/27/23 13:51	1

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: MB 240-563547/8
Matrix: Water
Analysis Batch: 563547

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND		0.0010	0.00047	mg/L			02/27/23 13:51	1
Chloromethane	ND		0.0010	0.00063	mg/L			02/27/23 13:51	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			02/27/23 13:51	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			02/27/23 13:51	1
Cyclohexane	ND		0.0010	0.00048	mg/L			02/27/23 13:51	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			02/27/23 13:51	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			02/27/23 13:51	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			02/27/23 13:51	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			02/27/23 13:51	1
Methyl acetate	ND		0.010	0.0017	mg/L			02/27/23 13:51	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			02/27/23 13:51	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			02/27/23 13:51	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			02/27/23 13:51	1
Styrene	ND		0.0010	0.00045	mg/L			02/27/23 13:51	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			02/27/23 13:51	1
Toluene	ND		0.0010	0.00044	mg/L			02/27/23 13:51	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			02/27/23 13:51	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			02/27/23 13:51	1
Trichloroethene	ND		0.0010	0.00044	mg/L			02/27/23 13:51	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			02/27/23 13:51	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			02/27/23 13:51	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			02/27/23 13:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	95		78 - 122		02/27/23 13:51	1
<i>Dibromofluoromethane (Surr)</i>	109		73 - 120		02/27/23 13:51	1
<i>4-Bromofluorobenzene (Surr)</i>	93		56 - 136		02/27/23 13:51	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	102		62 - 137		02/27/23 13:51	1

Lab Sample ID: LCS 240-563547/5
Matrix: Water
Analysis Batch: 563547

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	0.0256		mg/L		102	64 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0273		mg/L		109	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0278		mg/L		111	51 - 146
1,1,2-Trichloroethane	0.0250	0.0261		mg/L		104	70 - 138
1,1-Dichloroethane	0.0250	0.0245		mg/L		98	72 - 127
1,1-Dichloroethene	0.0250	0.0264		mg/L		106	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0277		mg/L		111	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0250		mg/L		100	53 - 135
Ethylene Dibromide	0.0250	0.0257		mg/L		103	71 - 134
1,2-Dichlorobenzene	0.0250	0.0267		mg/L		107	78 - 120
1,2-Dichloroethane	0.0250	0.0248		mg/L		99	66 - 128
1,2-Dichloropropane	0.0250	0.0254		mg/L		102	75 - 133
1,3-Dichlorobenzene	0.0250	0.0263		mg/L		105	80 - 120
1,4-Dichlorobenzene	0.0250	0.0260		mg/L		104	80 - 120

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: LCS 240-563547/5
Matrix: Water
Analysis Batch: 563547

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	0.0500	0.0502		mg/L		100	54 - 156
2-Hexanone	0.0500	0.0571		mg/L		114	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0573		mg/L		115	46 - 158
Acetone	0.0500	0.0511		mg/L		102	50 - 149
Benzene	0.0250	0.0260		mg/L		104	77 - 123
Dichlorobromomethane	0.0250	0.0247		mg/L		99	69 - 126
Bromoform	0.0250	0.0261		mg/L		104	57 - 129
Bromomethane	0.0125	0.0158		mg/L		126	36 - 142
Carbon disulfide	0.0250	0.0258		mg/L		103	43 - 140
Carbon tetrachloride	0.0250	0.0258		mg/L		103	55 - 137
Chlorobenzene	0.0250	0.0260		mg/L		104	80 - 121
Chloroethane	0.0125	0.0122		mg/L		97	38 - 152
Chloroform	0.0250	0.0247		mg/L		99	74 - 122
Chloromethane	0.0125	0.0147		mg/L		117	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0253		mg/L		101	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0253		mg/L		101	64 - 130
Cyclohexane	0.0250	0.0288		mg/L		115	58 - 146
Chlorodibromomethane	0.0250	0.0255		mg/L		102	70 - 124
Dichlorodifluoromethane	0.0125	0.0140		mg/L		112	34 - 153
Ethylbenzene	0.0250	0.0267		mg/L		107	80 - 121
Isopropylbenzene	0.0250	0.0277		mg/L		111	74 - 128
Methyl acetate	0.0500	0.0443		mg/L		89	42 - 169
Methyl tert-butyl ether	0.0250	0.0253		mg/L		101	65 - 126
Methylcyclohexane	0.0250	0.0298		mg/L		119	62 - 136
Methylene Chloride	0.0250	0.0265		mg/L		106	71 - 125
Styrene	0.0250	0.0277		mg/L		111	80 - 135
Tetrachloroethene	0.0250	0.0279		mg/L		112	76 - 123
Toluene	0.0250	0.0263		mg/L		105	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0256		mg/L		102	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0257		mg/L		103	57 - 129
Trichloroethene	0.0250	0.0255		mg/L		102	70 - 122
Trichlorofluoromethane	0.0125	0.0125		mg/L		100	30 - 170
Vinyl chloride	0.0125	0.0137		mg/L		110	60 - 144
Xylenes, Total	0.0500	0.0537		mg/L		107	80 - 121
m-Xylene & p-Xylene	0.0250	0.0271		mg/L		108	80 - 120
o-Xylene	0.0250	0.0266		mg/L		106	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	102		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120
4-Bromofluorobenzene (Surr)	102		56 - 136
1,2-Dichloroethane-d4 (Surr)	94		62 - 137

QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: LCS 240-563547/6
Matrix: Water
Analysis Batch: 563547

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	95		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120
4-Bromofluorobenzene (Surr)	99		56 - 136
1,2-Dichloroethane-d4 (Surr)	94		62 - 137

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

Lab Sample ID: MB 240-563384/1-A
Matrix: Water
Analysis Batch: 563393

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563384

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.0010	0.00049	mg/L		02/24/23 17:45	02/25/23 07:18	1
bis (2-chloroisopropyl) ether	ND		0.0010	0.00055	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,4,5-Trichlorophenol	ND		0.0050	0.0020	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,4,6-Trichlorophenol	ND		0.0050	0.0018	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,4-Dichlorophenol	ND		0.0020	0.00026	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,4-Dimethylphenol	ND		0.0020	0.00052	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,4-Dinitrophenol	ND		0.010	0.0062	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,4-Dinitrotoluene	ND		0.0050	0.0021	mg/L		02/24/23 17:45	02/25/23 07:18	1
2,6-Dinitrotoluene	ND		0.0050	0.0021	mg/L		02/24/23 17:45	02/25/23 07:18	1
2-Chloronaphthalene	ND		0.0010	0.00048	mg/L		02/24/23 17:45	02/25/23 07:18	1
2-Chlorophenol	ND		0.0010	0.00027	mg/L		02/24/23 17:45	02/25/23 07:18	1
2-Methylnaphthalene	ND		0.00020	0.00011	mg/L		02/24/23 17:45	02/25/23 07:18	1
2-Methylphenol	ND		0.0010	0.00021	mg/L		02/24/23 17:45	02/25/23 07:18	1
2-Nitroaniline	ND		0.0020	0.00051	mg/L		02/24/23 17:45	02/25/23 07:18	1
2-Nitrophenol	ND		0.0020	0.00056	mg/L		02/24/23 17:45	02/25/23 07:18	1
3,3'-Dichlorobenzidine	ND		0.0050	0.0012	mg/L		02/24/23 17:45	02/25/23 07:18	1
3-Nitroaniline	ND		0.0020	0.00057	mg/L		02/24/23 17:45	02/25/23 07:18	1
4,6-Dinitro-2-methylphenol	ND		0.0050	0.0028	mg/L		02/24/23 17:45	02/25/23 07:18	1
4-Bromophenyl phenyl ether	ND		0.0020	0.00050	mg/L		02/24/23 17:45	02/25/23 07:18	1
4-Chloro-3-methylphenol	ND		0.0020	0.00030	mg/L		02/24/23 17:45	02/25/23 07:18	1
4-Chloroaniline	ND		0.0020	0.00032	mg/L		02/24/23 17:45	02/25/23 07:18	1
4-Chlorophenyl phenyl ether	ND		0.0020	0.00055	mg/L		02/24/23 17:45	02/25/23 07:18	1
4-Nitroaniline	ND		0.0020	0.00092	mg/L		02/24/23 17:45	02/25/23 07:18	1
4-Nitrophenol	ND		0.010	0.0022	mg/L		02/24/23 17:45	02/25/23 07:18	1
Acenaphthene	ND		0.00020	0.00017	mg/L		02/24/23 17:45	02/25/23 07:18	1
Acenaphthylene	ND		0.00020	0.00013	mg/L		02/24/23 17:45	02/25/23 07:18	1
Acetophenone	ND		0.0010	0.00037	mg/L		02/24/23 17:45	02/25/23 07:18	1
Anthracene	ND		0.00020	0.00014	mg/L		02/24/23 17:45	02/25/23 07:18	1
Atrazine	ND		0.0020	0.00095	mg/L		02/24/23 17:45	02/25/23 07:18	1
Benzaldehyde	ND		0.0020	0.00076	mg/L		02/24/23 17:45	02/25/23 07:18	1
Benzo[a]anthracene	ND		0.00020	0.00017	mg/L		02/24/23 17:45	02/25/23 07:18	1
Benzo[a]pyrene	ND		0.00020	0.00017	mg/L		02/24/23 17:45	02/25/23 07:18	1
Benzo[b]fluoranthene	ND		0.00020	0.00015	mg/L		02/24/23 17:45	02/25/23 07:18	1
Benzo[g,h,i]perylene	ND		0.00020	0.00018	mg/L		02/24/23 17:45	02/25/23 07:18	1
Benzo[k]fluoranthene	ND		0.00020	0.00014	mg/L		02/24/23 17:45	02/25/23 07:18	1
Bis(2-chloroethoxy)methane	ND		0.0010	0.00046	mg/L		02/24/23 17:45	02/25/23 07:18	1

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: MB 240-563384/1-A
Matrix: Water
Analysis Batch: 563393

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563384

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	ND		0.0010	0.00040	mg/L		02/24/23 17:45	02/25/23 07:18	1
Bis(2-ethylhexyl) phthalate	ND		0.0050	0.0022	mg/L		02/24/23 17:45	02/25/23 07:18	1
Butyl benzyl phthalate	ND		0.0020	0.00067	mg/L		02/24/23 17:45	02/25/23 07:18	1
Caprolactam	ND		0.0050	0.00093	mg/L		02/24/23 17:45	02/25/23 07:18	1
Carbazole	ND		0.0010	0.00049	mg/L		02/24/23 17:45	02/25/23 07:18	1
Chrysene	ND		0.00020	0.00019	mg/L		02/24/23 17:45	02/25/23 07:18	1
Dibenz(a,h)anthracene	ND		0.00020	0.00015	mg/L		02/24/23 17:45	02/25/23 07:18	1
Dibenzofuran	ND		0.0010	0.00056	mg/L		02/24/23 17:45	02/25/23 07:18	1
Diethyl phthalate	ND		0.0050	0.0038	mg/L		02/24/23 17:45	02/25/23 07:18	1
Dimethyl phthalate	ND		0.0020	0.00052	mg/L		02/24/23 17:45	02/25/23 07:18	1
Di-n-butyl phthalate	ND		0.0050	0.0018	mg/L		02/24/23 17:45	02/25/23 07:18	1
Di-n-octyl phthalate	ND		0.0020	0.00082	mg/L		02/24/23 17:45	02/25/23 07:18	1
Fluoranthene	ND		0.00020	0.00016	mg/L		02/24/23 17:45	02/25/23 07:18	1
Fluorene	ND		0.00020	0.00017	mg/L		02/24/23 17:45	02/25/23 07:18	1
Hexachlorobenzene	ND		0.00020	0.00016	mg/L		02/24/23 17:45	02/25/23 07:18	1
Hexachlorobutadiene	ND		0.0010	0.00054	mg/L		02/24/23 17:45	02/25/23 07:18	1
Hexachlorocyclopentadiene	ND		0.010	0.0018	mg/L		02/24/23 17:45	02/25/23 07:18	1
Hexachloroethane	ND		0.0010	0.00040	mg/L		02/24/23 17:45	02/25/23 07:18	1
Indeno[1,2,3-cd]pyrene	ND		0.00020	0.00014	mg/L		02/24/23 17:45	02/25/23 07:18	1
Isophorone	ND		0.0010	0.00032	mg/L		02/24/23 17:45	02/25/23 07:18	1
N-Nitrosodi-n-propylamine	ND		0.0010	0.00025	mg/L		02/24/23 17:45	02/25/23 07:18	1
N-Nitrosodiphenylamine	ND		0.0010	0.00044	mg/L		02/24/23 17:45	02/25/23 07:18	1
Naphthalene	ND		0.00020	0.00011	mg/L		02/24/23 17:45	02/25/23 07:18	1
Nitrobenzene	ND		0.0010	0.00051	mg/L		02/24/23 17:45	02/25/23 07:18	1
Pentachlorophenol	ND		0.010	0.0031	mg/L		02/24/23 17:45	02/25/23 07:18	1
Phenanthrene	ND		0.00020	0.00017	mg/L		02/24/23 17:45	02/25/23 07:18	1
Phenol	ND		0.0010	0.00013	mg/L		02/24/23 17:45	02/25/23 07:18	1
Pyrene	ND		0.00020	0.00018	mg/L		02/24/23 17:45	02/25/23 07:18	1
3 & 4 Methylphenol	ND		0.0020	0.00019	mg/L		02/24/23 17:45	02/25/23 07:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	106		46 - 137	02/24/23 17:45	02/25/23 07:18	1
Phenol-d5 (Surr)	54		26 - 120	02/24/23 17:45	02/25/23 07:18	1
Nitrobenzene-d5 (Surr)	72		24 - 120	02/24/23 17:45	02/25/23 07:18	1
2-Fluorophenol (Surr)	51		19 - 120	02/24/23 17:45	02/25/23 07:18	1
2-Fluorobiphenyl (Surr)	78		33 - 120	02/24/23 17:45	02/25/23 07:18	1
2,4,6-Tribromophenol (Surr)	69		10 - 120	02/24/23 17:45	02/25/23 07:18	1

Lab Sample ID: LCS 240-563384/2-A
Matrix: Water
Analysis Batch: 563439

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563384

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.0320	0.0269		mg/L		84	48 - 120
bis (2-chloroisopropyl) ether	0.0320	0.0228		mg/L		71	41 - 120
2,4,5-Trichlorophenol	0.0320	0.0294		mg/L		92	52 - 123
2,4,6-Trichlorophenol	0.0320	0.0290		mg/L		91	51 - 120
2,4-Dichlorophenol	0.0320	0.0275		mg/L		86	53 - 120

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: LCS 240-563384/2-A
Matrix: Water
Analysis Batch: 563439

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563384

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-Dimethylphenol	0.0320	0.0217		mg/L		68	44 - 120
2,4-Dinitrophenol	0.0640	0.0531		mg/L		83	11 - 139
2,4-Dinitrotoluene	0.0320	0.0270		mg/L		84	58 - 125
2,6-Dinitrotoluene	0.0320	0.0274		mg/L		85	54 - 132
2-Chloronaphthalene	0.0320	0.0278		mg/L		87	51 - 120
2-Chlorophenol	0.0320	0.0294		mg/L		92	46 - 120
2-Methylnaphthalene	0.0320	0.0249		mg/L		78	49 - 120
2-Methylphenol	0.0320	0.0282		mg/L		88	45 - 120
2-Nitroaniline	0.0320	0.0257		mg/L		80	57 - 121
2-Nitrophenol	0.0320	0.0258		mg/L		81	51 - 120
3,3'-Dichlorobenzidine	0.0640	0.0518		mg/L		81	51 - 154
3-Nitroaniline	0.0320	0.0337		mg/L		105	47 - 123
4,6-Dinitro-2-methylphenol	0.0640	0.0596		mg/L		93	49 - 130
4-Bromophenyl phenyl ether	0.0320	0.0265		mg/L		83	58 - 125
4-Chloro-3-methylphenol	0.0320	0.0241		mg/L		75	52 - 120
4-Chloroaniline	0.0320	0.00846		mg/L		26	10 - 126
4-Chlorophenyl phenyl ether	0.0320	0.0253		mg/L		79	55 - 120
4-Nitroaniline	0.0320	0.0387		mg/L		121	56 - 127
4-Nitrophenol	0.0640	0.0435		mg/L		68	10 - 120
Acenaphthene	0.0320	0.0305		mg/L		95	54 - 120
Acenaphthylene	0.0320	0.0265		mg/L		83	50 - 120
Acetophenone	0.0320	0.0236		mg/L		74	47 - 120
Anthracene	0.0320	0.0267		mg/L		83	58 - 121
Atrazine	0.0320	0.0292		mg/L		91	68 - 126
Benzaldehyde	0.0320	0.0408		mg/L		128	26 - 147
Benzo[a]anthracene	0.0320	0.0291		mg/L		91	61 - 120
Benzo[a]pyrene	0.0320	0.0262		mg/L		82	56 - 131
Benzo[b]fluoranthene	0.0320	0.0254		mg/L		79	57 - 130
Benzo[g,h,i]perylene	0.0320	0.0256		mg/L		80	58 - 120
Benzo[k]fluoranthene	0.0320	0.0248		mg/L		78	53 - 137
Bis(2-chloroethoxy)methane	0.0320	0.0235		mg/L		73	49 - 120
Bis(2-chloroethyl)ether	0.0320	0.0224		mg/L		70	40 - 120
Bis(2-ethylhexyl) phthalate	0.0320	0.0255		mg/L		80	60 - 126
Butyl benzyl phthalate	0.0320	0.0267		mg/L		83	58 - 124
Caprolactam	0.0320	0.00990		mg/L		31	10 - 120
Carbazole	0.0320	0.0274		mg/L		86	60 - 130
Chrysene	0.0320	0.0282		mg/L		88	57 - 120
Dibenz(a,h)anthracene	0.0320	0.0272		mg/L		85	58 - 120
Dibenzofuran	0.0320	0.0251		mg/L		79	54 - 120
Diethyl phthalate	0.0320	0.0277		mg/L		87	55 - 120
Dimethyl phthalate	0.0320	0.0260		mg/L		81	49 - 125
Di-n-butyl phthalate	0.0320	0.0270		mg/L		84	59 - 130
Di-n-octyl phthalate	0.0320	0.0237		mg/L		74	57 - 126
Fluoranthene	0.0320	0.0275		mg/L		86	58 - 128
Fluorene	0.0320	0.0293		mg/L		91	55 - 120
Hexachlorobenzene	0.0320	0.0293		mg/L		92	55 - 120
Hexachlorobutadiene	0.0320	0.0236		mg/L		74	41 - 120
Hexachlorocyclopentadiene	0.0320	0.0272		mg/L		85	15 - 120
Hexachloroethane	0.0320	0.0210		mg/L		66	39 - 120

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QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: LCS 240-563384/2-A
Matrix: Water
Analysis Batch: 563439

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563384

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Indeno[1,2,3-cd]pyrene	0.0320	0.0275		mg/L		86	59 - 122
Isophorone	0.0320	0.0231		mg/L		72	51 - 120
N-Nitrosodi-n-propylamine	0.0320	0.0224		mg/L		70	49 - 120
N-Nitrosodiphenylamine	0.0320	0.0262		mg/L		82	56 - 125
Naphthalene	0.0320	0.0230		mg/L		72	46 - 120
Nitrobenzene	0.0320	0.0221		mg/L		69	47 - 120
Pentachlorophenol	0.0640	0.0584		mg/L		91	19 - 132
Phenanthrene	0.0320	0.0256		mg/L		80	55 - 120
Phenol	0.0320	0.0241		mg/L		75	10 - 120
Pyrene	0.0320	0.0272		mg/L		85	59 - 120
3 & 4 Methylphenol	0.0320	0.0258		mg/L		81	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	95		46 - 137
Phenol-d5 (Surr)	80		26 - 120
Nitrobenzene-d5 (Surr)	79		24 - 120
2-Fluorophenol (Surr)	94		19 - 120
2-Fluorobiphenyl (Surr)	80		33 - 120
2,4,6-Tribromophenol (Surr)	81		10 - 120

Lab Sample ID: LCS 240-563384/3-A
Matrix: Water
Analysis Batch: 563393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563384

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	113		46 - 137
Phenol-d5 (Surr)	66		26 - 120
Nitrobenzene-d5 (Surr)	78		24 - 120
2-Fluorophenol (Surr)	58		19 - 120
2-Fluorobiphenyl (Surr)	85		33 - 120
2,4,6-Tribromophenol (Surr)	83		10 - 120

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-563342/2-A
Matrix: Water
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
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

Eurofins Canton

QC Sample Results

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

Job ID: 240-180852-1

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

Lab Sample ID: LCS 240-563342/3-A
Matrix: Water
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: Water
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

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-563343/2-A
Matrix: Water
Analysis Batch: 563612

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563343

Analyte	MB Result	MB 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 17:38	1

Lab Sample ID: LCS 240-563343/3-A
Matrix: Water
Analysis Batch: 563612

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563343

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00530		mg/L		106	80 - 120

Lab Sample ID: LB 240-563225/1-C
Matrix: Water
Analysis Batch: 563612

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 563343

Analyte	LB Result	LB 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 17:32	1

QC Sample Results

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

Job ID: 240-180852-1

Method: 1010B - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 240-563700/1
Matrix: Water
Analysis Batch: 563700

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ignitability (Flashpoint)	81.0	82.2		Fahrenheit		102	97 - 103

Lab Sample ID: 240-180852-1 DU
Matrix: Water
Analysis Batch: 563700

Client Sample ID: WC-257225-PLEASANT
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ignitability (Flashpoint)	>200		>200		Degrees F		NC	20

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

QC Association Summary

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

Job ID: 240-180852-1

GC/MS VOA

Analysis Batch: 563444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	Total/NA	Water	8260D	
240-180852-2	WC-251068-BLUE BLDG EAST	Total/NA	Water	8260D	
240-180852-3	WC-257516- GAS STATION	Total/NA	Water	8260D	
240-180852-4	NS-TB022323	Total/NA	Water	8260D	
MB 240-563444/8	Method Blank	Total/NA	Water	8260D	
LCS 240-563444/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-563444/6	Lab Control Sample	Total/NA	Water	8260D	
240-180852-3 MS	WC-257516- GAS STATION	Total/NA	Water	8260D	
240-180852-3 MSD	WC-257516- GAS STATION	Total/NA	Water	8260D	

Analysis Batch: 563547

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	Total/NA	Water	8260D	
240-180852-2	WC-251068-BLUE BLDG EAST	Total/NA	Water	8260D	
240-180852-2	WC-251068-BLUE BLDG EAST	Total/NA	Water	8260D	
240-180852-3	WC-257516- GAS STATION	Total/NA	Water	8260D	
240-180852-3	WC-257516- GAS STATION	Total/NA	Water	8260D	
MB 240-563547/8	Method Blank	Total/NA	Water	8260D	
LCS 240-563547/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-563547/6	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 563384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	Total/NA	Water	3510C LVI	
240-180852-2	WC-251068-BLUE BLDG EAST	Total/NA	Water	3510C LVI	
240-180852-3	WC-257516- GAS STATION	Total/NA	Water	3510C LVI	
MB 240-563384/1-A	Method Blank	Total/NA	Water	3510C LVI	
LCS 240-563384/2-A	Lab Control Sample	Total/NA	Water	3510C LVI	
LCS 240-563384/3-A	Lab Control Sample	Total/NA	Water	3510C LVI	

Analysis Batch: 563393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-563384/1-A	Method Blank	Total/NA	Water	8270E	563384
LCS 240-563384/3-A	Lab Control Sample	Total/NA	Water	8270E	563384

Analysis Batch: 563439

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	Total/NA	Water	8270E	563384
240-180852-2	WC-251068-BLUE BLDG EAST	Total/NA	Water	8270E	563384
240-180852-3	WC-257516- GAS STATION	Total/NA	Water	8270E	563384
LCS 240-563384/2-A	Lab Control Sample	Total/NA	Water	8270E	563384

Metals

Leach Batch: 563225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	TCLP	Water	1311	
240-180852-2	WC-251068-BLUE BLDG EAST	TCLP	Water	1311	
240-180852-3	WC-257516- GAS STATION	TCLP	Water	1311	
LB 240-563225/1-B	Method Blank	TCLP	Water	1311	

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QC Association Summary

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

Job ID: 240-180852-1

Metals (Continued)

Leach Batch: 563225 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 240-563225/1-C	Method Blank	TCLP	Water	1311	

Prep Batch: 563342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	TCLP	Water	3010A	563225
240-180852-2	WC-251068-BLUE BLDG EAST	TCLP	Water	3010A	563225
240-180852-3	WC-257516- GAS STATION	TCLP	Water	3010A	563225
LB 240-563225/1-B	Method Blank	TCLP	Water	3010A	563225
MB 240-563342/2-A	Method Blank	Total/NA	Water	3010A	
LCS 240-563342/3-A	Lab Control Sample	Total/NA	Water	3010A	

Prep Batch: 563343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	TCLP	Water	7470A	563225
240-180852-2	WC-251068-BLUE BLDG EAST	TCLP	Water	7470A	563225
240-180852-3	WC-257516- GAS STATION	TCLP	Water	7470A	563225
LB 240-563225/1-C	Method Blank	TCLP	Water	7470A	563225
MB 240-563343/2-A	Method Blank	Total/NA	Water	7470A	
LCS 240-563343/3-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 563567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	TCLP	Water	6010D	563342
240-180852-2	WC-251068-BLUE BLDG EAST	TCLP	Water	6010D	563342
240-180852-3	WC-257516- GAS STATION	TCLP	Water	6010D	563342
LB 240-563225/1-B	Method Blank	TCLP	Water	6010D	563342
MB 240-563342/2-A	Method Blank	Total/NA	Water	6010D	563342
LCS 240-563342/3-A	Lab Control Sample	Total/NA	Water	6010D	563342

Analysis Batch: 563612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	TCLP	Water	7470A	563343
240-180852-2	WC-251068-BLUE BLDG EAST	TCLP	Water	7470A	563343
240-180852-3	WC-257516- GAS STATION	TCLP	Water	7470A	563343
LB 240-563225/1-C	Method Blank	TCLP	Water	7470A	563343
MB 240-563343/2-A	Method Blank	Total/NA	Water	7470A	563343
LCS 240-563343/3-A	Lab Control Sample	Total/NA	Water	7470A	563343

General Chemistry

Analysis Batch: 563700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180852-1	WC-257225-PLEASANT	Total/NA	Water	1010B	
240-180852-2	WC-251068-BLUE BLDG EAST	Total/NA	Water	1010B	
240-180852-3	WC-257516- GAS STATION	Total/NA	Water	1010B	
LCS 240-563700/1	Lab Control Sample	Total/NA	Water	1010B	
240-180852-1 DU	WC-257225-PLEASANT	Total/NA	Water	1010B	

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Lab Chronicle

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

Job ID: 240-180852-1

Client Sample ID: WC-257225-PLEASANT

Lab Sample ID: 240-180852-1

Date Collected: 02/23/23 17:58

Matrix: Water

Date Received: 02/24/23 13:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	563444	SAM	EET CAN	02/26/23 16:48
Total/NA	Analysis	8260D		10	563547	SAM	EET CAN	02/27/23 14:39
Total/NA	Prep	3510C LVI			563384	BMB	EET CAN	02/24/23 17:45
Total/NA	Analysis	8270E		2500	563439	TMH	EET CAN	02/26/23 09:03
TCLP	Leach	1311			563225	DRJ	EET CAN	02/24/23 13:00 - 02/24/23 13:30 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:29
TCLP	Leach	1311			563225	DRJ	EET CAN	02/24/23 13:00 - 02/24/23 13:30 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 17:58
Total/NA	Analysis	1010B		1	563700	MED	EET CAN	02/28/23 11:38

Client Sample ID: WC-251068-BLUE BLDG EAST

Lab Sample ID: 240-180852-2

Date Collected: 02/23/23 17:40

Matrix: Water

Date Received: 02/24/23 13:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		4	563444	SAM	EET CAN	02/26/23 20:46
Total/NA	Analysis	8260D		40	563547	SAM	EET CAN	02/27/23 15:28
Total/NA	Analysis	8260D		1	563547	SAM	EET CAN	02/27/23 19:51
Total/NA	Prep	3510C LVI			563384	BMB	EET CAN	02/24/23 17:45
Total/NA	Analysis	8270E		2500	563439	TMH	EET CAN	02/26/23 09:26
TCLP	Leach	1311			563225	DRJ	EET CAN	02/24/23 13:00 - 02/24/23 13:30 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:33
TCLP	Leach	1311			563225	DRJ	EET CAN	02/24/23 13:00 - 02/24/23 13:30 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 18:05
Total/NA	Analysis	1010B		1	563700	MED	EET CAN	02/28/23 12:15

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Date Collected: 02/23/23 17:45

Matrix: Water

Date Received: 02/24/23 13:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		4	563444	SAM	EET CAN	02/26/23 21:09
Total/NA	Analysis	8260D		20	563547	SAM	EET CAN	02/27/23 15:04
Total/NA	Analysis	8260D		1	563547	SAM	EET CAN	02/27/23 20:38
Total/NA	Prep	3510C LVI			563384	BMB	EET CAN	02/24/23 17:46
Total/NA	Analysis	8270E		20	563439	TMH	EET CAN	02/26/23 09:50
TCLP	Leach	1311			563225	DRJ	EET CAN	02/24/23 13:00 - 02/24/23 13:30 ¹
TCLP	Prep	3010A			563342	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	6010D		1	563567	KLC	EET CAN	02/27/23 11:38

Lab Chronicle

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

Job ID: 240-180852-1

Client Sample ID: WC-257516- GAS STATION

Lab Sample ID: 240-180852-3

Date Collected: 02/23/23 17:45

Matrix: Water

Date Received: 02/24/23 13:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			563225	DRJ	EET CAN	02/24/23 13:00 - 02/24/23 13:30 ¹
TCLP	Prep	7470A			563343	AJC	EET CAN	02/24/23 14:00
TCLP	Analysis	7470A		1	563612	MRL	EET CAN	02/27/23 18:07
Total/NA	Analysis	1010B		1	563700	MED	EET CAN	02/28/23 12:34

Client Sample ID: NS-TB022323

Lab Sample ID: 240-180852-4

Date Collected: 02/23/23 00:00

Matrix: Water

Date Received: 02/24/23 13:19

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	563444	SAM	EET CAN	02/26/23 14:26

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

Accreditation/Certification Summary

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

Job ID: 240-180852-1

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

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

Eurofins Canton

>> Select a Laboratory or Service Center <<
 #N/A
 #N/A
 #N/A
 ##

Chain of Custody Record



TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Regulatory Program: DW NPDES RCRA Other:

Client Contact Arcadis 284 Cramer Creek Court Dublin, OH 43017 Phone Gracie Gegick (xxx) xxx-xxxx FAX Project Name: Norfolk Southern ER Site: East Palestine P O # 24030745		Project Manager: Email: carolyn.grogan@arcadis.com TellFax:		Site Contact: Lab Contact: M Delmonico Date: _____ Carrier: _____		COC No.: _____ of _____ COCs TALS Project #: _____ Sampler: <i>Michelle Clayton</i> 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.	Sample Specific Notes:	
	Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <i>RUSH</i> <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						
WC-2517225-Peasant	4/23/23	1755	G	W	7	Perform MS / MSD (Y / N) Filtered Sample (Y / N) TOTAL VOC TOTAL VOC PH FLASHPOINT TPH-D80 TCLP Metals	
WC-251068-BucBldg East	4/23/23	1740	G	W	7		
WC-251516-Gas Station	4/23/23	1745	G	W	7		
NS IB022323	4/23/23	-	-	W	1		
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-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months							
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Relinquished by: <i>Michelle Clayton</i> Relinquished by: <i>Malissa Koor</i> Relinquished by:		Custody Seal No.: Company: <i>Arcadis</i> Company: <i>ARC</i> Company:		Cooler Temp. (°C): Obs'd: _____ Received by: <i>Malissa Koor</i> Received by: <i>Malissa Koor</i> Received in Laboratory by:		Therm ID No.: _____ Date/Time: Date/Time: <i>2-23-23 2145</i> Date/Time:	



Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login #: 180852


Client Accadis Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 2-23-23 Opened on 2-24-23

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)? 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 # Covered 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: _____

There is no 1L plastic for TSS, no 250mL plastic for pH, no 60mL vials for DBO micro extraction. Date 2-24-23
Also there is no preserved volume for TOC.

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) 1x 40 mL for Blue Bldg 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 3/9/2023 2:56:25 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-181183-1

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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3/9/2023 2:56:25 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: 240-181183-1

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
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

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.
S1-	Surrogate recovery exceeds control limits, low 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.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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)

Eurofins Canton

Definitions/Glossary

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

Job ID: 240-181183-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

1

2

3

4

5

6

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8

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10

11

12

13

14

Case Narrative

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

Job ID: 240-181183-1

Job ID: 240-181183-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-181183-1

Receipt

The samples were received on 3/1/2023 8:00 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 0.1°C, 0.2°C and 0.2°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-564039 recovered above the upper control limit for Bromomethane and 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 - 251060 - BLUE BLDG EAST (240-181183-2), WC - 251633 - PLEASANT (240-181183-4), WC - 251478 - GAS STATION (240-181183-5), TB - 01 (240-181183-6), TB - 02 (240-181183-7), TB - 03 (240-181183-8), (CCV 240-564039/4), (CCVIS 240-564039/3), (LCS 240-564039/5), (LCS 240-564039/6), (MB 240-564039/8), (240-180978-B-5), (240-180978-D-5 MS) and (240-180978-G-5 MSD).

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-564153 recovered above the upper control limit for Bromomethane and 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 - 257204 - BLUE BLDG WEST (240-181183-1), WC - 251060 - BLUE BLDG EAST (240-181183-2), WC - 251079 - CLARK (240-181183-3), WC - 251478 - GAS STATION (240-181183-5), (CCV 240-564153/4), (CCVIS 240-564153/3), (LCS 240-564153/5), (LCS 240-564153/6), (MB 240-564153/8), (240-180978-L-5), (240-180978-A-5 MS) and (240-180978-I-5 MSD).

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: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-563981.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-564574 recovered outside acceptance criteria, low biased, for 2,4-Dinitrophenol. A reporting limit (RL) standard was analyzed, and the target analytes are detected. Since the associated samples were non-detect for the analyte(s), the data are reported.

Method 8270E: The RL for Hexachlorobenzene is below the low point of the calibration. The RL is supported by the MDL. WC - 257204 - BLUE BLDG WEST (240-181183-1), WC - 251060 - BLUE BLDG EAST (240-181183-2), WC - 251079 - CLARK (240-181183-3), WC - 251633 - PLEASANT (240-181183-4) and WC - 251478 - GAS STATION (240-181183-5)

Method 8270E: The initial calibration verification (ICV) %D result for batch 240-564574 was above the upper control limit. Sample results were non-detects, and have been reported as qualified data.

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

Diesel Range Organics

Method 8015D_DRO: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-564322.

Method 8015D_DRO: Surrogate recovery for the following sample was outside control limits: WC - 251079 - CLARK (240-181183-3). Re-extraction and re-analysis was performed confirming surrogate recovery outside control limits due to matrix interference.

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.

Case Narrative

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

Job ID: 240-181183-1

Job ID: 240-181183-1 (Continued)

Laboratory: Eurofins Canton (Continued)

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: 240-181183-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8015D	Diesel Range Organics (DRO) (GC)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
1010B	Ignitability, Pinsky-Martens Closed-Cup Method	SW846	EET CAN
2540D-2015	Total Suspended Solids (Dried at 103-105°C)	SM	EET CAN
5310 C-2014	Total Organic Carbon/Persulfate - Ultrav	SM	EET CAN
9040C	pH	SW846	EET CAN
1311	TCLP Extraction	SW846	EET CAN
3010A	Preparation, Total Metals	SW846	EET CAN
3510C LVI	Liquid-Liquid Extraction (Separatory Funnel) LVI	SW846	EET CAN
3511	Microextraction of Organic Compounds	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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: 240-181183-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-181183-1	WC - 257204 - BLUE BLDG WEST	Water	03/01/23 12:40	03/01/23 20:00
240-181183-2	WC - 251060 - BLUE BLDG EAST	Water	03/01/23 12:50	03/01/23 20:00
240-181183-3	WC - 251079 - CLARK	Water	03/01/23 13:00	03/01/23 20:00
240-181183-4	WC - 251633 - PLEASANT	Water	03/01/23 13:25	03/01/23 20:00
240-181183-5	WC - 251478 - GAS STATION	Water	03/01/23 13:35	03/01/23 20:00
240-181183-6	TB - 01	Water	03/01/23 00:00	03/01/23 20:00
240-181183-7	TB - 02	Water	03/01/23 00:00	03/01/23 20:00
240-181183-8	TB - 03	Water	03/01/23 00:00	03/01/23 20:00

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Detection Summary

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

Job ID: 240-181183-1

Client Sample ID: WC - 257204 - BLUE BLDG WEST

Lab Sample ID: 240-181183-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0034	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.017		0.010	0.0054	mg/L	1		8260D	Total/NA
Xylenes, Total	0.00071	J	0.0020	0.00042	mg/L	1		8260D	Total/NA
Butyl acrylate	9.6		2.0	0.46	mg/L	200		8260D	Total/NA
2-Ethylhexyl acrylate	0.045		0.010	0.0033	mg/L	1		8260D	Total/NA
2-Methylnaphthalene	0.0014		0.0010	0.00056	mg/L	5		8270E	Total/NA
Naphthalene	0.0092		0.0010	0.00055	mg/L	5		8270E	Total/NA
2-Butoxyethanol - RA	0.22		0.040	0.011	mg/L	10		8270E	Total/NA
Diesel Range Organics [C10 - C28]	1300	B	500	67	ug/L	1		8015D	Total/NA
Barium	0.021	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	120		17	4.2	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	26		1.0	0.35	mg/L	1		5310 C-2014	Total/NA
corrosivity by pH	8.0	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC - 251060 - BLUE BLDG EAST

Lab Sample ID: 240-181183-2

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
Butyl acrylate	24		4.2	0.96	mg/L	416.667		8260D	Total/NA
2-Ethylhexyl acrylate	0.21	J	0.40	0.13	mg/L	40		8260D	Total/NA
2-Butoxyethanol	1.6		0.40	0.11	mg/L	100		8270E	Total/NA
Diesel Range Organics [C10 - C28]	1400	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.064	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Silver	0.00084	J	0.050	0.00062	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	7.3		4.0	1.0	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	49		5.0	1.7	mg/L	5		5310 C-2014	Total/NA
corrosivity by pH	7.9	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC - 251079 - CLARK

Lab Sample ID: 240-181183-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0019	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.011		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.00098	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Vinyl chloride	0.0011		0.0010	0.00045	mg/L	1		8260D	Total/NA
Butyl acrylate	0.22		0.050	0.011	mg/L	5		8260D	Total/NA
2-Ethylhexyl acrylate	0.22		0.050	0.017	mg/L	5		8260D	Total/NA
2-Butoxyethanol - RA	12		4.0	1.1	mg/L	1000		8270E	Total/NA
Diesel Range Organics [C10 - C28]	1900	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.037	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	23		5.1	1.3	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	49		5.0	1.7	mg/L	5		5310 C-2014	Total/NA
corrosivity by pH	7.9	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC - 251633 - PLEASANT

Lab Sample ID: 240-181183-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0032	J	0.010	0.0012	mg/L	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: 240-181183-1

Client Sample ID: WC - 251633 - PLEASANT (Continued)

Lab Sample ID: 240-181183-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.014		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.0016		0.0010	0.00042	mg/L	1		8260D	Total/NA
Vinyl chloride	0.0046		0.0010	0.00045	mg/L	1		8260D	Total/NA
Butyl acrylate	0.47		0.10	0.023	mg/L	10		8260D	Total/NA
Methyl acrylate	0.0014	J	0.0020	0.00062	mg/L	1		8260D	Total/NA
2-Ethylhexyl acrylate	0.18		0.10	0.033	mg/L	10		8260D	Total/NA
2-Butoxyethanol	5.4		0.80	0.21	mg/L	200		8270E	Total/NA
Diesel Range Organics [C10 - C28]	2000	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.044	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	23		4.3	1.1	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	140		10	3.5	mg/L	10		5310 C-2014	Total/NA
corrosivity by pH	7.9	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC - 251478 - GAS STATION

Lab Sample ID: 240-181183-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Butyl acrylate	0.24		0.040	0.0092	mg/L	4		8260D	Total/NA
Methyl acrylate	0.00097	J	0.0020	0.00062	mg/L	1		8260D	Total/NA
2-Ethylhexyl acrylate	0.046		0.040	0.013	mg/L	4		8260D	Total/NA
2-Butoxyethanol	11		1.6	0.42	mg/L	400		8270E	Total/NA
Diesel Range Organics [C10 - C28]	2000	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.038	J B	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	13		4.0	1.0	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	20		1.0	0.35	mg/L	1		5310 C-2014	Total/NA
corrosivity by pH	7.5	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: TB - 01

Lab Sample ID: 240-181183-6

No Detections.

Client Sample ID: TB - 02

Lab Sample ID: 240-181183-7

No Detections.

Client Sample ID: TB - 03

Lab Sample ID: 240-181183-8

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: 240-181183-1

Client Sample ID: WC - 257204 - BLUE BLDG WEST

Lab Sample ID: 240-181183-1

Date Collected: 03/01/23 12:40

Matrix: Water

Date Received: 03/01/23 20:00

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			03/03/23 15:17	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/03/23 15:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/03/23 15:17	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/03/23 15:17	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/03/23 15:17	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/03/23 15:17	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/03/23 15:17	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/03/23 15:17	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/03/23 15:17	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/03/23 15:17	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/03/23 15:17	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/03/23 15:17	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/03/23 15:17	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/03/23 15:17	1
2-Butanone (MEK)	0.0034	J	0.010	0.0012	mg/L			03/03/23 15:17	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/03/23 15:17	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/03/23 15:17	1
Acetone	0.017		0.010	0.0054	mg/L			03/03/23 15:17	1
Benzene	ND		0.0010	0.00042	mg/L			03/03/23 15:17	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/03/23 15:17	1
Bromoform	ND		0.0010	0.00076	mg/L			03/03/23 15:17	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/03/23 15:17	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/03/23 15:17	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/03/23 15:17	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/03/23 15:17	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/03/23 15:17	1
Chloroform	ND		0.0010	0.00047	mg/L			03/03/23 15:17	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/03/23 15:17	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/03/23 15:17	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/03/23 15:17	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/03/23 15:17	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/03/23 15:17	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/03/23 15:17	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/03/23 15:17	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/03/23 15:17	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/03/23 15:17	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/03/23 15:17	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/03/23 15:17	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/03/23 15:17	1
Styrene	ND		0.0010	0.00045	mg/L			03/03/23 15:17	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/03/23 15:17	1
Toluene	ND		0.0010	0.00044	mg/L			03/03/23 15:17	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/03/23 15:17	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/03/23 15:17	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/03/23 15:17	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/03/23 15:17	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/03/23 15:17	1
Xylenes, Total	0.00071	J	0.0020	0.00042	mg/L			03/03/23 15:17	1
Butyl acrylate	9.6		2.0	0.46	mg/L			03/03/23 21:38	200

Eurofins Canton

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 257204 - BLUE BLDG WEST

Lab Sample ID: 240-181183-1

Date Collected: 03/01/23 12:40

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/03/23 15:17	1
2-Ethylhexyl acrylate	0.045		0.010	0.0033	mg/L			03/03/23 15:17	1

Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	103		78 - 122				03/03/23 15:17	1
<i>Toluene-d8 (Surr)</i>	95		78 - 122				03/03/23 21:38	200
<i>Dibromofluoromethane (Surr)</i>	111		73 - 120				03/03/23 15:17	1
<i>Dibromofluoromethane (Surr)</i>	106		73 - 120				03/03/23 21:38	200
<i>4-Bromofluorobenzene (Surr)</i>	106		56 - 136				03/03/23 15:17	1
<i>4-Bromofluorobenzene (Surr)</i>	95		56 - 136				03/03/23 21:38	200
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137				03/03/23 15:17	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137				03/03/23 21:38	200

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.0050	0.0025	mg/L		03/02/23 08:54	03/08/23 12:08	5
bis (2-chloroisopropyl) ether	ND		0.0050	0.0028	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,4,5-Trichlorophenol	ND		0.025	0.0099	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,4,6-Trichlorophenol	ND		0.025	0.0090	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,4-Dichlorophenol	ND		0.010	0.0013	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,4-Dimethylphenol	ND		0.010	0.0026	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,4-Dinitrophenol	ND		0.050	0.031	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,4-Dinitrotoluene	ND		0.025	0.010	mg/L		03/02/23 08:54	03/08/23 12:08	5
2,6-Dinitrotoluene	ND		0.025	0.011	mg/L		03/02/23 08:54	03/08/23 12:08	5
2-Chloronaphthalene	ND		0.0050	0.0024	mg/L		03/02/23 08:54	03/08/23 12:08	5
2-Chlorophenol	ND		0.0050	0.0014	mg/L		03/02/23 08:54	03/08/23 12:08	5
2-Methylnaphthalene	0.0014		0.0010	0.00056	mg/L		03/02/23 08:54	03/08/23 12:08	5
2-Methylphenol	ND		0.0050	0.0010	mg/L		03/02/23 08:54	03/08/23 12:08	5
2-Nitroaniline	ND		0.010	0.0026	mg/L		03/02/23 08:54	03/08/23 12:08	5
2-Nitrophenol	ND		0.010	0.0028	mg/L		03/02/23 08:54	03/08/23 12:08	5
3,3'-Dichlorobenzidine	ND		0.025	0.0058	mg/L		03/02/23 08:54	03/08/23 12:08	5
3-Nitroaniline	ND		0.010	0.0028	mg/L		03/02/23 08:54	03/08/23 12:08	5
4,6-Dinitro-2-methylphenol	ND		0.025	0.014	mg/L		03/02/23 08:54	03/08/23 12:08	5
4-Bromophenyl phenyl ether	ND		0.010	0.0025	mg/L		03/02/23 08:54	03/08/23 12:08	5
4-Chloro-3-methylphenol	ND		0.010	0.0015	mg/L		03/02/23 08:54	03/08/23 12:08	5
4-Chloroaniline	ND		0.010	0.0016	mg/L		03/02/23 08:54	03/08/23 12:08	5
4-Chlorophenyl phenyl ether	ND		0.010	0.0028	mg/L		03/02/23 08:54	03/08/23 12:08	5
4-Nitroaniline	ND		0.010	0.0046	mg/L		03/02/23 08:54	03/08/23 12:08	5
4-Nitrophenol	ND		0.050	0.011	mg/L		03/02/23 08:54	03/08/23 12:08	5
Acenaphthene	ND		0.0010	0.00086	mg/L		03/02/23 08:54	03/08/23 12:08	5
Acenaphthylene	ND		0.0010	0.00063	mg/L		03/02/23 08:54	03/08/23 12:08	5
Acetophenone	ND		0.0050	0.0018	mg/L		03/02/23 08:54	03/08/23 12:08	5
Anthracene	ND		0.0010	0.00068	mg/L		03/02/23 08:54	03/08/23 12:08	5
Atrazine	ND		0.010	0.0048	mg/L		03/02/23 08:54	03/08/23 12:08	5
Benzaldehyde	ND		0.010	0.0038	mg/L		03/02/23 08:54	03/08/23 12:08	5
Benzo[a]anthracene	ND		0.0010	0.00086	mg/L		03/02/23 08:54	03/08/23 12:08	5
Benzo[a]pyrene	ND		0.0010	0.00087	mg/L		03/02/23 08:54	03/08/23 12:08	5
Benzo[b]fluoranthene	ND		0.0010	0.00077	mg/L		03/02/23 08:54	03/08/23 12:08	5
Benzo[g,h,i]perylene	ND		0.0010	0.00089	mg/L		03/02/23 08:54	03/08/23 12:08	5
Benzo[k]fluoranthene	ND		0.0010	0.00070	mg/L		03/02/23 08:54	03/08/23 12:08	5

Eurofins Canton

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 257204 - BLUE BLDG WEST

Lab Sample ID: 240-181183-1

Date Collected: 03/01/23 12:40

Matrix: Water

Date Received: 03/01/23 20:00

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		0.0050	0.0023	mg/L		03/02/23 08:54	03/08/23 12:08	5
Bis(2-chloroethyl)ether	ND		0.0050	0.0020	mg/L		03/02/23 08:54	03/08/23 12:08	5
Bis(2-ethylhexyl) phthalate	ND		0.025	0.011	mg/L		03/02/23 08:54	03/08/23 12:08	5
Butyl benzyl phthalate	ND		0.010	0.0033	mg/L		03/02/23 08:54	03/08/23 12:08	5
Caprolactam	ND		0.025	0.0047	mg/L		03/02/23 08:54	03/08/23 12:08	5
Carbazole	ND		0.0050	0.0025	mg/L		03/02/23 08:54	03/08/23 12:08	5
Chrysene	ND		0.0010	0.00093	mg/L		03/02/23 08:54	03/08/23 12:08	5
Dibenz(a,h)anthracene	ND		0.0010	0.00076	mg/L		03/02/23 08:54	03/08/23 12:08	5
Dibenzofuran	ND		0.0050	0.0028	mg/L		03/02/23 08:54	03/08/23 12:08	5
Diethyl phthalate	ND		0.025	0.019	mg/L		03/02/23 08:54	03/08/23 12:08	5
Dimethyl phthalate	ND		0.010	0.0026	mg/L		03/02/23 08:54	03/08/23 12:08	5
Di-n-butyl phthalate	ND		0.025	0.0090	mg/L		03/02/23 08:54	03/08/23 12:08	5
Di-n-octyl phthalate	ND		0.010	0.0041	mg/L		03/02/23 08:54	03/08/23 12:08	5
Fluoranthene	ND		0.0010	0.00080	mg/L		03/02/23 08:54	03/08/23 12:08	5
Fluorene	ND		0.0010	0.00085	mg/L		03/02/23 08:54	03/08/23 12:08	5
Hexachlorobenzene	ND		0.0010	0.00081	mg/L		03/02/23 08:54	03/08/23 12:08	5
Hexachlorobutadiene	ND		0.0050	0.0027	mg/L		03/02/23 08:54	03/08/23 12:08	5
Hexachlorocyclopentadiene	ND		0.050	0.0088	mg/L		03/02/23 08:54	03/08/23 12:08	5
Hexachloroethane	ND		0.0050	0.0020	mg/L		03/02/23 08:54	03/08/23 12:08	5
Indeno[1,2,3-cd]pyrene	ND		0.0010	0.00068	mg/L		03/02/23 08:54	03/08/23 12:08	5
Isophorone	ND		0.0050	0.0016	mg/L		03/02/23 08:54	03/08/23 12:08	5
N-Nitrosodi-n-propylamine	ND		0.0050	0.0013	mg/L		03/02/23 08:54	03/08/23 12:08	5
N-Nitrosodiphenylamine	ND		0.0050	0.0022	mg/L		03/02/23 08:54	03/08/23 12:08	5
Naphthalene	0.0092		0.0010	0.00055	mg/L		03/02/23 08:54	03/08/23 12:08	5
Nitrobenzene	ND		0.0050	0.0026	mg/L		03/02/23 08:54	03/08/23 12:08	5
Pentachlorophenol	ND		0.050	0.016	mg/L		03/02/23 08:54	03/08/23 12:08	5
Phenanthrene	ND		0.0010	0.00084	mg/L		03/02/23 08:54	03/08/23 12:08	5
Phenol	ND		0.0050	0.00064	mg/L		03/02/23 08:54	03/08/23 12:08	5
Pyrene	ND		0.0010	0.00088	mg/L		03/02/23 08:54	03/08/23 12:08	5
3 & 4 Methylphenol	ND		0.010	0.00096	mg/L		03/02/23 08:54	03/08/23 12:08	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	74		46 - 137	03/02/23 08:54	03/08/23 12:08	5
Phenol-d5 (Surr)	47		26 - 120	03/02/23 08:54	03/08/23 12:08	5
Nitrobenzene-d5 (Surr)	65		24 - 120	03/02/23 08:54	03/08/23 12:08	5
2-Fluorophenol (Surr)	54		19 - 120	03/02/23 08:54	03/08/23 12:08	5
2-Fluorobiphenyl (Surr)	67		33 - 120	03/02/23 08:54	03/08/23 12:08	5
2,4,6-Tribromophenol (Surr)	55		10 - 120	03/02/23 08:54	03/08/23 12:08	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butoxyethanol	0.22		0.040	0.011	mg/L		03/02/23 08:54	03/09/23 08:07	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	77		46 - 137	03/02/23 08:54	03/09/23 08:07	10
Phenol-d5 (Surr)	51		26 - 120	03/02/23 08:54	03/09/23 08:07	10
Nitrobenzene-d5 (Surr)	63		24 - 120	03/02/23 08:54	03/09/23 08:07	10
2-Fluorophenol (Surr)	47		19 - 120	03/02/23 08:54	03/09/23 08:07	10
2-Fluorobiphenyl (Surr)	87		33 - 120	03/02/23 08:54	03/09/23 08:07	10
2,4,6-Tribromophenol (Surr)	34		10 - 120	03/02/23 08:54	03/09/23 08:07	10

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 257204 - BLUE BLDG WEST

Lab Sample ID: 240-181183-1

Date Collected: 03/01/23 12:40

Matrix: Water

Date Received: 03/01/23 20:00

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	1300	B	500	67	ug/L		03/06/23 07:59	03/06/23 12:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	69		52 - 121	03/06/23 07:59	03/06/23 12:24	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		03/02/23 14:00	03/03/23 12:36	1
Barium	0.021	J B	0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 12:36	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 12:36	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 12:36	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 12:36	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 12:36	1
Silver	ND		0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 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		03/02/23 14:00	03/03/23 13:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/03/23 08:46	1
Total Suspended Solids (SM 2540D-2015)	120		17	4.2	mg/L			03/03/23 10:03	1
Total Organic Carbon (SM 5310 C-2014)	26		1.0	0.35	mg/L			03/03/23 12:42	1
corrosivity by pH (SW846 9040C)	8.0	HF	0.1	0.1	SU			03/03/23 10:33	1

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251060 - BLUE BLDG EAST

Lab Sample ID: 240-181183-2

Date Collected: 03/01/23 12:50

Matrix: Water

Date Received: 03/01/23 20:00

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			03/02/23 22:40	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 22:40	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 22:40	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 22:40	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 22:40	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 22:40	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 22:40	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 22:40	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 22:40	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 22:40	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 22:40	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 22:40	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 22:40	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 22:40	1
2-Butanone (MEK)	0.0025	J	0.010	0.0012	mg/L			03/02/23 22:40	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 22:40	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 22:40	1
Acetone	0.014		0.010	0.0054	mg/L			03/02/23 22:40	1
Benzene	ND		0.0010	0.00042	mg/L			03/02/23 22:40	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 22:40	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 22:40	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 22:40	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 22:40	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 22:40	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 22:40	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 22:40	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 22:40	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 22:40	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 22:40	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 22:40	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 22:40	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 22:40	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 22:40	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 22:40	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 22:40	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 22:40	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 22:40	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 22:40	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 22:40	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 22:40	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 22:40	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 22:40	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 22:40	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 22:40	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 22:40	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 22:40	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/02/23 22:40	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 22:40	1
Butyl acrylate	24		4.2	0.96	mg/L			03/03/23 17:15	416.667

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251060 - BLUE BLDG EAST

Lab Sample ID: 240-181183-2

Date Collected: 03/01/23 12:50

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/02/23 22:40	1
2-Ethylhexyl acrylate	0.21	J	0.40	0.13	mg/L			03/02/23 16:44	40
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		78 - 122					03/02/23 16:44	40
Toluene-d8 (Surr)	99		78 - 122					03/02/23 22:40	1
Toluene-d8 (Surr)	99		78 - 122					03/03/23 17:15	416.667
Dibromofluoromethane (Surr)	105		73 - 120					03/02/23 16:44	40
Dibromofluoromethane (Surr)	111		73 - 120					03/02/23 22:40	1
Dibromofluoromethane (Surr)	111		73 - 120					03/03/23 17:15	416.667
4-Bromofluorobenzene (Surr)	93		56 - 136					03/02/23 16:44	40
4-Bromofluorobenzene (Surr)	106		56 - 136					03/02/23 22:40	1
4-Bromofluorobenzene (Surr)	98		56 - 136					03/03/23 17:15	416.667
1,2-Dichloroethane-d4 (Surr)	99		62 - 137					03/02/23 16:44	40
1,2-Dichloroethane-d4 (Surr)	100		62 - 137					03/02/23 22:40	1
1,2-Dichloroethane-d4 (Surr)	106		62 - 137					03/03/23 17:15	416.667

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.10	0.049	mg/L		03/02/23 08:54	03/08/23 12:31	100
bis (2-chloroisopropyl) ether	ND		0.10	0.055	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,4,5-Trichlorophenol	ND		0.50	0.20	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,4,6-Trichlorophenol	ND		0.50	0.18	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,4-Dichlorophenol	ND		0.20	0.026	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,4-Dimethylphenol	ND		0.20	0.052	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,4-Dinitrophenol	ND		1.0	0.62	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,4-Dinitrotoluene	ND		0.50	0.21	mg/L		03/02/23 08:54	03/08/23 12:31	100
2,6-Dinitrotoluene	ND		0.50	0.21	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Chloronaphthalene	ND		0.10	0.048	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Chlorophenol	ND		0.10	0.027	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Methylnaphthalene	ND		0.020	0.011	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Methylphenol	ND		0.10	0.021	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Nitroaniline	ND		0.20	0.051	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Nitrophenol	ND		0.20	0.056	mg/L		03/02/23 08:54	03/08/23 12:31	100
3,3'-Dichlorobenzidine	ND		0.50	0.12	mg/L		03/02/23 08:54	03/08/23 12:31	100
3-Nitroaniline	ND		0.20	0.057	mg/L		03/02/23 08:54	03/08/23 12:31	100
4,6-Dinitro-2-methylphenol	ND		0.50	0.28	mg/L		03/02/23 08:54	03/08/23 12:31	100
4-Bromophenyl phenyl ether	ND		0.20	0.050	mg/L		03/02/23 08:54	03/08/23 12:31	100
4-Chloro-3-methylphenol	ND		0.20	0.030	mg/L		03/02/23 08:54	03/08/23 12:31	100
4-Chloroaniline	ND		0.20	0.032	mg/L		03/02/23 08:54	03/08/23 12:31	100
4-Chlorophenyl phenyl ether	ND		0.20	0.055	mg/L		03/02/23 08:54	03/08/23 12:31	100
4-Nitroaniline	ND		0.20	0.092	mg/L		03/02/23 08:54	03/08/23 12:31	100
4-Nitrophenol	ND		1.0	0.22	mg/L		03/02/23 08:54	03/08/23 12:31	100
Acenaphthene	ND		0.020	0.017	mg/L		03/02/23 08:54	03/08/23 12:31	100
Acenaphthylene	ND		0.020	0.013	mg/L		03/02/23 08:54	03/08/23 12:31	100
Acetophenone	ND		0.10	0.037	mg/L		03/02/23 08:54	03/08/23 12:31	100
Anthracene	ND		0.020	0.014	mg/L		03/02/23 08:54	03/08/23 12:31	100
Atrazine	ND		0.20	0.095	mg/L		03/02/23 08:54	03/08/23 12:31	100
Benzaldehyde	ND		0.20	0.076	mg/L		03/02/23 08:54	03/08/23 12:31	100
Benzo[a]anthracene	ND		0.020	0.017	mg/L		03/02/23 08:54	03/08/23 12:31	100

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251060 - BLUE BLDG EAST

Lab Sample ID: 240-181183-2

Date Collected: 03/01/23 12:50

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.020	0.017	mg/L		03/02/23 08:54	03/08/23 12:31	100
Benzo[b]fluoranthene	ND		0.020	0.015	mg/L		03/02/23 08:54	03/08/23 12:31	100
Benzo[g,h,i]perylene	ND		0.020	0.018	mg/L		03/02/23 08:54	03/08/23 12:31	100
Benzo[k]fluoranthene	ND		0.020	0.014	mg/L		03/02/23 08:54	03/08/23 12:31	100
Bis(2-chloroethoxy)methane	ND		0.10	0.046	mg/L		03/02/23 08:54	03/08/23 12:31	100
Bis(2-chloroethyl)ether	ND		0.10	0.040	mg/L		03/02/23 08:54	03/08/23 12:31	100
Bis(2-ethylhexyl) phthalate	ND		0.50	0.22	mg/L		03/02/23 08:54	03/08/23 12:31	100
Butyl benzyl phthalate	ND		0.20	0.067	mg/L		03/02/23 08:54	03/08/23 12:31	100
Caprolactam	ND		0.50	0.093	mg/L		03/02/23 08:54	03/08/23 12:31	100
Carbazole	ND		0.10	0.049	mg/L		03/02/23 08:54	03/08/23 12:31	100
Chrysene	ND		0.020	0.019	mg/L		03/02/23 08:54	03/08/23 12:31	100
Dibenz(a,h)anthracene	ND		0.020	0.015	mg/L		03/02/23 08:54	03/08/23 12:31	100
Dibenzofuran	ND		0.10	0.056	mg/L		03/02/23 08:54	03/08/23 12:31	100
Diethyl phthalate	ND		0.50	0.38	mg/L		03/02/23 08:54	03/08/23 12:31	100
Dimethyl phthalate	ND		0.20	0.052	mg/L		03/02/23 08:54	03/08/23 12:31	100
Di-n-butyl phthalate	ND		0.50	0.18	mg/L		03/02/23 08:54	03/08/23 12:31	100
Di-n-octyl phthalate	ND		0.20	0.082	mg/L		03/02/23 08:54	03/08/23 12:31	100
Fluoranthene	ND		0.020	0.016	mg/L		03/02/23 08:54	03/08/23 12:31	100
Fluorene	ND		0.020	0.017	mg/L		03/02/23 08:54	03/08/23 12:31	100
Hexachlorobenzene	ND		0.020	0.016	mg/L		03/02/23 08:54	03/08/23 12:31	100
Hexachlorobutadiene	ND		0.10	0.054	mg/L		03/02/23 08:54	03/08/23 12:31	100
Hexachlorocyclopentadiene	ND		1.0	0.18	mg/L		03/02/23 08:54	03/08/23 12:31	100
Hexachloroethane	ND		0.10	0.040	mg/L		03/02/23 08:54	03/08/23 12:31	100
Indeno[1,2,3-cd]pyrene	ND		0.020	0.014	mg/L		03/02/23 08:54	03/08/23 12:31	100
Isophorone	ND		0.10	0.032	mg/L		03/02/23 08:54	03/08/23 12:31	100
N-Nitrosodi-n-propylamine	ND		0.10	0.025	mg/L		03/02/23 08:54	03/08/23 12:31	100
N-Nitrosodiphenylamine	ND		0.10	0.044	mg/L		03/02/23 08:54	03/08/23 12:31	100
Naphthalene	ND		0.020	0.011	mg/L		03/02/23 08:54	03/08/23 12:31	100
Nitrobenzene	ND		0.10	0.051	mg/L		03/02/23 08:54	03/08/23 12:31	100
Pentachlorophenol	ND		1.0	0.31	mg/L		03/02/23 08:54	03/08/23 12:31	100
Phenanthrene	ND		0.020	0.017	mg/L		03/02/23 08:54	03/08/23 12:31	100
Phenol	ND		0.10	0.013	mg/L		03/02/23 08:54	03/08/23 12:31	100
Pyrene	ND		0.020	0.018	mg/L		03/02/23 08:54	03/08/23 12:31	100
3 & 4 Methylphenol	ND		0.20	0.019	mg/L		03/02/23 08:54	03/08/23 12:31	100
2-Butoxyethanol	1.6		0.40	0.11	mg/L		03/02/23 08:54	03/08/23 12:31	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/02/23 08:54	03/08/23 12:31	100
Phenol-d5 (Surr)	0	S1-	26 - 120	03/02/23 08:54	03/08/23 12:31	100
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/02/23 08:54	03/08/23 12:31	100
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/02/23 08:54	03/08/23 12:31	100
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/02/23 08:54	03/08/23 12:31	100
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/02/23 08:54	03/08/23 12:31	100

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	1400	B	490	67	ug/L		03/06/23 07:59	03/06/23 12:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	71		52 - 121	03/06/23 07:59	03/06/23 12:52	1

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251060 - BLUE BLDG EAST

Lab Sample ID: 240-181183-2

Date Collected: 03/01/23 12:50

Matrix: Water

Date Received: 03/01/23 20:00

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		03/02/23 14:00	03/03/23 12:41	1
Barium	0.064	J B	0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 12:41	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 12:41	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 12:41	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 12:41	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 12:41	1
Silver	0.00084	J	0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 12:41	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		03/02/23 14:00	03/03/23 13:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/03/23 09:49	1
Total Suspended Solids (SM 2540D-2015)	7.3		4.0	1.0	mg/L			03/03/23 10:03	1
Total Organic Carbon (SM 5310 C-2014)	49		5.0	1.7	mg/L			03/03/23 12:02	5
corrosivity by pH (SW846 9040C)	7.9	HF	0.1	0.1	SU			03/03/23 08:52	1

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251079 - CLARK

Lab Sample ID: 240-181183-3

Date Collected: 03/01/23 13:00

Matrix: Water

Date Received: 03/01/23 20:00

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			03/03/23 14:53	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/03/23 14:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/03/23 14:53	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/03/23 14:53	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/03/23 14:53	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/03/23 14:53	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/03/23 14:53	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/03/23 14:53	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/03/23 14:53	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/03/23 14:53	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/03/23 14:53	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/03/23 14:53	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/03/23 14:53	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/03/23 14:53	1
2-Butanone (MEK)	0.0019	J	0.010	0.0012	mg/L			03/03/23 14:53	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/03/23 14:53	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/03/23 14:53	1
Acetone	0.011		0.010	0.0054	mg/L			03/03/23 14:53	1
Benzene	0.00098	J	0.0010	0.00042	mg/L			03/03/23 14:53	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/03/23 14:53	1
Bromoform	ND		0.0010	0.00076	mg/L			03/03/23 14:53	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/03/23 14:53	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/03/23 14:53	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/03/23 14:53	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/03/23 14:53	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/03/23 14:53	1
Chloroform	ND		0.0010	0.00047	mg/L			03/03/23 14:53	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/03/23 14:53	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/03/23 14:53	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/03/23 14:53	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/03/23 14:53	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/03/23 14:53	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/03/23 14:53	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/03/23 14:53	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/03/23 14:53	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/03/23 14:53	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/03/23 14:53	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/03/23 14:53	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/03/23 14:53	1
Styrene	ND		0.0010	0.00045	mg/L			03/03/23 14:53	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/03/23 14:53	1
Toluene	ND		0.0010	0.00044	mg/L			03/03/23 14:53	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/03/23 14:53	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/03/23 14:53	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/03/23 14:53	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/03/23 14:53	1
Vinyl chloride	0.0011		0.0010	0.00045	mg/L			03/03/23 14:53	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/03/23 14:53	1
Butyl acrylate	0.22		0.050	0.011	mg/L			03/03/23 21:14	5

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251079 - CLARK

Lab Sample ID: 240-181183-3

Date Collected: 03/01/23 13:00

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/03/23 14:53	1
2-Ethylhexyl acrylate	0.22		0.050	0.017	mg/L			03/03/23 21:14	5

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	100		78 - 122					03/03/23 14:53	1
<i>Toluene-d8 (Surr)</i>	97		78 - 122					03/03/23 21:14	5
<i>Dibromofluoromethane (Surr)</i>	111		73 - 120					03/03/23 14:53	1
<i>Dibromofluoromethane (Surr)</i>	104		73 - 120					03/03/23 21:14	5
<i>4-Bromofluorobenzene (Surr)</i>	106		56 - 136					03/03/23 14:53	1
<i>4-Bromofluorobenzene (Surr)</i>	96		56 - 136					03/03/23 21:14	5
<i>1,2-Dichloroethane-d4 (Surr)</i>	106		62 - 137					03/03/23 14:53	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	99		62 - 137					03/03/23 21:14	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.40	0.20	mg/L		03/02/23 08:54	03/08/23 12:54	400
bis (2-chloroisopropyl) ether	ND		0.40	0.22	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,4,5-Trichlorophenol	ND		2.0	0.79	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,4,6-Trichlorophenol	ND		2.0	0.72	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,4-Dichlorophenol	ND		0.80	0.10	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,4-Dimethylphenol	ND		0.80	0.21	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,4-Dinitrophenol	ND		4.0	2.5	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,4-Dinitrotoluene	ND		2.0	0.83	mg/L		03/02/23 08:54	03/08/23 12:54	400
2,6-Dinitrotoluene	ND		2.0	0.85	mg/L		03/02/23 08:54	03/08/23 12:54	400
2-Chloronaphthalene	ND		0.40	0.19	mg/L		03/02/23 08:54	03/08/23 12:54	400
2-Chlorophenol	ND		0.40	0.11	mg/L		03/02/23 08:54	03/08/23 12:54	400
2-Methylnaphthalene	ND		0.080	0.044	mg/L		03/02/23 08:54	03/08/23 12:54	400
2-Methylphenol	ND		0.40	0.084	mg/L		03/02/23 08:54	03/08/23 12:54	400
2-Nitroaniline	ND		0.80	0.20	mg/L		03/02/23 08:54	03/08/23 12:54	400
2-Nitrophenol	ND		0.80	0.23	mg/L		03/02/23 08:54	03/08/23 12:54	400
3,3'-Dichlorobenzidine	ND		2.0	0.46	mg/L		03/02/23 08:54	03/08/23 12:54	400
3-Nitroaniline	ND		0.80	0.23	mg/L		03/02/23 08:54	03/08/23 12:54	400
4,6-Dinitro-2-methylphenol	ND		2.0	1.1	mg/L		03/02/23 08:54	03/08/23 12:54	400
4-Bromophenyl phenyl ether	ND		0.80	0.20	mg/L		03/02/23 08:54	03/08/23 12:54	400
4-Chloro-3-methylphenol	ND		0.80	0.12	mg/L		03/02/23 08:54	03/08/23 12:54	400
4-Chloroaniline	ND		0.80	0.13	mg/L		03/02/23 08:54	03/08/23 12:54	400
4-Chlorophenyl phenyl ether	ND		0.80	0.22	mg/L		03/02/23 08:54	03/08/23 12:54	400
4-Nitroaniline	ND		0.80	0.37	mg/L		03/02/23 08:54	03/08/23 12:54	400
4-Nitrophenol	ND		4.0	0.87	mg/L		03/02/23 08:54	03/08/23 12:54	400
Acenaphthene	ND		0.080	0.069	mg/L		03/02/23 08:54	03/08/23 12:54	400
Acenaphthylene	ND		0.080	0.050	mg/L		03/02/23 08:54	03/08/23 12:54	400
Acetophenone	ND		0.40	0.15	mg/L		03/02/23 08:54	03/08/23 12:54	400
Anthracene	ND		0.080	0.054	mg/L		03/02/23 08:54	03/08/23 12:54	400
Atrazine	ND		0.80	0.38	mg/L		03/02/23 08:54	03/08/23 12:54	400
Benzaldehyde	ND		0.80	0.30	mg/L		03/02/23 08:54	03/08/23 12:54	400
Benzo[a]anthracene	ND		0.080	0.068	mg/L		03/02/23 08:54	03/08/23 12:54	400
Benzo[a]pyrene	ND		0.080	0.069	mg/L		03/02/23 08:54	03/08/23 12:54	400
Benzo[b]fluoranthene	ND		0.080	0.062	mg/L		03/02/23 08:54	03/08/23 12:54	400
Benzo[g,h,i]perylene	ND		0.080	0.071	mg/L		03/02/23 08:54	03/08/23 12:54	400
Benzo[k]fluoranthene	ND		0.080	0.056	mg/L		03/02/23 08:54	03/08/23 12:54	400

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251079 - CLARK

Lab Sample ID: 240-181183-3

Date Collected: 03/01/23 13:00

Matrix: Water

Date Received: 03/01/23 20:00

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		0.40	0.18	mg/L		03/02/23 08:54	03/08/23 12:54	400
Bis(2-chloroethyl)ether	ND		0.40	0.16	mg/L		03/02/23 08:54	03/08/23 12:54	400
Bis(2-ethylhexyl) phthalate	ND		2.0	0.89	mg/L		03/02/23 08:54	03/08/23 12:54	400
Butyl benzyl phthalate	ND		0.80	0.27	mg/L		03/02/23 08:54	03/08/23 12:54	400
Caprolactam	ND		2.0	0.37	mg/L		03/02/23 08:54	03/08/23 12:54	400
Carbazole	ND		0.40	0.20	mg/L		03/02/23 08:54	03/08/23 12:54	400
Chrysene	ND		0.080	0.074	mg/L		03/02/23 08:54	03/08/23 12:54	400
Dibenz(a,h)anthracene	ND		0.080	0.060	mg/L		03/02/23 08:54	03/08/23 12:54	400
Dibenzofuran	ND		0.40	0.22	mg/L		03/02/23 08:54	03/08/23 12:54	400
Diethyl phthalate	ND		2.0	1.5	mg/L		03/02/23 08:54	03/08/23 12:54	400
Dimethyl phthalate	ND		0.80	0.21	mg/L		03/02/23 08:54	03/08/23 12:54	400
Di-n-butyl phthalate	ND		2.0	0.72	mg/L		03/02/23 08:54	03/08/23 12:54	400
Di-n-octyl phthalate	ND		0.80	0.33	mg/L		03/02/23 08:54	03/08/23 12:54	400
Fluoranthene	ND		0.080	0.064	mg/L		03/02/23 08:54	03/08/23 12:54	400
Fluorene	ND		0.080	0.068	mg/L		03/02/23 08:54	03/08/23 12:54	400
Hexachlorobenzene	ND		0.080	0.064	mg/L		03/02/23 08:54	03/08/23 12:54	400
Hexachlorobutadiene	ND		0.40	0.22	mg/L		03/02/23 08:54	03/08/23 12:54	400
Hexachlorocyclopentadiene	ND		4.0	0.70	mg/L		03/02/23 08:54	03/08/23 12:54	400
Hexachloroethane	ND		0.40	0.16	mg/L		03/02/23 08:54	03/08/23 12:54	400
Indeno[1,2,3-cd]pyrene	ND		0.080	0.054	mg/L		03/02/23 08:54	03/08/23 12:54	400
Isophorone	ND		0.40	0.13	mg/L		03/02/23 08:54	03/08/23 12:54	400
N-Nitrosodi-n-propylamine	ND		0.40	0.10	mg/L		03/02/23 08:54	03/08/23 12:54	400
N-Nitrosodiphenylamine	ND		0.40	0.18	mg/L		03/02/23 08:54	03/08/23 12:54	400
Naphthalene	ND		0.080	0.044	mg/L		03/02/23 08:54	03/08/23 12:54	400
Nitrobenzene	ND		0.40	0.21	mg/L		03/02/23 08:54	03/08/23 12:54	400
Pentachlorophenol	ND		4.0	1.2	mg/L		03/02/23 08:54	03/08/23 12:54	400
Phenanthrene	ND		0.080	0.067	mg/L		03/02/23 08:54	03/08/23 12:54	400
Phenol	ND		0.40	0.051	mg/L		03/02/23 08:54	03/08/23 12:54	400
Pyrene	ND		0.080	0.070	mg/L		03/02/23 08:54	03/08/23 12:54	400
3 & 4 Methylphenol	ND		0.80	0.076	mg/L		03/02/23 08:54	03/08/23 12:54	400

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/02/23 08:54	03/08/23 12:54	400
Phenol-d5 (Surr)	0	S1-	26 - 120	03/02/23 08:54	03/08/23 12:54	400
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/02/23 08:54	03/08/23 12:54	400
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/02/23 08:54	03/08/23 12:54	400
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/02/23 08:54	03/08/23 12:54	400
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/02/23 08:54	03/08/23 12:54	400

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butoxyethanol	12		4.0	1.1	mg/L		03/02/23 08:54	03/09/23 08:27	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/02/23 08:54	03/09/23 08:27	1000
Phenol-d5 (Surr)	0	S1-	26 - 120	03/02/23 08:54	03/09/23 08:27	1000
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/02/23 08:54	03/09/23 08:27	1000
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/02/23 08:54	03/09/23 08:27	1000
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/02/23 08:54	03/09/23 08:27	1000
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/02/23 08:54	03/09/23 08:27	1000

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251079 - CLARK

Lab Sample ID: 240-181183-3

Date Collected: 03/01/23 13:00

Matrix: Water

Date Received: 03/01/23 20:00

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	1900	B	490	67	ug/L		03/06/23 07:59	03/06/23 11:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	48	S1-	52 - 121				03/06/23 07:59	03/06/23 11:29	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		03/02/23 14:00	03/03/23 12:45	1
Barium	0.037	J B	0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 12:45	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 12:45	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 12:45	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 12:45	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 12:45	1
Silver	ND		0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 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		03/02/23 14:00	03/03/23 13:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/03/23 10:20	1
Total Suspended Solids (SM 2540D-2015)	23		5.1	1.3	mg/L			03/03/23 10:03	1
Total Organic Carbon (SM 5310 C-2014)	49		5.0	1.7	mg/L			03/03/23 12:15	5
corrosivity by pH (SW846 9040C)	7.9	HF	0.1	0.1	SU			03/03/23 08:59	1

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251633 - PLEASANT

Lab Sample ID: 240-181183-4

Date Collected: 03/01/23 13:25

Matrix: Water

Date Received: 03/01/23 20:00

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			03/02/23 23:04	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 23:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 23:04	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 23:04	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 23:04	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 23:04	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 23:04	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 23:04	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 23:04	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 23:04	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 23:04	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 23:04	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 23:04	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 23:04	1
2-Butanone (MEK)	0.0032	J	0.010	0.0012	mg/L			03/02/23 23:04	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 23:04	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 23:04	1
Acetone	0.014		0.010	0.0054	mg/L			03/02/23 23:04	1
Benzene	0.0016		0.0010	0.00042	mg/L			03/02/23 23:04	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 23:04	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 23:04	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 23:04	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 23:04	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 23:04	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 23:04	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 23:04	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 23:04	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 23:04	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 23:04	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 23:04	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 23:04	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 23:04	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 23:04	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 23:04	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 23:04	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 23:04	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 23:04	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 23:04	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 23:04	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 23:04	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 23:04	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 23:04	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 23:04	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 23:04	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 23:04	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 23:04	1
Vinyl chloride	0.0046		0.0010	0.00045	mg/L			03/02/23 23:04	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 23:04	1
Butyl acrylate	0.47		0.10	0.023	mg/L			03/02/23 17:31	10

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251633 - PLEASANT

Lab Sample ID: 240-181183-4

Date Collected: 03/01/23 13:25

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	0.0014	J	0.0020	0.00062	mg/L			03/02/23 23:04	1
2-Ethylhexyl acrylate	0.18		0.10	0.033	mg/L			03/02/23 17:31	10

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		78 - 122					03/02/23 17:31	10
Toluene-d8 (Surr)	102		78 - 122					03/02/23 23:04	1
Dibromofluoromethane (Surr)	105		73 - 120					03/02/23 17:31	10
Dibromofluoromethane (Surr)	110		73 - 120					03/02/23 23:04	1
4-Bromofluorobenzene (Surr)	92		56 - 136					03/02/23 17:31	10
4-Bromofluorobenzene (Surr)	101		56 - 136					03/02/23 23:04	1
1,2-Dichloroethane-d4 (Surr)	99		62 - 137					03/02/23 17:31	10
1,2-Dichloroethane-d4 (Surr)	102		62 - 137					03/02/23 23:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.20	0.098	mg/L		03/02/23 08:54	03/08/23 13:18	200
bis (2-chloroisopropyl) ether	ND		0.20	0.11	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,4,5-Trichlorophenol	ND		1.0	0.40	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,4,6-Trichlorophenol	ND		1.0	0.36	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,4-Dichlorophenol	ND		0.40	0.052	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,4-Dimethylphenol	ND		0.40	0.10	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,4-Dinitrophenol	ND		2.0	1.2	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,4-Dinitrotoluene	ND		1.0	0.41	mg/L		03/02/23 08:54	03/08/23 13:18	200
2,6-Dinitrotoluene	ND		1.0	0.43	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Chloronaphthalene	ND		0.20	0.097	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Chlorophenol	ND		0.20	0.055	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Methylnaphthalene	ND		0.040	0.022	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Methylphenol	ND		0.20	0.042	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Nitroaniline	ND		0.40	0.10	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Nitrophenol	ND		0.40	0.11	mg/L		03/02/23 08:54	03/08/23 13:18	200
3,3'-Dichlorobenzidine	ND		1.0	0.23	mg/L		03/02/23 08:54	03/08/23 13:18	200
3-Nitroaniline	ND		0.40	0.11	mg/L		03/02/23 08:54	03/08/23 13:18	200
4,6-Dinitro-2-methylphenol	ND		1.0	0.56	mg/L		03/02/23 08:54	03/08/23 13:18	200
4-Bromophenyl phenyl ether	ND		0.40	0.10	mg/L		03/02/23 08:54	03/08/23 13:18	200
4-Chloro-3-methylphenol	ND		0.40	0.059	mg/L		03/02/23 08:54	03/08/23 13:18	200
4-Chloroaniline	ND		0.40	0.063	mg/L		03/02/23 08:54	03/08/23 13:18	200
4-Chlorophenyl phenyl ether	ND		0.40	0.11	mg/L		03/02/23 08:54	03/08/23 13:18	200
4-Nitroaniline	ND		0.40	0.18	mg/L		03/02/23 08:54	03/08/23 13:18	200
4-Nitrophenol	ND		2.0	0.43	mg/L		03/02/23 08:54	03/08/23 13:18	200
Acenaphthene	ND		0.040	0.034	mg/L		03/02/23 08:54	03/08/23 13:18	200
Acenaphthylene	ND		0.040	0.025	mg/L		03/02/23 08:54	03/08/23 13:18	200
Acetophenone	ND		0.20	0.073	mg/L		03/02/23 08:54	03/08/23 13:18	200
Anthracene	ND		0.040	0.027	mg/L		03/02/23 08:54	03/08/23 13:18	200
Atrazine	ND		0.40	0.19	mg/L		03/02/23 08:54	03/08/23 13:18	200
Benzaldehyde	ND		0.40	0.15	mg/L		03/02/23 08:54	03/08/23 13:18	200
Benzo[a]anthracene	ND		0.040	0.034	mg/L		03/02/23 08:54	03/08/23 13:18	200
Benzo[a]pyrene	ND		0.040	0.035	mg/L		03/02/23 08:54	03/08/23 13:18	200
Benzo[b]fluoranthene	ND		0.040	0.031	mg/L		03/02/23 08:54	03/08/23 13:18	200
Benzo[g,h,i]perylene	ND		0.040	0.036	mg/L		03/02/23 08:54	03/08/23 13:18	200
Benzo[k]fluoranthene	ND		0.040	0.028	mg/L		03/02/23 08:54	03/08/23 13:18	200

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251633 - PLEASANT

Lab Sample ID: 240-181183-4

Date Collected: 03/01/23 13:25

Matrix: Water

Date Received: 03/01/23 20:00

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		0.20	0.091	mg/L		03/02/23 08:54	03/08/23 13:18	200
Bis(2-chloroethyl)ether	ND		0.20	0.080	mg/L		03/02/23 08:54	03/08/23 13:18	200
Bis(2-ethylhexyl) phthalate	ND		1.0	0.44	mg/L		03/02/23 08:54	03/08/23 13:18	200
Butyl benzyl phthalate	ND		0.40	0.13	mg/L		03/02/23 08:54	03/08/23 13:18	200
Caprolactam	ND		1.0	0.19	mg/L		03/02/23 08:54	03/08/23 13:18	200
Carbazole	ND		0.20	0.098	mg/L		03/02/23 08:54	03/08/23 13:18	200
Chrysene	ND		0.040	0.037	mg/L		03/02/23 08:54	03/08/23 13:18	200
Dibenz(a,h)anthracene	ND		0.040	0.030	mg/L		03/02/23 08:54	03/08/23 13:18	200
Dibenzofuran	ND		0.20	0.11	mg/L		03/02/23 08:54	03/08/23 13:18	200
Diethyl phthalate	ND		1.0	0.76	mg/L		03/02/23 08:54	03/08/23 13:18	200
Dimethyl phthalate	ND		0.40	0.10	mg/L		03/02/23 08:54	03/08/23 13:18	200
Di-n-butyl phthalate	ND		1.0	0.36	mg/L		03/02/23 08:54	03/08/23 13:18	200
Di-n-octyl phthalate	ND		0.40	0.16	mg/L		03/02/23 08:54	03/08/23 13:18	200
Fluoranthene	ND		0.040	0.032	mg/L		03/02/23 08:54	03/08/23 13:18	200
Fluorene	ND		0.040	0.034	mg/L		03/02/23 08:54	03/08/23 13:18	200
Hexachlorobenzene	ND		0.040	0.032	mg/L		03/02/23 08:54	03/08/23 13:18	200
Hexachlorobutadiene	ND		0.20	0.11	mg/L		03/02/23 08:54	03/08/23 13:18	200
Hexachlorocyclopentadiene	ND		2.0	0.35	mg/L		03/02/23 08:54	03/08/23 13:18	200
Hexachloroethane	ND		0.20	0.079	mg/L		03/02/23 08:54	03/08/23 13:18	200
Indeno[1,2,3-cd]pyrene	ND		0.040	0.027	mg/L		03/02/23 08:54	03/08/23 13:18	200
Isophorone	ND		0.20	0.065	mg/L		03/02/23 08:54	03/08/23 13:18	200
N-Nitrosodi-n-propylamine	ND		0.20	0.051	mg/L		03/02/23 08:54	03/08/23 13:18	200
N-Nitrosodiphenylamine	ND		0.20	0.088	mg/L		03/02/23 08:54	03/08/23 13:18	200
Naphthalene	ND		0.040	0.022	mg/L		03/02/23 08:54	03/08/23 13:18	200
Nitrobenzene	ND		0.20	0.10	mg/L		03/02/23 08:54	03/08/23 13:18	200
Pentachlorophenol	ND		2.0	0.62	mg/L		03/02/23 08:54	03/08/23 13:18	200
Phenanthrene	ND		0.040	0.033	mg/L		03/02/23 08:54	03/08/23 13:18	200
Phenol	ND		0.20	0.026	mg/L		03/02/23 08:54	03/08/23 13:18	200
Pyrene	ND		0.040	0.035	mg/L		03/02/23 08:54	03/08/23 13:18	200
3 & 4 Methylphenol	ND		0.40	0.038	mg/L		03/02/23 08:54	03/08/23 13:18	200
2-Butoxyethanol	5.4		0.80	0.21	mg/L		03/02/23 08:54	03/08/23 13:18	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/02/23 08:54	03/08/23 13:18	200
Phenol-d5 (Surr)	0	S1-	26 - 120	03/02/23 08:54	03/08/23 13:18	200
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/02/23 08:54	03/08/23 13:18	200
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/02/23 08:54	03/08/23 13:18	200
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/02/23 08:54	03/08/23 13:18	200
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/02/23 08:54	03/08/23 13:18	200

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	2000	B	490	67	ug/L		03/06/23 07:59	03/06/23 11:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	63		52 - 121	03/06/23 07:59	03/06/23 11:57	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		03/02/23 14:00	03/03/23 12:49	1

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251633 - PLEASANT

Lab Sample ID: 240-181183-4

Date Collected: 03/01/23 13:25

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.044	J B	0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 12:49	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 12:49	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 12:49	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 12:49	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 12:49	1
Silver	ND		0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 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		03/02/23 14:00	03/03/23 13:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/03/23 10:52	1
Total Suspended Solids (SM 2540D-2015)	23		4.3	1.1	mg/L			03/03/23 10:03	1
Total Organic Carbon (SM 5310 C-2014)	140		10	3.5	mg/L			03/03/23 12:29	10
corrosivity by pH (SW846 9040C)	7.9	HF	0.1	0.1	SU			03/03/23 09:06	1

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251478 - GAS STATION

Lab Sample ID: 240-181183-5

Date Collected: 03/01/23 13:35

Matrix: Water

Date Received: 03/01/23 20:00

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			03/02/23 23:27	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 23:27	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 23:27	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 23:27	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 23:27	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 23:27	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 23:27	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 23:27	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 23:27	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 23:27	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 23:27	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 23:27	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 23:27	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 23:27	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/02/23 23:27	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 23:27	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 23:27	1
Acetone	ND		0.010	0.0054	mg/L			03/02/23 23:27	1
Benzene	ND		0.0010	0.00042	mg/L			03/02/23 23:27	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 23:27	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 23:27	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 23:27	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 23:27	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 23:27	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 23:27	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 23:27	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 23:27	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 23:27	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 23:27	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 23:27	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 23:27	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 23:27	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 23:27	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 23:27	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 23:27	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 23:27	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 23:27	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 23:27	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 23:27	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 23:27	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 23:27	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 23:27	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 23:27	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 23:27	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 23:27	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 23:27	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/02/23 23:27	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 23:27	1
Butyl acrylate	0.24		0.040	0.0092	mg/L			03/03/23 14:06	4

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251478 - GAS STATION

Lab Sample ID: 240-181183-5

Date Collected: 03/01/23 13:35

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	0.00097	J	0.0020	0.00062	mg/L			03/02/23 23:27	1
2-Ethylhexyl acrylate	0.046		0.040	0.013	mg/L			03/03/23 14:06	4

Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		78 - 122				03/02/23 23:27	1
Toluene-d8 (Surr)	102		78 - 122				03/03/23 14:06	4
Dibromofluoromethane (Surr)	112		73 - 120				03/02/23 23:27	1
Dibromofluoromethane (Surr)	113		73 - 120				03/03/23 14:06	4
4-Bromofluorobenzene (Surr)	103		56 - 136				03/02/23 23:27	1
4-Bromofluorobenzene (Surr)	100		56 - 136				03/03/23 14:06	4
1,2-Dichloroethane-d4 (Surr)	106		62 - 137				03/02/23 23:27	1
1,2-Dichloroethane-d4 (Surr)	109		62 - 137				03/03/23 14:06	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	0.20	mg/L		03/02/23 08:54	03/08/23 13:41	400
bis (2-chloroisopropyl) ether	ND		0.40	0.22	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,4,5-Trichlorophenol	ND		2.0	0.79	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,4,6-Trichlorophenol	ND		2.0	0.72	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,4-Dichlorophenol	ND		0.80	0.10	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,4-Dimethylphenol	ND		0.80	0.21	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,4-Dinitrophenol	ND		4.0	2.5	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,4-Dinitrotoluene	ND		2.0	0.83	mg/L		03/02/23 08:54	03/08/23 13:41	400
2,6-Dinitrotoluene	ND		2.0	0.85	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Chloronaphthalene	ND		0.40	0.19	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Chlorophenol	ND		0.40	0.11	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Methylnaphthalene	ND		0.080	0.044	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Methylphenol	ND		0.40	0.084	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Nitroaniline	ND		0.80	0.20	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Nitrophenol	ND		0.80	0.23	mg/L		03/02/23 08:54	03/08/23 13:41	400
3,3'-Dichlorobenzidine	ND		2.0	0.46	mg/L		03/02/23 08:54	03/08/23 13:41	400
3-Nitroaniline	ND		0.80	0.23	mg/L		03/02/23 08:54	03/08/23 13:41	400
4,6-Dinitro-2-methylphenol	ND		2.0	1.1	mg/L		03/02/23 08:54	03/08/23 13:41	400
4-Bromophenyl phenyl ether	ND		0.80	0.20	mg/L		03/02/23 08:54	03/08/23 13:41	400
4-Chloro-3-methylphenol	ND		0.80	0.12	mg/L		03/02/23 08:54	03/08/23 13:41	400
4-Chloroaniline	ND		0.80	0.13	mg/L		03/02/23 08:54	03/08/23 13:41	400
4-Chlorophenyl phenyl ether	ND		0.80	0.22	mg/L		03/02/23 08:54	03/08/23 13:41	400
4-Nitroaniline	ND		0.80	0.37	mg/L		03/02/23 08:54	03/08/23 13:41	400
4-Nitrophenol	ND		4.0	0.87	mg/L		03/02/23 08:54	03/08/23 13:41	400
Acenaphthene	ND		0.080	0.069	mg/L		03/02/23 08:54	03/08/23 13:41	400
Acenaphthylene	ND		0.080	0.050	mg/L		03/02/23 08:54	03/08/23 13:41	400
Acetophenone	ND		0.40	0.15	mg/L		03/02/23 08:54	03/08/23 13:41	400
Anthracene	ND		0.080	0.054	mg/L		03/02/23 08:54	03/08/23 13:41	400
Atrazine	ND		0.80	0.38	mg/L		03/02/23 08:54	03/08/23 13:41	400
Benzaldehyde	ND		0.80	0.30	mg/L		03/02/23 08:54	03/08/23 13:41	400
Benzo[a]anthracene	ND		0.080	0.068	mg/L		03/02/23 08:54	03/08/23 13:41	400
Benzo[a]pyrene	ND		0.080	0.069	mg/L		03/02/23 08:54	03/08/23 13:41	400
Benzo[b]fluoranthene	ND		0.080	0.062	mg/L		03/02/23 08:54	03/08/23 13:41	400
Benzo[g,h,i]perylene	ND		0.080	0.071	mg/L		03/02/23 08:54	03/08/23 13:41	400
Benzo[k]fluoranthene	ND		0.080	0.056	mg/L		03/02/23 08:54	03/08/23 13:41	400

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251478 - GAS STATION

Lab Sample ID: 240-181183-5

Date Collected: 03/01/23 13:35

Matrix: Water

Date Received: 03/01/23 20:00

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		0.40	0.18	mg/L		03/02/23 08:54	03/08/23 13:41	400
Bis(2-chloroethyl)ether	ND		0.40	0.16	mg/L		03/02/23 08:54	03/08/23 13:41	400
Bis(2-ethylhexyl) phthalate	ND		2.0	0.89	mg/L		03/02/23 08:54	03/08/23 13:41	400
Butyl benzyl phthalate	ND		0.80	0.27	mg/L		03/02/23 08:54	03/08/23 13:41	400
Caprolactam	ND		2.0	0.37	mg/L		03/02/23 08:54	03/08/23 13:41	400
Carbazole	ND		0.40	0.20	mg/L		03/02/23 08:54	03/08/23 13:41	400
Chrysene	ND		0.080	0.074	mg/L		03/02/23 08:54	03/08/23 13:41	400
Dibenz(a,h)anthracene	ND		0.080	0.060	mg/L		03/02/23 08:54	03/08/23 13:41	400
Dibenzofuran	ND		0.40	0.22	mg/L		03/02/23 08:54	03/08/23 13:41	400
Diethyl phthalate	ND		2.0	1.5	mg/L		03/02/23 08:54	03/08/23 13:41	400
Dimethyl phthalate	ND		0.80	0.21	mg/L		03/02/23 08:54	03/08/23 13:41	400
Di-n-butyl phthalate	ND		2.0	0.72	mg/L		03/02/23 08:54	03/08/23 13:41	400
Di-n-octyl phthalate	ND		0.80	0.33	mg/L		03/02/23 08:54	03/08/23 13:41	400
Fluoranthene	ND		0.080	0.064	mg/L		03/02/23 08:54	03/08/23 13:41	400
Fluorene	ND		0.080	0.068	mg/L		03/02/23 08:54	03/08/23 13:41	400
Hexachlorobenzene	ND		0.080	0.064	mg/L		03/02/23 08:54	03/08/23 13:41	400
Hexachlorobutadiene	ND		0.40	0.22	mg/L		03/02/23 08:54	03/08/23 13:41	400
Hexachlorocyclopentadiene	ND		4.0	0.70	mg/L		03/02/23 08:54	03/08/23 13:41	400
Hexachloroethane	ND		0.40	0.16	mg/L		03/02/23 08:54	03/08/23 13:41	400
Indeno[1,2,3-cd]pyrene	ND		0.080	0.054	mg/L		03/02/23 08:54	03/08/23 13:41	400
Isophorone	ND		0.40	0.13	mg/L		03/02/23 08:54	03/08/23 13:41	400
N-Nitrosodi-n-propylamine	ND		0.40	0.10	mg/L		03/02/23 08:54	03/08/23 13:41	400
N-Nitrosodiphenylamine	ND		0.40	0.18	mg/L		03/02/23 08:54	03/08/23 13:41	400
Naphthalene	ND		0.080	0.044	mg/L		03/02/23 08:54	03/08/23 13:41	400
Nitrobenzene	ND		0.40	0.21	mg/L		03/02/23 08:54	03/08/23 13:41	400
Pentachlorophenol	ND		4.0	1.2	mg/L		03/02/23 08:54	03/08/23 13:41	400
Phenanthrene	ND		0.080	0.067	mg/L		03/02/23 08:54	03/08/23 13:41	400
Phenol	ND		0.40	0.051	mg/L		03/02/23 08:54	03/08/23 13:41	400
Pyrene	ND		0.080	0.070	mg/L		03/02/23 08:54	03/08/23 13:41	400
3 & 4 Methylphenol	ND		0.80	0.076	mg/L		03/02/23 08:54	03/08/23 13:41	400
2-Butoxyethanol	11		1.6	0.42	mg/L		03/02/23 08:54	03/08/23 13:41	400

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/02/23 08:54	03/08/23 13:41	400
Phenol-d5 (Surr)	0	S1-	26 - 120	03/02/23 08:54	03/08/23 13:41	400
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/02/23 08:54	03/08/23 13:41	400
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/02/23 08:54	03/08/23 13:41	400
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/02/23 08:54	03/08/23 13:41	400
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/02/23 08:54	03/08/23 13:41	400

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	2000	B	490	67	ug/L		03/06/23 07:59	03/06/23 12:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	67		52 - 121	03/06/23 07:59	03/06/23 12:24	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		03/02/23 14:00	03/03/23 12:54	1

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: WC - 251478 - GAS STATION

Lab Sample ID: 240-181183-5

Date Collected: 03/01/23 13:35

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.038	J B	0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 12:54	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 12:54	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 12:54	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 12:54	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 12:54	1
Silver	ND		0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 12:54	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		03/02/23 14:00	03/03/23 13:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/03/23 11:23	1
Total Suspended Solids (SM 2540D-2015)	13		4.0	1.0	mg/L			03/03/23 10:03	1
Total Organic Carbon (SM 5310 C-2014)	20		1.0	0.35	mg/L			03/03/23 11:22	1
corrosivity by pH (SW846 9040C)	7.5	HF	0.1	0.1	SU			03/03/23 09:11	1

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: TB - 01

Lab Sample ID: 240-181183-6

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

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			03/02/23 15:55	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 15:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 15:55	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 15:55	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 15:55	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 15:55	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 15:55	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 15:55	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 15:55	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 15:55	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 15:55	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 15:55	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 15:55	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 15:55	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/02/23 15:55	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 15:55	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 15:55	1
Acetone	ND		0.010	0.0054	mg/L			03/02/23 15:55	1
Benzene	ND		0.0010	0.00042	mg/L			03/02/23 15:55	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 15:55	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 15:55	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 15:55	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 15:55	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 15:55	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 15:55	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 15:55	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 15:55	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 15:55	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 15:55	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 15:55	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 15:55	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 15:55	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 15:55	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 15:55	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 15:55	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 15:55	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 15:55	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 15:55	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 15:55	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 15:55	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 15:55	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 15:55	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 15:55	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 15:55	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 15:55	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 15:55	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/02/23 15:55	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 15:55	1
Butyl acrylate	ND		0.010	0.0023	mg/L			03/02/23 15:55	1

Eurofins Canton

Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: TB - 01
Date Collected: 03/01/23 00:00
Date Received: 03/01/23 20:00

Lab Sample ID: 240-181183-6
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/02/23 15:55	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/02/23 15:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	96		78 - 122					03/02/23 15:55	1
<i>Dibromofluoromethane (Surr)</i>	108		73 - 120					03/02/23 15:55	1
<i>4-Bromofluorobenzene (Surr)</i>	88		56 - 136					03/02/23 15:55	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137					03/02/23 15:55	1



Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: TB - 02

Lab Sample ID: 240-181183-7

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

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			03/02/23 16:19	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 16:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 16:19	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 16:19	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 16:19	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 16:19	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 16:19	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 16:19	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 16:19	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 16:19	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 16:19	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 16:19	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 16:19	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 16:19	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/02/23 16:19	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 16:19	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 16:19	1
Acetone	ND		0.010	0.0054	mg/L			03/02/23 16:19	1
Benzene	ND		0.0010	0.00042	mg/L			03/02/23 16:19	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 16:19	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 16:19	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 16:19	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 16:19	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 16:19	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 16:19	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 16:19	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 16:19	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 16:19	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 16:19	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 16:19	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 16:19	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 16:19	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 16:19	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 16:19	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 16:19	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 16:19	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 16:19	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 16:19	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 16:19	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 16:19	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 16:19	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 16:19	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 16:19	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 16:19	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 16:19	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 16:19	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/02/23 16:19	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 16:19	1
Butyl acrylate	ND		0.010	0.0023	mg/L			03/02/23 16:19	1

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: TB - 02
Date Collected: 03/01/23 00:00
Date Received: 03/01/23 20:00

Lab Sample ID: 240-181183-7
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/02/23 16:19	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/02/23 16:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	96		78 - 122		03/02/23 16:19	1
<i>Dibromofluoromethane (Surr)</i>	108		73 - 120		03/02/23 16:19	1
<i>4-Bromofluorobenzene (Surr)</i>	85		56 - 136		03/02/23 16:19	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	100		62 - 137		03/02/23 16:19	1



Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: TB - 03

Lab Sample ID: 240-181183-8

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

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			03/02/23 17:07	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 17:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 17:07	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 17:07	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 17:07	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 17:07	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 17:07	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 17:07	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 17:07	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 17:07	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 17:07	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 17:07	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 17:07	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 17:07	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/02/23 17:07	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 17:07	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 17:07	1
Acetone	ND		0.010	0.0054	mg/L			03/02/23 17:07	1
Benzene	ND		0.0010	0.00042	mg/L			03/02/23 17:07	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 17:07	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 17:07	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 17:07	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 17:07	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 17:07	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 17:07	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 17:07	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 17:07	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 17:07	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 17:07	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 17:07	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 17:07	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 17:07	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 17:07	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 17:07	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 17:07	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 17:07	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 17:07	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 17:07	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 17:07	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 17:07	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 17:07	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 17:07	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 17:07	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 17:07	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 17:07	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 17:07	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/02/23 17:07	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 17:07	1
Butyl acrylate	ND		0.010	0.0023	mg/L			03/02/23 17:07	1

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Client Sample Results

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

Job ID: 240-181183-1

Client Sample ID: TB - 03

Lab Sample ID: 240-181183-8

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/02/23 17:07	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/02/23 17:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	95		78 - 122		03/02/23 17:07	1
<i>Dibromofluoromethane (Surr)</i>	106		73 - 120		03/02/23 17:07	1
<i>4-Bromofluorobenzene (Surr)</i>	84		56 - 136		03/02/23 17:07	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	101		62 - 137		03/02/23 17:07	1

Surrogate Summary

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

Job ID: 240-181183-1

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)
240-181183-1	WC - 257204 - BLUE BLDG WE	103	111	106	103
240-181183-1	WC - 257204 - BLUE BLDG WEST	95	106	95	103
240-181183-2	WC - 251060 - BLUE BLDG EAST	95	105	93	99
240-181183-2	WC - 251060 - BLUE BLDG EAST	99	111	106	100
240-181183-2	WC - 251060 - BLUE BLDG EAST	99	111	98	106
240-181183-3	WC - 251079 - CLARK	100	111	106	106
240-181183-3	WC - 251079 - CLARK	97	104	96	99
240-181183-4	WC - 251633 - PLEASANT	95	105	92	99
240-181183-4	WC - 251633 - PLEASANT	102	110	101	102
240-181183-5	WC - 251478 - GAS STATION	100	112	103	106
240-181183-5	WC - 251478 - GAS STATION	102	113	100	109
240-181183-6	TB - 01	96	108	88	103
240-181183-7	TB - 02	96	108	85	100
240-181183-8	TB - 03	95	106	84	101
LCS 240-564039/5	Lab Control Sample	104	102	100	99
LCS 240-564039/6	Lab Control Sample	97	104	98	101
LCS 240-564153/5	Lab Control Sample	108	107	103	101
LCS 240-564153/6	Lab Control Sample	100	107	101	103
MB 240-564039/8	Method Blank	97	106	88	103
MB 240-564153/8	Method Blank	100	113	93	110

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: Water

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)
240-181183-1	WC - 257204 - BLUE BLDG WE	74	47	65	54	67	55
240-181183-1 - RA	WC - 257204 - BLUE BLDG WEST	77	51	63	47	87	34
240-181183-2	WC - 251060 - BLUE BLDG EAST	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-181183-3	WC - 251079 - CLARK	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-181183-3 - RA	WC - 251079 - CLARK	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-181183-4	WC - 251633 - PLEASANT	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-181183-5	WC - 251478 - GAS STATION	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
LCS 240-563981/20-A	Lab Control Sample	109	65	79	111	80	85
LCS 240-563981/22-A	Lab Control Sample	96	35	60	58	69	49
MB 240-563981/19-A	Method Blank	103	54	70	66	80	58

Surrogate Legend

TPHL = Terphenyl-d14 (Surr)

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Surrogate Summary

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

Job ID: 240-181183-1

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

Method: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTPH (52-121)
240-181183-1	WC - 257204 - BLUE BLDG WE	69
240-181183-2	WC - 251060 - BLUE BLDG EAST	71
240-181183-3	WC - 251079 - CLARK	48 S1-
240-181183-4	WC - 251633 - PLEASANT	63
240-181183-5	WC - 251478 - GAS STATION	67
LCS 240-564322/2-A	Lab Control Sample	87
MB 240-564322/1-A	Method Blank	72

Surrogate Legend

OTPH = o-Terphenyl

QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-564039/8
Matrix: Water
Analysis Batch: 564039

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			03/02/23 15:31	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/02/23 15:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/02/23 15:31	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/02/23 15:31	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/02/23 15:31	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/02/23 15:31	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/02/23 15:31	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/02/23 15:31	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/02/23 15:31	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/02/23 15:31	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/02/23 15:31	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/02/23 15:31	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/02/23 15:31	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/02/23 15:31	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/02/23 15:31	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/02/23 15:31	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/02/23 15:31	1
Acetone	ND		0.010	0.0054	mg/L			03/02/23 15:31	1
Benzene	ND		0.0010	0.00042	mg/L			03/02/23 15:31	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/02/23 15:31	1
Bromoform	ND		0.0010	0.00076	mg/L			03/02/23 15:31	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/02/23 15:31	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/02/23 15:31	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/02/23 15:31	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/02/23 15:31	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/02/23 15:31	1
Chloroform	ND		0.0010	0.00047	mg/L			03/02/23 15:31	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/02/23 15:31	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/02/23 15:31	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/02/23 15:31	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/02/23 15:31	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/02/23 15:31	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/02/23 15:31	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/02/23 15:31	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/02/23 15:31	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/02/23 15:31	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/02/23 15:31	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/02/23 15:31	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/02/23 15:31	1
Styrene	ND		0.0010	0.00045	mg/L			03/02/23 15:31	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/02/23 15:31	1
Toluene	ND		0.0010	0.00044	mg/L			03/02/23 15:31	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/02/23 15:31	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/02/23 15:31	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/02/23 15:31	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/02/23 15:31	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/02/23 15:31	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/02/23 15:31	1

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-564039/8
Matrix: Water
Analysis Batch: 564039

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Butyl acrylate	ND		0.010	0.0023	mg/L			03/02/23 15:31	1
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/02/23 15:31	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/02/23 15:31	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>Toluene-d8 (Surr)</i>	97		78 - 122					03/02/23 15:31	1
<i>Dibromofluoromethane (Surr)</i>	106		73 - 120					03/02/23 15:31	1
<i>4-Bromofluorobenzene (Surr)</i>	88		56 - 136					03/02/23 15:31	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	103		62 - 137					03/02/23 15:31	1

Lab Sample ID: LCS 240-564039/5
Matrix: Water
Analysis Batch: 564039

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	0.0249		mg/L		99	64 - 131
1,1,1,2-Tetrachloroethane	0.0250	0.0270		mg/L		108	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0267		mg/L		107	51 - 146
1,1,2-Trichloroethane	0.0250	0.0259		mg/L		103	70 - 138
1,1-Dichloroethane	0.0250	0.0236		mg/L		94	72 - 127
1,1-Dichloroethene	0.0250	0.0255		mg/L		102	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0271		mg/L		108	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0247		mg/L		99	53 - 135
Ethylene Dibromide	0.0250	0.0252		mg/L		101	71 - 134
1,2-Dichlorobenzene	0.0250	0.0267		mg/L		107	78 - 120
1,2-Dichloroethane	0.0250	0.0238		mg/L		95	66 - 128
1,2-Dichloropropane	0.0250	0.0245		mg/L		98	75 - 133
1,3-Dichlorobenzene	0.0250	0.0264		mg/L		106	80 - 120
1,4-Dichlorobenzene	0.0250	0.0262		mg/L		105	80 - 120
2-Butanone (MEK)	0.0500	0.0512		mg/L		102	54 - 156
2-Hexanone	0.0500	0.0571		mg/L		114	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0561		mg/L		112	46 - 158
Acetone	0.0500	0.0529		mg/L		106	50 - 149
Benzene	0.0250	0.0253		mg/L		101	77 - 123
Dichlorobromomethane	0.0250	0.0243		mg/L		97	69 - 126
Bromoform	0.0250	0.0255		mg/L		102	57 - 129
Bromomethane	0.0125	0.0166		mg/L		133	36 - 142
Carbon disulfide	0.0250	0.0247		mg/L		99	43 - 140
Carbon tetrachloride	0.0250	0.0251		mg/L		100	55 - 137
Chlorobenzene	0.0250	0.0260		mg/L		104	80 - 121
Chloroethane	0.0125	0.0119		mg/L		95	38 - 152
Chloroform	0.0250	0.0240		mg/L		96	74 - 122
Chloromethane	0.0125	0.0145		mg/L		116	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0244		mg/L		98	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0244		mg/L		98	64 - 130
Cyclohexane	0.0250	0.0273		mg/L		109	58 - 146
Chlorodibromomethane	0.0250	0.0250		mg/L		100	70 - 124
Dichlorodifluoromethane	0.0125	0.0141		mg/L		113	34 - 153

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: LCS 240-564039/5
Matrix: Water
Analysis Batch: 564039

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	0.0250	0.0259		mg/L		104	80 - 121
Isopropylbenzene	0.0250	0.0274		mg/L		110	74 - 128
Methyl acetate	0.0500	0.0450		mg/L		90	42 - 169
Methyl tert-butyl ether	0.0250	0.0246		mg/L		98	65 - 126
Methylcyclohexane	0.0250	0.0285		mg/L		114	62 - 136
Methylene Chloride	0.0250	0.0257		mg/L		103	71 - 125
Styrene	0.0250	0.0275		mg/L		110	80 - 135
Tetrachloroethene	0.0250	0.0271		mg/L		108	76 - 123
Toluene	0.0250	0.0261		mg/L		104	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0246		mg/L		98	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0252		mg/L		101	57 - 129
Trichloroethene	0.0250	0.0249		mg/L		100	70 - 122
Trichlorofluoromethane	0.0125	0.0126		mg/L		101	30 - 170
Vinyl chloride	0.0125	0.0136		mg/L		109	60 - 144
Xylenes, Total	0.0500	0.0531		mg/L		106	80 - 121
m-Xylene & p-Xylene	0.0250	0.0267		mg/L		107	80 - 120
o-Xylene	0.0250	0.0264		mg/L		106	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120
4-Bromofluorobenzene (Surr)	100		56 - 136
1,2-Dichloroethane-d4 (Surr)	99		62 - 137

Lab Sample ID: LCS 240-564039/6
Matrix: Water
Analysis Batch: 564039

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Butyl acrylate	0.0250	0.0233		mg/L		93	10 - 120
Methyl acrylate	0.0250	0.0238		mg/L		95	10 - 120
2-Ethylhexyl acrylate	0.0250	0.0208		mg/L		83	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	104		73 - 120
4-Bromofluorobenzene (Surr)	98		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: MB 240-564153/8
Matrix: Water
Analysis Batch: 564153

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/03/23 12:54	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/03/23 12:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/03/23 12:54	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/03/23 12:54	1

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-564153/8
Matrix: Water
Analysis Batch: 564153

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/03/23 12:54	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/03/23 12:54	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/03/23 12:54	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/03/23 12:54	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/03/23 12:54	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/03/23 12:54	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/03/23 12:54	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/03/23 12:54	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/03/23 12:54	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/03/23 12:54	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/03/23 12:54	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/03/23 12:54	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/03/23 12:54	1
Acetone	ND		0.010	0.0054	mg/L			03/03/23 12:54	1
Benzene	ND		0.0010	0.00042	mg/L			03/03/23 12:54	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/03/23 12:54	1
Bromoform	ND		0.0010	0.00076	mg/L			03/03/23 12:54	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/03/23 12:54	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/03/23 12:54	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/03/23 12:54	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/03/23 12:54	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/03/23 12:54	1
Chloroform	ND		0.0010	0.00047	mg/L			03/03/23 12:54	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/03/23 12:54	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/03/23 12:54	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/03/23 12:54	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/03/23 12:54	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/03/23 12:54	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/03/23 12:54	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/03/23 12:54	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/03/23 12:54	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/03/23 12:54	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/03/23 12:54	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/03/23 12:54	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/03/23 12:54	1
Styrene	ND		0.0010	0.00045	mg/L			03/03/23 12:54	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/03/23 12:54	1
Toluene	ND		0.0010	0.00044	mg/L			03/03/23 12:54	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/03/23 12:54	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/03/23 12:54	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/03/23 12:54	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/03/23 12:54	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/03/23 12:54	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/03/23 12:54	1
Butyl acrylate	ND		0.010	0.0023	mg/L			03/03/23 12:54	1
Methyl acrylate	ND		0.0020	0.00062	mg/L			03/03/23 12:54	1
2-Ethylhexyl acrylate	ND		0.010	0.0033	mg/L			03/03/23 12:54	1

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-564153/8
Matrix: Water
Analysis Batch: 564153

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	100		78 - 122		03/03/23 12:54	1
Dibromofluoromethane (Surr)	113		73 - 120		03/03/23 12:54	1
4-Bromofluorobenzene (Surr)	93		56 - 136		03/03/23 12:54	1
1,2-Dichloroethane-d4 (Surr)	110		62 - 137		03/03/23 12:54	1

Lab Sample ID: LCS 240-564153/5
Matrix: Water
Analysis Batch: 564153

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	0.0253		mg/L		101	64 - 131
1,1,1,2-Tetrachloroethane	0.0250	0.0272		mg/L		109	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0275		mg/L		110	51 - 146
1,1,2-Trichloroethane	0.0250	0.0262		mg/L		105	70 - 138
1,1-Dichloroethane	0.0250	0.0238		mg/L		95	72 - 127
1,1-Dichloroethene	0.0250	0.0266		mg/L		106	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0272		mg/L		109	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0250		mg/L		100	53 - 135
Ethylene Dibromide	0.0250	0.0258		mg/L		103	71 - 134
1,2-Dichlorobenzene	0.0250	0.0266		mg/L		106	78 - 120
1,2-Dichloroethane	0.0250	0.0246		mg/L		99	66 - 128
1,2-Dichloropropane	0.0250	0.0247		mg/L		99	75 - 133
1,3-Dichlorobenzene	0.0250	0.0267		mg/L		107	80 - 120
1,4-Dichlorobenzene	0.0250	0.0263		mg/L		105	80 - 120
2-Butanone (MEK)	0.0500	0.0507		mg/L		101	54 - 156
2-Hexanone	0.0500	0.0578		mg/L		116	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0574		mg/L		115	46 - 158
Acetone	0.0500	0.0524		mg/L		105	50 - 149
Benzene	0.0250	0.0258		mg/L		103	77 - 123
Dichlorobromomethane	0.0250	0.0246		mg/L		99	69 - 126
Bromoform	0.0250	0.0261		mg/L		105	57 - 129
Bromomethane	0.0125	0.0166		mg/L		133	36 - 142
Carbon disulfide	0.0250	0.0259		mg/L		104	43 - 140
Carbon tetrachloride	0.0250	0.0256		mg/L		102	55 - 137
Chlorobenzene	0.0250	0.0261		mg/L		104	80 - 121
Chloroethane	0.0125	0.0121		mg/L		97	38 - 152
Chloroform	0.0250	0.0246		mg/L		98	74 - 122
Chloromethane	0.0125	0.0137		mg/L		110	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0250		mg/L		100	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0252		mg/L		101	64 - 130
Cyclohexane	0.0250	0.0284		mg/L		114	58 - 146
Chlorodibromomethane	0.0250	0.0251		mg/L		100	70 - 124
Dichlorodifluoromethane	0.0125	0.0133		mg/L		107	34 - 153
Ethylbenzene	0.0250	0.0268		mg/L		107	80 - 121
Isopropylbenzene	0.0250	0.0280		mg/L		112	74 - 128
Methyl acetate	0.0500	0.0436		mg/L		87	42 - 169
Methyl tert-butyl ether	0.0250	0.0250		mg/L		100	65 - 126
Methylcyclohexane	0.0250	0.0297		mg/L		119	62 - 136

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: LCS 240-564153/5
Matrix: Water
Analysis Batch: 564153

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	0.0263		mg/L		105	71 - 125
Styrene	0.0250	0.0278		mg/L		111	80 - 135
Tetrachloroethene	0.0250	0.0277		mg/L		111	76 - 123
Toluene	0.0250	0.0265		mg/L		106	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0254		mg/L		102	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0258		mg/L		103	57 - 129
Trichloroethene	0.0250	0.0255		mg/L		102	70 - 122
Trichlorofluoromethane	0.0125	0.0121		mg/L		97	30 - 170
Vinyl chloride	0.0125	0.0129		mg/L		103	60 - 144
Xylenes, Total	0.0500	0.0534		mg/L		107	80 - 121
m-Xylene & p-Xylene	0.0250	0.0269		mg/L		108	80 - 120
o-Xylene	0.0250	0.0265		mg/L		106	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	108		78 - 122
Dibromofluoromethane (Surr)	107		73 - 120
4-Bromofluorobenzene (Surr)	103		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: LCS 240-564153/6
Matrix: Water
Analysis Batch: 564153

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Butyl acrylate	0.0250	0.0229		mg/L		91	10 - 120
Methyl acrylate	0.0250	0.0232		mg/L		93	10 - 120
2-Ethylhexyl acrylate	0.0250	0.0206		mg/L		82	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	100		78 - 122
Dibromofluoromethane (Surr)	107		73 - 120
4-Bromofluorobenzene (Surr)	101		56 - 136
1,2-Dichloroethane-d4 (Surr)	103		62 - 137

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

Lab Sample ID: MB 240-563981/19-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563981

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.0010	0.00049	mg/L		03/02/23 08:54	03/08/23 10:03	1
bis (2-chloroisopropyl) ether	ND		0.0010	0.00055	mg/L		03/02/23 08:54	03/08/23 10:03	1
2,4,5-Trichlorophenol	ND		0.0050	0.0020	mg/L		03/02/23 08:54	03/08/23 10:03	1
2,4,6-Trichlorophenol	ND		0.0050	0.0018	mg/L		03/02/23 08:54	03/08/23 10:03	1
2,4-Dichlorophenol	ND		0.0020	0.00026	mg/L		03/02/23 08:54	03/08/23 10:03	1
2,4-Dimethylphenol	ND		0.0020	0.00052	mg/L		03/02/23 08:54	03/08/23 10:03	1
2,4-Dinitrophenol	ND		0.010	0.0062	mg/L		03/02/23 08:54	03/08/23 10:03	1

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-563981/19-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563981

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		0.0050	0.0021	mg/L		03/02/23 08:54	03/08/23 10:03	1
2,6-Dinitrotoluene	ND		0.0050	0.0021	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Chloronaphthalene	ND		0.0010	0.00048	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Chlorophenol	ND		0.0010	0.00027	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Methylnaphthalene	ND		0.00020	0.00011	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Methylphenol	ND		0.0010	0.00021	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Nitroaniline	ND		0.0020	0.00051	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Nitrophenol	ND		0.0020	0.00056	mg/L		03/02/23 08:54	03/08/23 10:03	1
3,3'-Dichlorobenzidine	ND		0.0050	0.0012	mg/L		03/02/23 08:54	03/08/23 10:03	1
3-Nitroaniline	ND		0.0020	0.00057	mg/L		03/02/23 08:54	03/08/23 10:03	1
4,6-Dinitro-2-methylphenol	ND		0.0050	0.0028	mg/L		03/02/23 08:54	03/08/23 10:03	1
4-Bromophenyl phenyl ether	ND		0.0020	0.00050	mg/L		03/02/23 08:54	03/08/23 10:03	1
4-Chloro-3-methylphenol	ND		0.0020	0.00030	mg/L		03/02/23 08:54	03/08/23 10:03	1
4-Chloroaniline	ND		0.0020	0.00032	mg/L		03/02/23 08:54	03/08/23 10:03	1
4-Chlorophenyl phenyl ether	ND		0.0020	0.00055	mg/L		03/02/23 08:54	03/08/23 10:03	1
4-Nitroaniline	ND		0.0020	0.00092	mg/L		03/02/23 08:54	03/08/23 10:03	1
4-Nitrophenol	ND		0.010	0.0022	mg/L		03/02/23 08:54	03/08/23 10:03	1
Acenaphthene	ND		0.00020	0.00017	mg/L		03/02/23 08:54	03/08/23 10:03	1
Acenaphthylene	ND		0.00020	0.00013	mg/L		03/02/23 08:54	03/08/23 10:03	1
Acetophenone	ND		0.0010	0.00037	mg/L		03/02/23 08:54	03/08/23 10:03	1
Anthracene	ND		0.00020	0.00014	mg/L		03/02/23 08:54	03/08/23 10:03	1
Atrazine	ND		0.0020	0.00095	mg/L		03/02/23 08:54	03/08/23 10:03	1
Benzaldehyde	ND		0.0020	0.00076	mg/L		03/02/23 08:54	03/08/23 10:03	1
Benzo[a]anthracene	ND		0.00020	0.00017	mg/L		03/02/23 08:54	03/08/23 10:03	1
Benzo[a]pyrene	ND		0.00020	0.00017	mg/L		03/02/23 08:54	03/08/23 10:03	1
Benzo[b]fluoranthene	ND		0.00020	0.00015	mg/L		03/02/23 08:54	03/08/23 10:03	1
Benzo[g,h,i]perylene	ND		0.00020	0.00018	mg/L		03/02/23 08:54	03/08/23 10:03	1
Benzo[k]fluoranthene	ND		0.00020	0.00014	mg/L		03/02/23 08:54	03/08/23 10:03	1
Bis(2-chloroethoxy)methane	ND		0.0010	0.00046	mg/L		03/02/23 08:54	03/08/23 10:03	1
Bis(2-chloroethyl)ether	ND		0.0010	0.00040	mg/L		03/02/23 08:54	03/08/23 10:03	1
Bis(2-ethylhexyl) phthalate	ND		0.0050	0.0022	mg/L		03/02/23 08:54	03/08/23 10:03	1
Butyl benzyl phthalate	ND		0.0020	0.00067	mg/L		03/02/23 08:54	03/08/23 10:03	1
Caprolactam	ND		0.0050	0.00093	mg/L		03/02/23 08:54	03/08/23 10:03	1
Carbazole	ND		0.0010	0.00049	mg/L		03/02/23 08:54	03/08/23 10:03	1
Chrysene	ND		0.00020	0.00019	mg/L		03/02/23 08:54	03/08/23 10:03	1
Dibenz(a,h)anthracene	ND		0.00020	0.00015	mg/L		03/02/23 08:54	03/08/23 10:03	1
Dibenzofuran	ND		0.0010	0.00056	mg/L		03/02/23 08:54	03/08/23 10:03	1
Diethyl phthalate	ND		0.0050	0.0038	mg/L		03/02/23 08:54	03/08/23 10:03	1
Dimethyl phthalate	ND		0.0020	0.00052	mg/L		03/02/23 08:54	03/08/23 10:03	1
Di-n-butyl phthalate	ND		0.0050	0.0018	mg/L		03/02/23 08:54	03/08/23 10:03	1
Di-n-octyl phthalate	ND		0.0020	0.00082	mg/L		03/02/23 08:54	03/08/23 10:03	1
Fluoranthene	ND		0.00020	0.00016	mg/L		03/02/23 08:54	03/08/23 10:03	1
Fluorene	ND		0.00020	0.00017	mg/L		03/02/23 08:54	03/08/23 10:03	1
Hexachlorobenzene	ND		0.00020	0.00016	mg/L		03/02/23 08:54	03/08/23 10:03	1
Hexachlorobutadiene	ND		0.0010	0.00054	mg/L		03/02/23 08:54	03/08/23 10:03	1
Hexachlorocyclopentadiene	ND		0.010	0.0018	mg/L		03/02/23 08:54	03/08/23 10:03	1
Hexachloroethane	ND		0.0010	0.00040	mg/L		03/02/23 08:54	03/08/23 10:03	1
Indeno[1,2,3-cd]pyrene	ND		0.00020	0.00014	mg/L		03/02/23 08:54	03/08/23 10:03	1
Isophorone	ND		0.0010	0.00032	mg/L		03/02/23 08:54	03/08/23 10:03	1

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-563981/19-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 563981

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
N-Nitrosodi-n-propylamine	ND		0.0010	0.00025	mg/L		03/02/23 08:54	03/08/23 10:03	1
N-Nitrosodiphenylamine	ND		0.0010	0.00044	mg/L		03/02/23 08:54	03/08/23 10:03	1
Naphthalene	ND		0.00020	0.00011	mg/L		03/02/23 08:54	03/08/23 10:03	1
Nitrobenzene	ND		0.0010	0.00051	mg/L		03/02/23 08:54	03/08/23 10:03	1
Pentachlorophenol	ND		0.010	0.0031	mg/L		03/02/23 08:54	03/08/23 10:03	1
Phenanthrene	ND		0.00020	0.00017	mg/L		03/02/23 08:54	03/08/23 10:03	1
Phenol	ND		0.0010	0.00013	mg/L		03/02/23 08:54	03/08/23 10:03	1
Pyrene	ND		0.00020	0.00018	mg/L		03/02/23 08:54	03/08/23 10:03	1
3 & 4 Methylphenol	ND		0.0020	0.00019	mg/L		03/02/23 08:54	03/08/23 10:03	1
2-Butoxyethanol	ND		0.0040	0.0011	mg/L		03/02/23 08:54	03/08/23 10:03	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Terphenyl-d14 (Surr)	103		46 - 137	03/02/23 08:54	03/08/23 10:03	1
Phenol-d5 (Surr)	54		26 - 120	03/02/23 08:54	03/08/23 10:03	1
Nitrobenzene-d5 (Surr)	70		24 - 120	03/02/23 08:54	03/08/23 10:03	1
2-Fluorophenol (Surr)	66		19 - 120	03/02/23 08:54	03/08/23 10:03	1
2-Fluorobiphenyl (Surr)	80		33 - 120	03/02/23 08:54	03/08/23 10:03	1
2,4,6-Tribromophenol (Surr)	58		10 - 120	03/02/23 08:54	03/08/23 10:03	1

Lab Sample ID: LCS 240-563981/20-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563981

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
bis (2-chloroisopropyl) ether	0.0320	0.0205		mg/L		64	41 - 120
2,4,5-Trichlorophenol	0.0320	0.0302		mg/L		94	52 - 123
2,4,6-Trichlorophenol	0.0320	0.0259		mg/L		81	51 - 120
2,4-Dichlorophenol	0.0320	0.0299		mg/L		93	53 - 120
2,4-Dimethylphenol	0.0320	0.0228		mg/L		71	44 - 120
2,4-Dinitrophenol	0.0640	0.0385		mg/L		60	11 - 139
2,4-Dinitrotoluene	0.0320	0.0279		mg/L		87	58 - 125
2,6-Dinitrotoluene	0.0320	0.0284		mg/L		89	54 - 132
2-Chloronaphthalene	0.0320	0.0255		mg/L		80	51 - 120
2-Chlorophenol	0.0320	0.0266		mg/L		83	46 - 120
2-Methylnaphthalene	0.0320	0.0250		mg/L		78	49 - 120
2-Methylphenol	0.0320	0.0230		mg/L		72	45 - 120
2-Nitroaniline	0.0320	0.0226		mg/L		71	57 - 121
2-Nitrophenol	0.0320	0.0255		mg/L		80	51 - 120
3,3'-Dichlorobenzidine	0.0640	0.0538		mg/L		84	51 - 154
3-Nitroaniline	0.0320	0.0225		mg/L		70	47 - 123
4,6-Dinitro-2-methylphenol	0.0640	0.0476		mg/L		74	49 - 130
4-Bromophenyl phenyl ether	0.0320	0.0284		mg/L		89	58 - 125
4-Chloro-3-methylphenol	0.0320	0.0240		mg/L		75	52 - 120
4-Chloroaniline	0.0320	0.00588		mg/L		18	10 - 126
4-Chlorophenyl phenyl ether	0.0320	0.0257		mg/L		80	55 - 120
4-Nitroaniline	0.0320	0.0284		mg/L		89	56 - 127
4-Nitrophenol	0.0640	0.0484		mg/L		76	10 - 120

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: LCS 240-563981/20-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563981

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	0.0320	0.0259		mg/L		81	54 - 120
Acenaphthylene	0.0320	0.0247		mg/L		77	50 - 120
Acetophenone	0.0320	0.0225		mg/L		70	47 - 120
Anthracene	0.0320	0.0240		mg/L		75	58 - 121
Atrazine	0.0320	0.0251		mg/L		78	68 - 126
Benzaldehyde	0.0320	0.0322		mg/L		101	26 - 147
Benzo[a]anthracene	0.0320	0.0272		mg/L		85	61 - 120
Benzo[a]pyrene	0.0320	0.0268		mg/L		84	56 - 131
Benzo[b]fluoranthene	0.0320	0.0269		mg/L		84	57 - 130
Benzo[g,h,i]perylene	0.0320	0.0247		mg/L		77	58 - 120
Benzo[k]fluoranthene	0.0320	0.0272		mg/L		85	53 - 137
Bis(2-chloroethoxy)methane	0.0320	0.0265		mg/L		83	49 - 120
Bis(2-chloroethyl)ether	0.0320	0.0237		mg/L		74	40 - 120
Bis(2-ethylhexyl) phthalate	0.0320	0.0255		mg/L		80	60 - 126
Butyl benzyl phthalate	0.0320	0.0297		mg/L		93	58 - 124
Caprolactam	0.0320	0.00890		mg/L		28	10 - 120
Carbazole	0.0320	0.0289		mg/L		90	60 - 130
Chrysene	0.0320	0.0270		mg/L		85	57 - 120
Dibenz(a,h)anthracene	0.0320	0.0253		mg/L		79	58 - 120
Dibenzofuran	0.0320	0.0261		mg/L		82	54 - 120
Diethyl phthalate	0.0320	0.0238		mg/L		74	55 - 120
Dimethyl phthalate	0.0320	0.0272		mg/L		85	49 - 125
Di-n-butyl phthalate	0.0320	0.0258		mg/L		81	59 - 130
Di-n-octyl phthalate	0.0320	0.0221		mg/L		69	57 - 126
Fluoranthene	0.0320	0.0270		mg/L		85	58 - 128
Fluorene	0.0320	0.0241		mg/L		75	55 - 120
Hexachlorobenzene	0.0320	0.0305		mg/L		95	55 - 120
Hexachlorobutadiene	0.0320	0.0265		mg/L		83	41 - 120
Hexachlorocyclopentadiene	0.0320	0.0273		mg/L		85	15 - 120
Hexachloroethane	0.0320	0.0246		mg/L		77	39 - 120
Indeno[1,2,3-cd]pyrene	0.0320	0.0258		mg/L		81	59 - 122
Isophorone	0.0320	0.0242		mg/L		76	51 - 120
N-Nitrosodi-n-propylamine	0.0320	0.0210		mg/L		65	49 - 120
N-Nitrosodiphenylamine	0.0320	0.0267		mg/L		84	56 - 125
Naphthalene	0.0320	0.0242		mg/L		76	46 - 120
Nitrobenzene	0.0320	0.0261		mg/L		81	47 - 120
Pentachlorophenol	0.0640	0.0575		mg/L		90	19 - 132
Phenanthrene	0.0320	0.0248		mg/L		77	55 - 120
Phenol	0.0320	0.0219		mg/L		68	10 - 120
Pyrene	0.0320	0.0301		mg/L		94	59 - 120
3 & 4 Methylphenol	0.0320	0.0205		mg/L		64	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	109		46 - 137
Phenol-d5 (Surr)	65		26 - 120
Nitrobenzene-d5 (Surr)	79		24 - 120
2-Fluorophenol (Surr)	111		19 - 120
2-Fluorobiphenyl (Surr)	80		33 - 120

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: LCS 240-563981/20-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563981

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	85		10 - 120

Lab Sample ID: LCS 240-563981/22-A
Matrix: Water
Analysis Batch: 564574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 563981

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Butoxyethanol	0.0320	0.0178		mg/L		56	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	96		46 - 137
Phenol-d5 (Surr)	35		26 - 120
Nitrobenzene-d5 (Surr)	60		24 - 120
2-Fluorophenol (Surr)	58		19 - 120
2-Fluorobiphenyl (Surr)	69		33 - 120
2,4,6-Tribromophenol (Surr)	49		10 - 120

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 240-564322/1-A
Matrix: Water
Analysis Batch: 564333

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564322

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	94.1	J	500	68	ug/L		03/06/23 07:59	03/06/23 11:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	72		52 - 121	03/06/23 07:59	03/06/23 11:29	1

Lab Sample ID: LCS 240-564322/2-A
Matrix: Water
Analysis Batch: 564333

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564322

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Diesel Range Organics [C10 - C28]	2000	1470		ug/L		73	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	87		52 - 121

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-564056/2-A
Matrix: Water
Analysis Batch: 564198

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/02/23 14:00	03/03/23 11:41	1

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QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: MB 240-564056/2-A
Matrix: Water
Analysis Batch: 564198

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564056

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 11:41	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 11:41	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 11:41	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 11:41	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 11:41	1
Silver	ND		0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 11:41	1

Lab Sample ID: LCS 240-564056/3-A
Matrix: Water
Analysis Batch: 564198

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564056

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.05		mg/L		102	50 - 150
Barium	2.00	1.95		mg/L		97	50 - 150
Cadmium	1.00	0.979		mg/L		98	50 - 150
Chromium	1.00	0.989		mg/L		99	50 - 150
Lead	1.00	0.956		mg/L		96	50 - 150
Selenium	2.00	2.10		mg/L		105	50 - 150
Silver	0.100	0.0973		mg/L		97	50 - 150

Lab Sample ID: LB 240-563935/1-B
Matrix: Water
Analysis Batch: 564198

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 564056

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/02/23 14:00	03/03/23 11:37	1
Barium	0.00150	J	0.50	0.0013	mg/L		03/02/23 14:00	03/03/23 11:37	1
Cadmium	ND		0.050	0.00020	mg/L		03/02/23 14:00	03/03/23 11:37	1
Chromium	ND		0.050	0.0040	mg/L		03/02/23 14:00	03/03/23 11:37	1
Lead	ND		0.050	0.0028	mg/L		03/02/23 14:00	03/03/23 11:37	1
Selenium	ND		0.050	0.0060	mg/L		03/02/23 14:00	03/03/23 11:37	1
Silver	ND		0.050	0.00062	mg/L		03/02/23 14:00	03/03/23 11:37	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-564057/2-A
Matrix: Water
Analysis Batch: 564191

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564057

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/02/23 14:00	03/03/23 13:24	1

Lab Sample ID: LCS 240-564057/3-A
Matrix: Water
Analysis Batch: 564191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564057

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00516		mg/L		103	80 - 120

QC Sample Results

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

Job ID: 240-181183-1

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

Lab Sample ID: LB 240-563935/1-C
Matrix: Water
Analysis Batch: 564191

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 564057

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/02/23 14:00	03/03/23 13:18	1

Method: 1010B - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 240-564181/1
Matrix: Water
Analysis Batch: 564181

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ignitability (Flashpoint)	81.0	81.2		Fahrenheit		100	97 - 103

Lab Sample ID: 240-181183-1 DU
Matrix: Water
Analysis Batch: 564181

Client Sample ID: WC - 257204 - BLUE BLDG WEST
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ignitability (Flashpoint)	>200		>200		Degrees F		NC	20

Method: 2540D-2015 - Total Suspended Solids (Dried at 103-105°C)

Lab Sample ID: MB 240-564157/1
Matrix: Water
Analysis Batch: 564157

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.0	mg/L			03/03/23 10:03	1

Lab Sample ID: LCS 240-564157/2
Matrix: Water
Analysis Batch: 564157

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	66.2	63.0		mg/L		95	64 - 120

Lab Sample ID: 240-181183-1 DU
Matrix: Water
Analysis Batch: 564157

Client Sample ID: WC - 257204 - BLUE BLDG WEST
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	120		113		mg/L		4	10

Method: 5310 C-2014 - Total Organic Carbon/Persulfate - Ultrav

Lab Sample ID: MB 240-564202/4
Matrix: Water
Analysis Batch: 564202

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.35	mg/L			03/03/23 10:56	1

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QC Sample Results

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

Job ID: 240-181183-1

Method: 5310 C-2014 - Total Organic Carbon/Persulfate - Ultrav (Continued)

Lab Sample ID: LCS 240-564202/5
Matrix: Water
Analysis Batch: 564202

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	18.3	16.3		mg/L		89	85 - 115
TOC Result 1	18.3	16.2		mg/L		88	85 - 115
TOC Result 2	18.3	16.4		mg/L		90	85 - 115

Lab Sample ID: 240-181183-5 MS
Matrix: Water
Analysis Batch: 564202

Client Sample ID: WC - 251478 - GAS STATION
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	20		10.0	27.0		mg/L		69	65 - 134
TOC Result 1	20		10.0	26.7		mg/L		68	65 - 134
TOC Result 2	20		10.0	27.3		mg/L		70	65 - 134

Lab Sample ID: 240-181183-5 MSD
Matrix: Water
Analysis Batch: 564202

Client Sample ID: WC - 251478 - GAS STATION
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon	20		10.0	27.1		mg/L		70	65 - 134	0	10
TOC Result 1	20		10.0	26.9		mg/L		70	65 - 134	1	10
TOC Result 2	20		10.0	27.3		mg/L		70	65 - 134	0	10

Method: 9040C - pH

Lab Sample ID: LCS 240-564103/25
Matrix: Water
Analysis Batch: 564103

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

Lab Sample ID: LCS 240-564103/3
Matrix: Water
Analysis Batch: 564103

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

Lab Sample ID: LCS 240-564103/46
Matrix: Water
Analysis Batch: 564103

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

QC Sample Results

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

Job ID: 240-181183-1

Method: 9040C - pH (Continued)

Lab Sample ID: LCS 240-564164/2
 Matrix: Water
 Analysis Batch: 564164

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

Lab Sample ID: 240-181183-1 DU
 Matrix: Water
 Analysis Batch: 564164

Client Sample ID: WC - 257204 - BLUE BLDG WEST
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
corrosivity by pH	8.0	HF	8.0		SU		0.4	20

Lab Sample ID: LCS 240-564173/3
 Matrix: Water
 Analysis Batch: 564173

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

QC Association Summary

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

Job ID: 240-181183-1

GC/MS VOA

Analysis Batch: 564039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	8260D	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	8260D	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	8260D	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	8260D	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	8260D	
240-181183-6	TB - 01	Total/NA	Water	8260D	
240-181183-7	TB - 02	Total/NA	Water	8260D	
240-181183-8	TB - 03	Total/NA	Water	8260D	
MB 240-564039/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564039/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-564039/6	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 564153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	8260D	
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	8260D	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	8260D	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	8260D	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	8260D	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	8260D	
MB 240-564153/8	Method Blank	Total/NA	Water	8260D	
LCS 240-564153/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-564153/6	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 563981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1 - RA	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	3510C LVI	
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	3510C LVI	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	3510C LVI	
240-181183-3 - RA	WC - 251079 - CLARK	Total/NA	Water	3510C LVI	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	3510C LVI	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	3510C LVI	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	3510C LVI	
MB 240-563981/19-A	Method Blank	Total/NA	Water	3510C LVI	
LCS 240-563981/20-A	Lab Control Sample	Total/NA	Water	3510C LVI	
LCS 240-563981/22-A	Lab Control Sample	Total/NA	Water	3510C LVI	

Analysis Batch: 564574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	8270E	563981
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	8270E	563981
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	8270E	563981
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	8270E	563981
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	8270E	563981
MB 240-563981/19-A	Method Blank	Total/NA	Water	8270E	563981
LCS 240-563981/20-A	Lab Control Sample	Total/NA	Water	8270E	563981
LCS 240-563981/22-A	Lab Control Sample	Total/NA	Water	8270E	563981

QC Association Summary

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

Job ID: 240-181183-1

GC/MS Semi VOA

Analysis Batch: 564717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1 - RA	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	8270E	563981
240-181183-3 - RA	WC - 251079 - CLARK	Total/NA	Water	8270E	563981

GC Semi VOA

Prep Batch: 564322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	3511	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	3511	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	3511	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	3511	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	3511	
MB 240-564322/1-A	Method Blank	Total/NA	Water	3511	
LCS 240-564322/2-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 564333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	8015D	564322
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	8015D	564322
MB 240-564322/1-A	Method Blank	Total/NA	Water	8015D	564322
LCS 240-564322/2-A	Lab Control Sample	Total/NA	Water	8015D	564322

Analysis Batch: 564335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	8015D	564322
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	8015D	564322
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	8015D	564322

Metals

Leach Batch: 563935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	TCLP	Water	1311	
240-181183-2	WC - 251060 - BLUE BLDG EAST	TCLP	Water	1311	
240-181183-3	WC - 251079 - CLARK	TCLP	Water	1311	
240-181183-4	WC - 251633 - PLEASANT	TCLP	Water	1311	
240-181183-5	WC - 251478 - GAS STATION	TCLP	Water	1311	
LB 240-563935/1-B	Method Blank	TCLP	Water	1311	
LB 240-563935/1-C	Method Blank	TCLP	Water	1311	

Prep Batch: 564056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	TCLP	Water	3010A	563935
240-181183-2	WC - 251060 - BLUE BLDG EAST	TCLP	Water	3010A	563935
240-181183-3	WC - 251079 - CLARK	TCLP	Water	3010A	563935
240-181183-4	WC - 251633 - PLEASANT	TCLP	Water	3010A	563935
240-181183-5	WC - 251478 - GAS STATION	TCLP	Water	3010A	563935
LB 240-563935/1-B	Method Blank	TCLP	Water	3010A	563935
MB 240-564056/2-A	Method Blank	Total/NA	Water	3010A	
LCS 240-564056/3-A	Lab Control Sample	Total/NA	Water	3010A	

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QC Association Summary

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

Job ID: 240-181183-1

Metals

Prep Batch: 564057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	TCLP	Water	7470A	563935
240-181183-2	WC - 251060 - BLUE BLDG EAST	TCLP	Water	7470A	563935
240-181183-3	WC - 251079 - CLARK	TCLP	Water	7470A	563935
240-181183-4	WC - 251633 - PLEASANT	TCLP	Water	7470A	563935
240-181183-5	WC - 251478 - GAS STATION	TCLP	Water	7470A	563935
LB 240-563935/1-C	Method Blank	TCLP	Water	7470A	563935
MB 240-564057/2-A	Method Blank	Total/NA	Water	7470A	
LCS 240-564057/3-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 564191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	TCLP	Water	7470A	564057
240-181183-2	WC - 251060 - BLUE BLDG EAST	TCLP	Water	7470A	564057
240-181183-3	WC - 251079 - CLARK	TCLP	Water	7470A	564057
240-181183-4	WC - 251633 - PLEASANT	TCLP	Water	7470A	564057
240-181183-5	WC - 251478 - GAS STATION	TCLP	Water	7470A	564057
LB 240-563935/1-C	Method Blank	TCLP	Water	7470A	564057
MB 240-564057/2-A	Method Blank	Total/NA	Water	7470A	564057
LCS 240-564057/3-A	Lab Control Sample	Total/NA	Water	7470A	564057

Analysis Batch: 564198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	TCLP	Water	6010D	564056
240-181183-2	WC - 251060 - BLUE BLDG EAST	TCLP	Water	6010D	564056
240-181183-3	WC - 251079 - CLARK	TCLP	Water	6010D	564056
240-181183-4	WC - 251633 - PLEASANT	TCLP	Water	6010D	564056
240-181183-5	WC - 251478 - GAS STATION	TCLP	Water	6010D	564056
LB 240-563935/1-B	Method Blank	TCLP	Water	6010D	564056
MB 240-564056/2-A	Method Blank	Total/NA	Water	6010D	564056
LCS 240-564056/3-A	Lab Control Sample	Total/NA	Water	6010D	564056

General Chemistry

Analysis Batch: 564103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-564103/25	Lab Control Sample	Total/NA	Water	9040C	
LCS 240-564103/3	Lab Control Sample	Total/NA	Water	9040C	
LCS 240-564103/46	Lab Control Sample	Total/NA	Water	9040C	

Analysis Batch: 564157

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	2540D-2015	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	2540D-2015	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	2540D-2015	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	2540D-2015	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	2540D-2015	
MB 240-564157/1	Method Blank	Total/NA	Water	2540D-2015	
LCS 240-564157/2	Lab Control Sample	Total/NA	Water	2540D-2015	
240-181183-1 DU	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	2540D-2015	

QC Association Summary

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

Job ID: 240-181183-1

General Chemistry

Analysis Batch: 564164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	9040C	
LCS 240-564164/2	Lab Control Sample	Total/NA	Water	9040C	
240-181183-1 DU	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	9040C	

Analysis Batch: 564173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	9040C	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	9040C	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	9040C	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	9040C	
LCS 240-564173/3	Lab Control Sample	Total/NA	Water	9040C	

Analysis Batch: 564181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	1010B	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	1010B	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	1010B	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	1010B	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	1010B	
LCS 240-564181/1	Lab Control Sample	Total/NA	Water	1010B	
240-181183-1 DU	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	1010B	

Analysis Batch: 564202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-181183-1	WC - 257204 - BLUE BLDG WEST	Total/NA	Water	5310 C-2014	
240-181183-2	WC - 251060 - BLUE BLDG EAST	Total/NA	Water	5310 C-2014	
240-181183-3	WC - 251079 - CLARK	Total/NA	Water	5310 C-2014	
240-181183-4	WC - 251633 - PLEASANT	Total/NA	Water	5310 C-2014	
240-181183-5	WC - 251478 - GAS STATION	Total/NA	Water	5310 C-2014	
MB 240-564202/4	Method Blank	Total/NA	Water	5310 C-2014	
LCS 240-564202/5	Lab Control Sample	Total/NA	Water	5310 C-2014	
240-181183-5 MS	WC - 251478 - GAS STATION	Total/NA	Water	5310 C-2014	
240-181183-5 MSD	WC - 251478 - GAS STATION	Total/NA	Water	5310 C-2014	

Lab Chronicle

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

Job ID: 240-181183-1

Client Sample ID: WC - 257204 - BLUE BLDG WEST

Lab Sample ID: 240-181183-1

Date Collected: 03/01/23 12:40

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564153	SAM	EET CAN	03/03/23 15:17
Total/NA	Analysis	8260D		200	564153	SAM	EET CAN	03/03/23 21:38
Total/NA	Prep	3510C LVI			563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E		5	564574	TMH	EET CAN	03/08/23 12:08
Total/NA	Prep	3510C LVI	RA		563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E	RA	10	564717	TMH	EET CAN	03/09/23 08:07
Total/NA	Prep	3511			564322	LKG	EET CAN	03/06/23 07:59
Total/NA	Analysis	8015D		1	564333	EPF	EET CAN	03/06/23 12:24
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	3010A			564056	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	6010D		1	564198	RKT	EET CAN	03/03/23 12:36
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	7470A			564057	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	7470A		1	564191	MRL	EET CAN	03/03/23 13:38
Total/NA	Analysis	1010B		1	564181	JMR	EET CAN	03/03/23 08:46
Total/NA	Analysis	2540D-2015		1	564157	GH	EET CAN	03/03/23 10:03
Total/NA	Analysis	5310 C-2014		1	564202	MED	EET CAN	03/03/23 12:42
Total/NA	Analysis	9040C		1	564164	JMR	EET CAN	03/03/23 10:33

Client Sample ID: WC - 251060 - BLUE BLDG EAST

Lab Sample ID: 240-181183-2

Date Collected: 03/01/23 12:50

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		40	564039	SAM	EET CAN	03/02/23 16:44
Total/NA	Analysis	8260D		1	564039	SAM	EET CAN	03/02/23 22:40
Total/NA	Analysis	8260D		416.667	564153	SAM	EET CAN	03/03/23 17:15
Total/NA	Prep	3510C LVI			563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E		100	564574	TMH	EET CAN	03/08/23 12:31
Total/NA	Prep	3511			564322	LKG	EET CAN	03/06/23 07:59
Total/NA	Analysis	8015D		1	564333	EPF	EET CAN	03/06/23 12:52
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	3010A			564056	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	6010D		1	564198	RKT	EET CAN	03/03/23 12:41
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	7470A			564057	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	7470A		1	564191	MRL	EET CAN	03/03/23 13:40
Total/NA	Analysis	1010B		1	564181	JMR	EET CAN	03/03/23 09:49
Total/NA	Analysis	2540D-2015		1	564157	GH	EET CAN	03/03/23 10:03
Total/NA	Analysis	5310 C-2014		5	564202	MED	EET CAN	03/03/23 12:02
Total/NA	Analysis	9040C		1	564173	JMR	EET CAN	03/03/23 08:52

Lab Chronicle

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

Job ID: 240-181183-1

Client Sample ID: WC - 251079 - CLARK

Lab Sample ID: 240-181183-3

Date Collected: 03/01/23 13:00

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564153	SAM	EET CAN	03/03/23 14:53
Total/NA	Analysis	8260D		5	564153	SAM	EET CAN	03/03/23 21:14
Total/NA	Prep	3510C LVI			563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E		400	564574	TMH	EET CAN	03/08/23 12:54
Total/NA	Prep	3510C LVI	RA		563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E	RA	1000	564717	TMH	EET CAN	03/09/23 08:27
Total/NA	Prep	3511			564322	LKG	EET CAN	03/06/23 07:59
Total/NA	Analysis	8015D		1	564335	EPF	EET CAN	03/06/23 11:29
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	3010A			564056	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	6010D		1	564198	RKT	EET CAN	03/03/23 12:45
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	7470A			564057	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	7470A		1	564191	MRL	EET CAN	03/03/23 13:42
Total/NA	Analysis	1010B		1	564181	JMR	EET CAN	03/03/23 10:20
Total/NA	Analysis	2540D-2015		1	564157	GH	EET CAN	03/03/23 10:03
Total/NA	Analysis	5310 C-2014		5	564202	MED	EET CAN	03/03/23 12:15
Total/NA	Analysis	9040C		1	564173	JMR	EET CAN	03/03/23 08:59

Client Sample ID: WC - 251633 - PLEASANT

Lab Sample ID: 240-181183-4

Date Collected: 03/01/23 13:25

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	564039	SAM	EET CAN	03/02/23 17:31
Total/NA	Analysis	8260D		1	564039	SAM	EET CAN	03/02/23 23:04
Total/NA	Prep	3510C LVI			563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E		200	564574	TMH	EET CAN	03/08/23 13:18
Total/NA	Prep	3511			564322	LKG	EET CAN	03/06/23 07:59
Total/NA	Analysis	8015D		1	564335	EPF	EET CAN	03/06/23 11:57
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	3010A			564056	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	6010D		1	564198	RKT	EET CAN	03/03/23 12:49
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	7470A			564057	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	7470A		1	564191	MRL	EET CAN	03/03/23 13:44
Total/NA	Analysis	1010B		1	564181	JMR	EET CAN	03/03/23 10:52
Total/NA	Analysis	2540D-2015		1	564157	GH	EET CAN	03/03/23 10:03
Total/NA	Analysis	5310 C-2014		10	564202	MED	EET CAN	03/03/23 12:29
Total/NA	Analysis	9040C		1	564173	JMR	EET CAN	03/03/23 09:06

Lab Chronicle

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

Job ID: 240-181183-1

Client Sample ID: WC - 251478 - GAS STATION

Lab Sample ID: 240-181183-5

Date Collected: 03/01/23 13:35

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564039	SAM	EET CAN	03/02/23 23:27
Total/NA	Analysis	8260D		4	564153	SAM	EET CAN	03/03/23 14:06
Total/NA	Prep	3510C LVI			563981	MDH	EET CAN	03/02/23 08:54
Total/NA	Analysis	8270E		400	564574	TMH	EET CAN	03/08/23 13:41
Total/NA	Prep	3511			564322	LKG	EET CAN	03/06/23 07:59
Total/NA	Analysis	8015D		1	564335	EPF	EET CAN	03/06/23 12:24
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	3010A			564056	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	6010D		1	564198	RKT	EET CAN	03/03/23 12:54
TCLP	Leach	1311			563935	DRJ	EET CAN	03/02/23 11:00 - 03/02/23 11:05 ¹
TCLP	Prep	7470A			564057	AJC	EET CAN	03/02/23 14:00
TCLP	Analysis	7470A		1	564191	MRL	EET CAN	03/03/23 13:51
Total/NA	Analysis	1010B		1	564181	JMR	EET CAN	03/03/23 11:23
Total/NA	Analysis	2540D-2015		1	564157	GH	EET CAN	03/03/23 10:03
Total/NA	Analysis	5310 C-2014		1	564202	MED	EET CAN	03/03/23 11:22
Total/NA	Analysis	9040C		1	564173	JMR	EET CAN	03/03/23 09:11

Client Sample ID: TB - 01

Lab Sample ID: 240-181183-6

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564039	SAM	EET CAN	03/02/23 15:55

Client Sample ID: TB - 02

Lab Sample ID: 240-181183-7

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564039	SAM	EET CAN	03/02/23 16:19

Client Sample ID: TB - 03

Lab Sample ID: 240-181183-8

Date Collected: 03/01/23 00:00

Matrix: Water

Date Received: 03/01/23 20:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	564039	SAM	EET CAN	03/02/23 17:07

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

Accreditation/Certification Summary

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

Job ID: 240-181183-1

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

Chain of Custody Record

644929



Environment Testing
America

Address:

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact
 Company Name: **Arcadis**
 Address: **4665 Cornwell Rd, Ste 200**
 City/State/Zip: **Cincinnati, OH 45241**
 Phone: _____
 Fax: _____

Project Manager: **Jason Katrip**
 Tel/Email: **Jason.Katrip@arcadis.com**

Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day

Site: **East Pavilions, OH**
 P.O.#: **24030745**

Site Contact: **Carlynn Gray** Date: **3/1/23**
 Lab Contact: **Mike DeLeon** Carrier: **Courier**

Sampler: _____ of _____ COCs
 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)	TSS - suspended solids	Total Metals	Total SVOC	Total VOC	TPH - ORO	Total organic carbon	pH	Corrosion Flashpoint	PFAS/PFAA	Sample Specific Notes:
WC-257204-Blue Bldg West	3/1/23	1240	G	W	13	N	N	X	X	X	X	X	X	X	X		
WC-251060-Blue Bldg East	3/1/23	1250	G	W	13	N	N	X	X	X	X	X	X	X	X		
WC-251079-Clark	3/1/23	1300	G	W	13	N	N	X	X	X	X	X	X	X	X		
WC-251033-Pleasant	3/1/23	1325	G	W	13	N	N	X	X	X	X	X	X	X	X		
WC-251478-Gas Station	3/1/23	1335	G	W	13	N	N	X	X	X	X	X	X	X	X		
TB-01	3/1/23			W	2	N	N		X								
TB-02	3/1/23			W	2	N	N		X								
TB-03	3/1/23			W	2	N	N		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.

Non-Hazard Flammable Skin Irritant Unknown Poison B

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

Received by: **Dot Le** Date/Time: **3/1/23 1817**
 Company: **Arcadis**

Received by: **Judith M. L.** Date/Time: **3-1-23 2000**
 Company: **EETNL**

Received in Laboratory by: _____ Date/Time: _____
 Company: _____

Custody Seal No.: _____
 Company: **Arcadis**

Relinquished by: **Kari Handberg Arcadis** Date/Time: **3/1/23 1817**
 Company: **Arcadis**

Relinquished by: **Dot Le** Date/Time: **3-1-23 2000**
 Company: **EETNL**


Relinquished by: **Judith M. L.** Date/Time: **3-1-23 2000**
 Company: **EETNL**



Client Arcadis Site Name NSRR-ER Cooler unpacked by: (signature)
 Cooler Received on 3-1-23 Opened on 3-1-23
 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. _____ °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)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No N/A
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 # Covered 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: _____
Coc asks for total metals, client wants TCR metals instead.
For PFAS anke 2L bottles were received instead of plastic 250ml
bottles, fixed at lab. - M.A.A. 3/2/23 16:20

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 3/11/2023 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.

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: 240-181523-1

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

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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-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

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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

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

Eurofins Canton

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

Eurofins Canton

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

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
<i>Toluene-d8 (Surr)</i>	98		78 - 122		03/09/23 18:52	1
<i>Toluene-d8 (Surr)</i>	89		78 - 122		03/10/23 16:16	20
<i>Dibromofluoromethane (Surr)</i>	107		73 - 120		03/09/23 18:52	1
<i>Dibromofluoromethane (Surr)</i>	99		73 - 120		03/10/23 16:16	20
<i>4-Bromofluorobenzene (Surr)</i>	110		56 - 136		03/09/23 18:52	1
<i>4-Bromofluorobenzene (Surr)</i>	91		56 - 136		03/10/23 16:16	20
<i>1,2-Dichloroethane-d4 (Surr)</i>	99		62 - 137		03/09/23 18:52	1
<i>1,2-Dichloroethane-d4 (Surr)</i>	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

- 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: 240-181523-1

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
1,1,2,2-Tetrachloroethane	0.0250	0.0264		mg/L		105	58 - 157
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	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	100		80 - 120		03/09/23 14:21	1
Dibromofluoromethane (Surr)	101		71 - 121		03/09/23 14:21	1
4-Bromofluorobenzene (Surr)	96		80 - 120		03/09/23 14:21	1
1,2-Dichloroethane-d4 (Surr)	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	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				
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	MS	Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	95		71 - 121
4-Bromofluorobenzene (Surr)	97		80 - 120
1,2-Dichloroethane-d4 (Surr)	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	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier		Result	Qualifier						
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 %Recovery	LCS Qualifier	Limits
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 %Recovery	MS Qualifier	Limits
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		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
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		Unit	D	%Rec	%Rec	
		Added	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		Unit	D	%Rec	%Rec	
	Result	Qualifier		Result	Qualifier				Limits	RPD
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		Unit	D	%Rec	%Rec		RPD	Limit
	Result	Qualifier		Result	Qualifier				Limits	RPD		
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	

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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

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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.



TAL-8210
 Regulatory Program: DW NPDES RCRA Other: _____
 Project Manager: Jason A. H. P. Date: 3/17/23
 Tel/Email: Jason.a.h.p@eurofins.com Carrier: _____

Client Contact
 Company Name: Arcadis
 Address: 111 Saunders Ln
 City/State/Zip: Buffalo VA 24005
 Phone: _____
 Fax: _____
 Project Name: _____
 Site: _____
 P O # _____

Site Contact: Michelle Uytend
 Lab Contact: _____
 Date: 3/17/23
 Carrier: _____

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	1550	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
 Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: _____

Custody Seal No.: _____
 Relinquished by: Wanda Ashley Harris
 Relinquished by: Jason A. H. P.
 Relinquished by: _____

Received by: Jason Ambush
 Received by: Jessica L.
 Received in Laboratory by: _____

Company: Arcadis
 Company: Eurofins
 Company: EE TNL

Date/Time: 3/17/2023
 Date/Time: 3/23/2023
 Date/Time: _____

Therm ID No.: _____
 Date/Time: 3-23-2023
 Date/Time: 3-23-2023
 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 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? 3-8-23 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 # 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 3/22/2023 2:53:51 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182044-1

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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3/22/2023 2:53:51 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: 240-182044-1

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
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

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.
S1-	Surrogate recovery exceeds control limits, low biased.

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.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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

Eurofins Canton

Case Narrative

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

Job ID: 240-182044-1

Job ID: 240-182044-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182044-1

Receipt

The sample was received on 3/16/2023 7:00 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.9°C

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 240-565915 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-257761-STORM SEWER (240-182044-1), (CCV 240-565915/4), (CCVIS 240-565915/3), (LCS 240-565915/5), (LCS 240-565915/6) and (MB 240-565915/8).

Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container: WC-257761-STORM SEWER (240-182044-1).

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: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-565863.

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-565890 recovered above the upper control limit for 2-Methylphenol and Phenol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: WC-257761-STORM SEWER (240-182044-1).

Method 8270E: The following sample was diluted to bring the concentration of target analytes within the calibration range: WC-257761-STORM SEWER (240-182044-1). 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.

Diesel Range Organics

Method 8015D_DRO: The following sample required a dilution due to the nature of the sample matrix: WC-257761-STORM SEWER (240-182044-1). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

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: 240-182044-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8015D	Diesel Range Organics (DRO) (GC)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
2540D-2015	Total Suspended Solids (Dried at 103-105°C)	SM	EET CAN
5310 C-2014	Total Organic Carbon/Persulfate - Ultrav	SM	EET CAN
9040C	pH	SW846	EET CAN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET CAN
3510C LVI	Liquid-Liquid Extraction (Separatory Funnel) LVI	SW846	EET CAN
3511	Microextraction of Organic Compounds	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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: 240-182044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182044-1	WC-257761-STORM SEWER	Water	03/16/23 16:00	03/16/23 19:00

- 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: 240-182044-1

Client Sample ID: WC-257761-STORM SEWER

Lab Sample ID: 240-182044-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0043	J	0.010	0.0012	mg/L	1		8260D	Total/NA
4-Methyl-2-pentanone (MIBK)	0.0015	J	0.010	0.00099	mg/L	1		8260D	Total/NA
Acetone	0.050		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.00088	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Ethylbenzene	0.00087	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Toluene	0.0028		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	0.0054		0.0020	0.00042	mg/L	1		8260D	Total/NA
Diesel Range Organics [C10 - C28]	160000	B	9800	1300	ug/L	20		8015D	Total/NA
Barium	420		200	1.3	ug/L	1		6010D	Total Recoverable
Cadmium	2.3	J	5.0	0.20	ug/L	1		6010D	Total Recoverable
Chromium	65		10	4.0	ug/L	1		6010D	Total Recoverable
Arsenic	50		15	4.1	ug/L	1		6010D	Total Recoverable
Lead	130		10	2.8	ug/L	1		6010D	Total Recoverable
Mercury	0.41		0.20	0.13	ug/L	1		7470A	Total/NA
Total Suspended Solids	1200		73	18	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	830		50	17	mg/L	50		5310 C-2014	Total/NA
corrosivity by pH	7.7	HF	0.1	0.1	SU	1		9040C	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: 240-182044-1

Client Sample ID: WC-257761-STORM SEWER

Lab Sample ID: 240-182044-1

Date Collected: 03/16/23 16:00

Matrix: Water

Date Received: 03/16/23 19:00

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			03/17/23 15:07	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/17/23 15:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/17/23 15:07	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/17/23 15:07	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/17/23 15:07	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/17/23 15:07	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/17/23 15:07	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/17/23 15:07	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/17/23 15:07	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/17/23 15:07	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/17/23 15:07	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/17/23 15:07	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/17/23 15:07	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/17/23 15:07	1
2-Butanone (MEK)	0.0043	J	0.010	0.0012	mg/L			03/17/23 15:07	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/17/23 15:07	1
4-Methyl-2-pentanone (MIBK)	0.0015	J	0.010	0.00099	mg/L			03/17/23 15:07	1
Acetone	0.050		0.010	0.0054	mg/L			03/17/23 15:07	1
Benzene	0.00088	J	0.0010	0.00042	mg/L			03/17/23 15:07	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/17/23 15:07	1
Bromoform	ND		0.0010	0.00076	mg/L			03/17/23 15:07	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/17/23 15:07	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/17/23 15:07	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/17/23 15:07	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/17/23 15:07	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/17/23 15:07	1
Chloroform	ND		0.0010	0.00047	mg/L			03/17/23 15:07	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/17/23 15:07	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/17/23 15:07	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/17/23 15:07	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/17/23 15:07	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/17/23 15:07	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/17/23 15:07	1
Ethylbenzene	0.00087	J	0.0010	0.00042	mg/L			03/17/23 15:07	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/17/23 15:07	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/17/23 15:07	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/17/23 15:07	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/17/23 15:07	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/17/23 15:07	1
Styrene	ND		0.0010	0.00045	mg/L			03/17/23 15:07	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/17/23 15:07	1
Toluene	0.0028		0.0010	0.00044	mg/L			03/17/23 15:07	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/17/23 15:07	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/17/23 15:07	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/17/23 15:07	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/17/23 15:07	1
Vinyl chloride	0.016		0.0010	0.00045	mg/L			03/17/23 15:07	1
Xylenes, Total	0.0054		0.0020	0.00042	mg/L			03/17/23 15:07	1

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Client Sample Results

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

Job ID: 240-182044-1

Client Sample ID: WC-257761-STORM SEWER

Lab Sample ID: 240-182044-1

Date Collected: 03/16/23 16:00

Matrix: Water

Date Received: 03/16/23 19:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	110		78 - 122		03/17/23 15:07	1
Toluene-d8 (Surr)	89		78 - 122		03/18/23 15:09	33.333
Dibromofluoromethane (Surr)	101		73 - 120		03/17/23 15:07	1
Dibromofluoromethane (Surr)	101		73 - 120		03/18/23 15:09	33.333
4-Bromofluorobenzene (Surr)	112		56 - 136		03/17/23 15:07	1
4-Bromofluorobenzene (Surr)	93		56 - 136		03/18/23 15:09	33.333
1,2-Dichloroethane-d4 (Surr)	96		62 - 137		03/17/23 15:07	1
1,2-Dichloroethane-d4 (Surr)	93		62 - 137		03/18/23 15:09	33.333

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.050	0.025	mg/L		03/17/23 14:39	03/18/23 07:18	50
bis (2-chloroisopropyl) ether	ND		0.050	0.028	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,4,5-Trichlorophenol	ND		0.25	0.099	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,4,6-Trichlorophenol	ND		0.25	0.090	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,4-Dichlorophenol	ND		0.10	0.013	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,4-Dimethylphenol	ND		0.10	0.026	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,4-Dinitrophenol	ND		0.50	0.31	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,4-Dinitrotoluene	ND		0.25	0.10	mg/L		03/17/23 14:39	03/18/23 07:18	50
2,6-Dinitrotoluene	ND		0.25	0.11	mg/L		03/17/23 14:39	03/18/23 07:18	50
2-Chloronaphthalene	ND		0.050	0.024	mg/L		03/17/23 14:39	03/18/23 07:18	50
2-Chlorophenol	ND		0.050	0.014	mg/L		03/17/23 14:39	03/18/23 07:18	50
2-Methylnaphthalene	ND		0.010	0.0056	mg/L		03/17/23 14:39	03/18/23 07:18	50
2-Methylphenol	ND		0.050	0.010	mg/L		03/17/23 14:39	03/18/23 07:18	50
2-Nitroaniline	ND		0.10	0.026	mg/L		03/17/23 14:39	03/18/23 07:18	50
2-Nitrophenol	ND		0.10	0.028	mg/L		03/17/23 14:39	03/18/23 07:18	50
3,3'-Dichlorobenzidine	ND		0.25	0.058	mg/L		03/17/23 14:39	03/18/23 07:18	50
3-Nitroaniline	ND		0.10	0.028	mg/L		03/17/23 14:39	03/18/23 07:18	50
4,6-Dinitro-2-methylphenol	ND		0.25	0.14	mg/L		03/17/23 14:39	03/18/23 07:18	50
4-Bromophenyl phenyl ether	ND		0.10	0.025	mg/L		03/17/23 14:39	03/18/23 07:18	50
4-Chloro-3-methylphenol	ND		0.10	0.015	mg/L		03/17/23 14:39	03/18/23 07:18	50
4-Chloroaniline	ND		0.10	0.016	mg/L		03/17/23 14:39	03/18/23 07:18	50
4-Chlorophenyl phenyl ether	ND		0.10	0.028	mg/L		03/17/23 14:39	03/18/23 07:18	50
4-Nitroaniline	ND		0.10	0.046	mg/L		03/17/23 14:39	03/18/23 07:18	50
4-Nitrophenol	ND		0.50	0.11	mg/L		03/17/23 14:39	03/18/23 07:18	50
Acenaphthene	ND		0.010	0.0086	mg/L		03/17/23 14:39	03/18/23 07:18	50
Acenaphthylene	ND		0.010	0.0063	mg/L		03/17/23 14:39	03/18/23 07:18	50
Acetophenone	ND		0.050	0.018	mg/L		03/17/23 14:39	03/18/23 07:18	50
Anthracene	ND		0.010	0.0068	mg/L		03/17/23 14:39	03/18/23 07:18	50
Atrazine	ND		0.10	0.048	mg/L		03/17/23 14:39	03/18/23 07:18	50
Benzaldehyde	ND		0.10	0.038	mg/L		03/17/23 14:39	03/18/23 07:18	50
Benzo[a]anthracene	ND		0.010	0.0086	mg/L		03/17/23 14:39	03/18/23 07:18	50
Benzo[a]pyrene	ND		0.010	0.0087	mg/L		03/17/23 14:39	03/18/23 07:18	50
Benzo[b]fluoranthene	ND		0.010	0.0077	mg/L		03/17/23 14:39	03/18/23 07:18	50
Benzo[g,h,i]perylene	ND		0.010	0.0089	mg/L		03/17/23 14:39	03/18/23 07:18	50
Benzo[k]fluoranthene	ND		0.010	0.0070	mg/L		03/17/23 14:39	03/18/23 07:18	50
Bis(2-chloroethoxy)methane	ND		0.050	0.023	mg/L		03/17/23 14:39	03/18/23 07:18	50
Bis(2-chloroethyl)ether	ND		0.050	0.020	mg/L		03/17/23 14:39	03/18/23 07:18	50
Bis(2-ethylhexyl) phthalate	ND		0.25	0.11	mg/L		03/17/23 14:39	03/18/23 07:18	50
Butyl benzyl phthalate	ND		0.10	0.033	mg/L		03/17/23 14:39	03/18/23 07:18	50

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Client Sample Results

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

Job ID: 240-182044-1

Client Sample ID: WC-257761-STORM SEWER

Lab Sample ID: 240-182044-1

Date Collected: 03/16/23 16:00

Matrix: Water

Date Received: 03/16/23 19:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Caprolactam	ND		0.25	0.047	mg/L		03/17/23 14:39	03/18/23 07:18	50
Carbazole	ND		0.050	0.025	mg/L		03/17/23 14:39	03/18/23 07:18	50
Chrysene	ND		0.010	0.0093	mg/L		03/17/23 14:39	03/18/23 07:18	50
Dibenz(a,h)anthracene	ND		0.010	0.0076	mg/L		03/17/23 14:39	03/18/23 07:18	50
Dibenzofuran	ND		0.050	0.028	mg/L		03/17/23 14:39	03/18/23 07:18	50
Diethyl phthalate	ND		0.25	0.19	mg/L		03/17/23 14:39	03/18/23 07:18	50
Dimethyl phthalate	ND		0.10	0.026	mg/L		03/17/23 14:39	03/18/23 07:18	50
Di-n-butyl phthalate	ND		0.25	0.090	mg/L		03/17/23 14:39	03/18/23 07:18	50
Di-n-octyl phthalate	ND		0.10	0.041	mg/L		03/17/23 14:39	03/18/23 07:18	50
Fluoranthene	ND		0.010	0.0080	mg/L		03/17/23 14:39	03/18/23 07:18	50
Fluorene	ND		0.010	0.0085	mg/L		03/17/23 14:39	03/18/23 07:18	50
Hexachlorobenzene	ND		0.010	0.0081	mg/L		03/17/23 14:39	03/18/23 07:18	50
Hexachlorobutadiene	ND		0.050	0.027	mg/L		03/17/23 14:39	03/18/23 07:18	50
Hexachlorocyclopentadiene	ND		0.50	0.088	mg/L		03/17/23 14:39	03/18/23 07:18	50
Hexachloroethane	ND		0.050	0.020	mg/L		03/17/23 14:39	03/18/23 07:18	50
Indeno[1,2,3-cd]pyrene	ND		0.010	0.0068	mg/L		03/17/23 14:39	03/18/23 07:18	50
Isophorone	ND		0.050	0.016	mg/L		03/17/23 14:39	03/18/23 07:18	50
N-Nitrosodi-n-propylamine	ND		0.050	0.013	mg/L		03/17/23 14:39	03/18/23 07:18	50
N-Nitrosodiphenylamine	ND		0.050	0.022	mg/L		03/17/23 14:39	03/18/23 07:18	50
Naphthalene	ND		0.010	0.0055	mg/L		03/17/23 14:39	03/18/23 07:18	50
Nitrobenzene	ND		0.050	0.026	mg/L		03/17/23 14:39	03/18/23 07:18	50
Pentachlorophenol	ND		0.50	0.16	mg/L		03/17/23 14:39	03/18/23 07:18	50
Phenanthrene	ND		0.010	0.0084	mg/L		03/17/23 14:39	03/18/23 07:18	50
Phenol	ND		0.050	0.0064	mg/L		03/17/23 14:39	03/18/23 07:18	50
Pyrene	ND		0.010	0.0088	mg/L		03/17/23 14:39	03/18/23 07:18	50
3 & 4 Methylphenol	ND		0.10	0.0096	mg/L		03/17/23 14:39	03/18/23 07:18	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/17/23 14:39	03/18/23 07:18	50
Phenol-d5 (Surr)	33		26 - 120	03/17/23 14:39	03/18/23 07:18	50
Nitrobenzene-d5 (Surr)	42		24 - 120	03/17/23 14:39	03/18/23 07:18	50
2-Fluorophenol (Surr)	41		19 - 120	03/17/23 14:39	03/18/23 07:18	50
2-Fluorobiphenyl (Surr)	47		33 - 120	03/17/23 14:39	03/18/23 07:18	50
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/17/23 14:39	03/18/23 07:18	50

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/17/23 14:39	03/18/23 09:15	333.333
Phenol-d5 (Surr)	0	S1-	26 - 120	03/17/23 14:39	03/18/23 09:15	333.333
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/17/23 14:39	03/18/23 09:15	333.333
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/17/23 14:39	03/18/23 09:15	333.333
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/17/23 14:39	03/18/23 09:15	333.333
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/17/23 14:39	03/18/23 09:15	333.333

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Client Sample Results

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

Job ID: 240-182044-1

Client Sample ID: WC-257761-STORM SEWER

Lab Sample ID: 240-182044-1

Date Collected: 03/16/23 16:00

Matrix: Water

Date Received: 03/16/23 19:00

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	160000	B	9800	1300	ug/L		03/20/23 06:22	03/20/23 12:05	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl	37	S1-	52 - 121				03/20/23 06:22	03/20/23 12:05	20

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	420		200	1.3	ug/L		03/17/23 09:50	03/20/23 13:02	1
Cadmium	2.3	J	5.0	0.20	ug/L		03/17/23 09:50	03/20/23 13:02	1
Chromium	65		10	4.0	ug/L		03/17/23 09:50	03/20/23 13:02	1
Silver	ND		10	0.62	ug/L		03/17/23 09:50	03/20/23 13:02	1
Arsenic	50		15	4.1	ug/L		03/17/23 09:50	03/20/23 13:02	1
Lead	130		10	2.8	ug/L		03/17/23 09:50	03/20/23 13:02	1
Selenium	ND		20	6.0	ug/L		03/17/23 09:50	03/20/23 13:02	1

Method: SW846 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.41		0.20	0.13	ug/L		03/17/23 11:00	03/20/23 15:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids (SM 2540D-2015)	1200		73	18	mg/L			03/21/23 10:23	1
Total Organic Carbon (SM 5310 C-2014)	830		50	17	mg/L			03/17/23 18:36	50
corrosivity by pH (SW846 9040C)	7.7	HF	0.1	0.1	SU			03/17/23 17:16	1

Surrogate Summary

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

Job ID: 240-182044-1

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)
240-182044-1	WC-257761-STORM SEWER	110	101	112	96
240-182044-1	WC-257761-STORM SEWER	89	101	93	93
LCS 240-565809/5	Lab Control Sample	105	102	110	99
LCS 240-565809/6	Lab Control Sample	104	101	114	101
LCS 240-565915/5	Lab Control Sample	97	95	94	87
LCS 240-565915/6	Lab Control Sample	88	97	93	91
MB 240-565809/9	Method Blank	105	102	111	100
MB 240-565915/8	Method Blank	89	102	85	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: Water

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)
240-182044-1 - RA	WC-257761-STORM SEWER	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-182044-1	WC-257761-STORM SEWER	0 S1-	33	42	41	47	0 S1-
LCS 240-565863/3-A	Lab Control Sample	83	80	73	116	77	82
MB 240-565863/2-A	Method Blank	100	77	78	87	83	78

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: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	OTPH
		(52-121)
240-182044-1	WC-257761-STORM SEWER	37 S1-
LCS 240-565980/2-A	Lab Control Sample	82
MB 240-565980/1-A	Method Blank	63

Surrogate Legend
OTPH = o-Terphenyl

QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: MB 240-565809/9
Matrix: Water
Analysis Batch: 565809

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			03/17/23 14:19	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/17/23 14:19	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/17/23 14:19	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/17/23 14:19	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/17/23 14:19	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/17/23 14:19	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/17/23 14:19	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/17/23 14:19	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/17/23 14:19	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/17/23 14:19	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/17/23 14:19	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/17/23 14:19	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/17/23 14:19	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/17/23 14:19	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/17/23 14:19	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/17/23 14:19	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/17/23 14:19	1
Acetone	ND		0.010	0.0054	mg/L			03/17/23 14:19	1
Benzene	ND		0.0010	0.00042	mg/L			03/17/23 14:19	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/17/23 14:19	1
Bromoform	ND		0.0010	0.00076	mg/L			03/17/23 14:19	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/17/23 14:19	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/17/23 14:19	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/17/23 14:19	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/17/23 14:19	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/17/23 14:19	1
Chloroform	ND		0.0010	0.00047	mg/L			03/17/23 14:19	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/17/23 14:19	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/17/23 14:19	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/17/23 14:19	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/17/23 14:19	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/17/23 14:19	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/17/23 14:19	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/17/23 14:19	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/17/23 14:19	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/17/23 14:19	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/17/23 14:19	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/17/23 14:19	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/17/23 14:19	1
Styrene	ND		0.0010	0.00045	mg/L			03/17/23 14:19	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/17/23 14:19	1
Toluene	ND		0.0010	0.00044	mg/L			03/17/23 14:19	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/17/23 14:19	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/17/23 14:19	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/17/23 14:19	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/17/23 14:19	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/17/23 14:19	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/17/23 14:19	1

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QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: MB 240-565809/9
Matrix: Water
Analysis Batch: 565809

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	105		78 - 122		03/17/23 14:19	1
Dibromofluoromethane (Surr)	102		73 - 120		03/17/23 14:19	1
4-Bromofluorobenzene (Surr)	111		56 - 136		03/17/23 14:19	1
1,2-Dichloroethane-d4 (Surr)	100		62 - 137		03/17/23 14:19	1

Lab Sample ID: LCS 240-565809/5
Matrix: Water
Analysis Batch: 565809

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	0.0200	0.0188		mg/L		94	64 - 131
1,1,1,2-Tetrachloroethane	0.0200	0.0205		mg/L		102	58 - 157
1,1,1,2-Trichloro-1,2,2-trifluoroethane	0.0200	0.0174		mg/L		87	51 - 146
1,1,2-Trichloroethane	0.0200	0.0192		mg/L		96	70 - 138
1,1-Dichloroethane	0.0200	0.0184		mg/L		92	72 - 127
1,1-Dichloroethene	0.0200	0.0179		mg/L		90	63 - 134
1,2,4-Trichlorobenzene	0.0200	0.0188		mg/L		94	44 - 147
1,2-Dibromo-3-Chloropropane	0.0200	0.0183		mg/L		91	53 - 135
Ethylene Dibromide	0.0200	0.0188		mg/L		94	71 - 134
1,2-Dichlorobenzene	0.0200	0.0188		mg/L		94	78 - 120
1,2-Dichloroethane	0.0200	0.0192		mg/L		96	66 - 128
1,2-Dichloropropane	0.0200	0.0190		mg/L		95	75 - 133
1,3-Dichlorobenzene	0.0200	0.0187		mg/L		94	80 - 120
1,4-Dichlorobenzene	0.0200	0.0188		mg/L		94	80 - 120
2-Butanone (MEK)	0.0400	0.0385		mg/L		96	54 - 156
2-Hexanone	0.0400	0.0421		mg/L		105	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0400	0.0407		mg/L		102	46 - 158
Acetone	0.0400	0.0376		mg/L		94	50 - 149
Benzene	0.0200	0.0185		mg/L		92	77 - 123
Dichlorobromomethane	0.0200	0.0196		mg/L		98	69 - 126
Bromoform	0.0200	0.0192		mg/L		96	57 - 129
Bromomethane	0.0200	0.0184		mg/L		92	36 - 142
Carbon disulfide	0.0200	0.0167		mg/L		84	43 - 140
Carbon tetrachloride	0.0200	0.0186		mg/L		93	55 - 137
Chlorobenzene	0.0200	0.0186		mg/L		93	80 - 121
Chloroethane	0.0200	0.0185		mg/L		92	38 - 152
Chloroform	0.0200	0.0188		mg/L		94	74 - 122
Chloromethane	0.0200	0.0182		mg/L		91	47 - 143
cis-1,2-Dichloroethene	0.0200	0.0181		mg/L		91	77 - 123
cis-1,3-Dichloropropene	0.0200	0.0187		mg/L		94	64 - 130
Cyclohexane	0.0200	0.0178		mg/L		89	58 - 146
Chlorodibromomethane	0.0200	0.0186		mg/L		93	70 - 124
Dichlorodifluoromethane	0.0200	0.0158		mg/L		79	34 - 153
Ethylbenzene	0.0200	0.0188		mg/L		94	80 - 121
Isopropylbenzene	0.0200	0.0187		mg/L		94	74 - 128
Methyl acetate	0.0400	0.0373		mg/L		93	42 - 169
Methyl tert-butyl ether	0.0200	0.0186		mg/L		93	65 - 126
Methylcyclohexane	0.0200	0.0186		mg/L		93	62 - 136

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QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: LCS 240-565809/5
Matrix: Water
Analysis Batch: 565809

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methylene Chloride	0.0200	0.0175		mg/L		88	71 - 125
Styrene	0.0200	0.0187		mg/L		94	80 - 135
Tetrachloroethene	0.0200	0.0181		mg/L		90	76 - 123
Toluene	0.0200	0.0185		mg/L		93	80 - 123
trans-1,2-Dichloroethene	0.0200	0.0185		mg/L		93	75 - 124
trans-1,3-Dichloropropene	0.0200	0.0195		mg/L		97	57 - 129
Trichloroethene	0.0200	0.0175		mg/L		88	70 - 122
Trichlorofluoromethane	0.0200	0.0183		mg/L		92	30 - 170
Vinyl chloride	0.0200	0.0181		mg/L		91	60 - 144
Xylenes, Total	0.0400	0.0372		mg/L		93	80 - 121
m-Xylene & p-Xylene	0.0200	0.0186		mg/L		93	80 - 120
o-Xylene	0.0200	0.0186		mg/L		93	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	102		73 - 120
4-Bromofluorobenzene (Surr)	110		56 - 136
1,2-Dichloroethane-d4 (Surr)	99		62 - 137

Lab Sample ID: LCS 240-565809/6
Matrix: Water
Analysis Batch: 565809

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	104		78 - 122
Dibromofluoromethane (Surr)	101		73 - 120
4-Bromofluorobenzene (Surr)	114		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: MB 240-565915/8
Matrix: Water
Analysis Batch: 565915

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/18/23 13:34	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/18/23 13:34	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/18/23 13:34	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/18/23 13:34	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/18/23 13:34	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/18/23 13:34	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/18/23 13:34	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/18/23 13:34	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/18/23 13:34	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/18/23 13:34	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/18/23 13:34	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/18/23 13:34	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/18/23 13:34	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/18/23 13:34	1

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QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: MB 240-565915/8
Matrix: Water
Analysis Batch: 565915

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/18/23 13:34	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/18/23 13:34	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/18/23 13:34	1
Acetone	ND		0.010	0.0054	mg/L			03/18/23 13:34	1
Benzene	ND		0.0010	0.00042	mg/L			03/18/23 13:34	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/18/23 13:34	1
Bromoform	ND		0.0010	0.00076	mg/L			03/18/23 13:34	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/18/23 13:34	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/18/23 13:34	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/18/23 13:34	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/18/23 13:34	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/18/23 13:34	1
Chloroform	ND		0.0010	0.00047	mg/L			03/18/23 13:34	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/18/23 13:34	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/18/23 13:34	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/18/23 13:34	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/18/23 13:34	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/18/23 13:34	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/18/23 13:34	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/18/23 13:34	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/18/23 13:34	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/18/23 13:34	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/18/23 13:34	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/18/23 13:34	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/18/23 13:34	1
Styrene	ND		0.0010	0.00045	mg/L			03/18/23 13:34	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/18/23 13:34	1
Toluene	ND		0.0010	0.00044	mg/L			03/18/23 13:34	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/18/23 13:34	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/18/23 13:34	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/18/23 13:34	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/18/23 13:34	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/18/23 13:34	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/18/23 13:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	89		78 - 122		03/18/23 13:34	1
Dibromofluoromethane (Surr)	102		73 - 120		03/18/23 13:34	1
4-Bromofluorobenzene (Surr)	85		56 - 136		03/18/23 13:34	1
1,2-Dichloroethane-d4 (Surr)	94		62 - 137		03/18/23 13:34	1

Lab Sample ID: LCS 240-565915/5
Matrix: Water
Analysis Batch: 565915

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	0.0235		mg/L		94	64 - 131
1,1,1,2-Tetrachloroethane	0.0250	0.0275		mg/L		110	58 - 157

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QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: LCS 240-565915/5

Matrix: Water

Analysis Batch: 565915

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0253		mg/L		101	51 - 146
1,1,2-Trichloroethane	0.0250	0.0255		mg/L		102	70 - 138
1,1-Dichloroethane	0.0250	0.0225		mg/L		90	72 - 127
1,1-Dichloroethene	0.0250	0.0244		mg/L		98	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0267		mg/L		107	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0239		mg/L		96	53 - 135
Ethylene Dibromide	0.0250	0.0248		mg/L		99	71 - 134
1,2-Dichlorobenzene	0.0250	0.0267		mg/L		107	78 - 120
1,2-Dichloroethane	0.0250	0.0225		mg/L		90	66 - 128
1,2-Dichloropropane	0.0250	0.0235		mg/L		94	75 - 133
1,3-Dichlorobenzene	0.0250	0.0265		mg/L		106	80 - 120
1,4-Dichlorobenzene	0.0250	0.0263		mg/L		105	80 - 120
2-Butanone (MEK)	0.0500	0.0468		mg/L		94	54 - 156
2-Hexanone	0.0500	0.0519		mg/L		104	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0512		mg/L		102	46 - 158
Acetone	0.0500	0.0481		mg/L		96	50 - 149
Benzene	0.0250	0.0246		mg/L		98	77 - 123
Dichlorobromomethane	0.0250	0.0233		mg/L		93	69 - 126
Bromoform	0.0250	0.0243		mg/L		97	57 - 129
Bromomethane	0.0125	0.0121		mg/L		97	36 - 142
Carbon disulfide	0.0250	0.0229		mg/L		91	43 - 140
Carbon tetrachloride	0.0250	0.0235		mg/L		94	55 - 137
Chlorobenzene	0.0250	0.0254		mg/L		102	80 - 121
Chloroethane	0.0125	0.0113		mg/L		91	38 - 152
Chloroform	0.0250	0.0235		mg/L		94	74 - 122
Chloromethane	0.0125	0.0137		mg/L		109	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0238		mg/L		95	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0237		mg/L		95	64 - 130
Cyclohexane	0.0250	0.0263		mg/L		105	58 - 146
Chlorodibromomethane	0.0250	0.0233		mg/L		93	70 - 124
Dichlorodifluoromethane	0.0125	0.0123		mg/L		98	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	0.0405		mg/L		81	42 - 169
Methyl tert-butyl ether	0.0250	0.0225		mg/L		90	65 - 126
Methylcyclohexane	0.0250	0.0274		mg/L		110	62 - 136
Methylene Chloride	0.0250	0.0236		mg/L		94	71 - 125
Styrene	0.0250	0.0269		mg/L		108	80 - 135
Tetrachloroethene	0.0250	0.0264		mg/L		106	76 - 123
Toluene	0.0250	0.0256		mg/L		102	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0238		mg/L		95	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0239		mg/L		96	57 - 129
Trichloroethene	0.0250	0.0240		mg/L		96	70 - 122
Trichlorofluoromethane	0.0125	0.0115		mg/L		92	30 - 170
Vinyl chloride	0.0125	0.0129		mg/L		103	60 - 144
Xylenes, Total	0.0500	0.0519		mg/L		104	80 - 121
m-Xylene & p-Xylene	0.0250	0.0263		mg/L		105	80 - 120
o-Xylene	0.0250	0.0256		mg/L		103	80 - 123

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QC Sample Results

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

Job ID: 240-182044-1

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	97		78 - 122
Dibromofluoromethane (Surr)	95		73 - 120
4-Bromofluorobenzene (Surr)	94		56 - 136
1,2-Dichloroethane-d4 (Surr)	87		62 - 137

Lab Sample ID: LCS 240-565915/6
 Matrix: Water
 Analysis Batch: 565915

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	88		78 - 122
Dibromofluoromethane (Surr)	97		73 - 120
4-Bromofluorobenzene (Surr)	93		56 - 136
1,2-Dichloroethane-d4 (Surr)	91		62 - 137

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

Lab Sample ID: MB 240-565863/2-A
 Matrix: Water
 Analysis Batch: 565890

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 565863

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.0010	0.00049	mg/L		03/17/23 14:39	03/18/23 06:31	1
bis (2-chloroisopropyl) ether	ND		0.0010	0.00055	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,4,5-Trichlorophenol	ND		0.0050	0.0020	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,4,6-Trichlorophenol	ND		0.0050	0.0018	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,4-Dichlorophenol	ND		0.0020	0.00026	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,4-Dimethylphenol	ND		0.0020	0.00052	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,4-Dinitrophenol	ND		0.010	0.0062	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,4-Dinitrotoluene	ND		0.0050	0.0021	mg/L		03/17/23 14:39	03/18/23 06:31	1
2,6-Dinitrotoluene	ND		0.0050	0.0021	mg/L		03/17/23 14:39	03/18/23 06:31	1
2-Chloronaphthalene	ND		0.0010	0.00048	mg/L		03/17/23 14:39	03/18/23 06:31	1
2-Chlorophenol	ND		0.0010	0.00027	mg/L		03/17/23 14:39	03/18/23 06:31	1
2-Methylnaphthalene	ND		0.00020	0.00011	mg/L		03/17/23 14:39	03/18/23 06:31	1
2-Methylphenol	ND		0.0010	0.00021	mg/L		03/17/23 14:39	03/18/23 06:31	1
2-Nitroaniline	ND		0.0020	0.00051	mg/L		03/17/23 14:39	03/18/23 06:31	1
2-Nitrophenol	ND		0.0020	0.00056	mg/L		03/17/23 14:39	03/18/23 06:31	1
3,3'-Dichlorobenzidine	ND		0.0050	0.0012	mg/L		03/17/23 14:39	03/18/23 06:31	1
3-Nitroaniline	ND		0.0020	0.00057	mg/L		03/17/23 14:39	03/18/23 06:31	1
4,6-Dinitro-2-methylphenol	ND		0.0050	0.0028	mg/L		03/17/23 14:39	03/18/23 06:31	1
4-Bromophenyl phenyl ether	ND		0.0020	0.00050	mg/L		03/17/23 14:39	03/18/23 06:31	1
4-Chloro-3-methylphenol	ND		0.0020	0.00030	mg/L		03/17/23 14:39	03/18/23 06:31	1
4-Chloroaniline	ND		0.0020	0.00032	mg/L		03/17/23 14:39	03/18/23 06:31	1
4-Chlorophenyl phenyl ether	ND		0.0020	0.00055	mg/L		03/17/23 14:39	03/18/23 06:31	1
4-Nitroaniline	ND		0.0020	0.00092	mg/L		03/17/23 14:39	03/18/23 06:31	1
4-Nitrophenol	ND		0.010	0.0022	mg/L		03/17/23 14:39	03/18/23 06:31	1
Acenaphthene	ND		0.00020	0.00017	mg/L		03/17/23 14:39	03/18/23 06:31	1
Acenaphthylene	ND		0.00020	0.00013	mg/L		03/17/23 14:39	03/18/23 06:31	1
Acetophenone	ND		0.0010	0.00037	mg/L		03/17/23 14:39	03/18/23 06:31	1
Anthracene	ND		0.00020	0.00014	mg/L		03/17/23 14:39	03/18/23 06:31	1
Atrazine	ND		0.0020	0.00095	mg/L		03/17/23 14:39	03/18/23 06:31	1

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QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: MB 240-565863/2-A
Matrix: Water
Analysis Batch: 565890

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565863

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzaldehyde	ND		0.0020	0.00076	mg/L		03/17/23 14:39	03/18/23 06:31	1
Benzo[a]anthracene	ND		0.00020	0.00017	mg/L		03/17/23 14:39	03/18/23 06:31	1
Benzo[a]pyrene	ND		0.00020	0.00017	mg/L		03/17/23 14:39	03/18/23 06:31	1
Benzo[b]fluoranthene	ND		0.00020	0.00015	mg/L		03/17/23 14:39	03/18/23 06:31	1
Benzo[g,h,i]perylene	ND		0.00020	0.00018	mg/L		03/17/23 14:39	03/18/23 06:31	1
Benzo[k]fluoranthene	ND		0.00020	0.00014	mg/L		03/17/23 14:39	03/18/23 06:31	1
Bis(2-chloroethoxy)methane	ND		0.0010	0.00046	mg/L		03/17/23 14:39	03/18/23 06:31	1
Bis(2-chloroethyl)ether	ND		0.0010	0.00040	mg/L		03/17/23 14:39	03/18/23 06:31	1
Bis(2-ethylhexyl) phthalate	ND		0.0050	0.0022	mg/L		03/17/23 14:39	03/18/23 06:31	1
Butyl benzyl phthalate	ND		0.0020	0.00067	mg/L		03/17/23 14:39	03/18/23 06:31	1
Caprolactam	ND		0.0050	0.00093	mg/L		03/17/23 14:39	03/18/23 06:31	1
Carbazole	ND		0.0010	0.00049	mg/L		03/17/23 14:39	03/18/23 06:31	1
Chrysene	ND		0.00020	0.00019	mg/L		03/17/23 14:39	03/18/23 06:31	1
Dibenz(a,h)anthracene	ND		0.00020	0.00015	mg/L		03/17/23 14:39	03/18/23 06:31	1
Dibenzofuran	ND		0.0010	0.00056	mg/L		03/17/23 14:39	03/18/23 06:31	1
Diethyl phthalate	ND		0.0050	0.0038	mg/L		03/17/23 14:39	03/18/23 06:31	1
Dimethyl phthalate	ND		0.0020	0.00052	mg/L		03/17/23 14:39	03/18/23 06:31	1
Di-n-butyl phthalate	ND		0.0050	0.0018	mg/L		03/17/23 14:39	03/18/23 06:31	1
Di-n-octyl phthalate	ND		0.0020	0.00082	mg/L		03/17/23 14:39	03/18/23 06:31	1
Fluoranthene	ND		0.00020	0.00016	mg/L		03/17/23 14:39	03/18/23 06:31	1
Fluorene	ND		0.00020	0.00017	mg/L		03/17/23 14:39	03/18/23 06:31	1
Hexachlorobenzene	ND		0.00020	0.00016	mg/L		03/17/23 14:39	03/18/23 06:31	1
Hexachlorobutadiene	ND		0.0010	0.00054	mg/L		03/17/23 14:39	03/18/23 06:31	1
Hexachlorocyclopentadiene	ND		0.010	0.0018	mg/L		03/17/23 14:39	03/18/23 06:31	1
Hexachloroethane	ND		0.0010	0.00040	mg/L		03/17/23 14:39	03/18/23 06:31	1
Indeno[1,2,3-cd]pyrene	ND		0.00020	0.00014	mg/L		03/17/23 14:39	03/18/23 06:31	1
Isophorone	ND		0.0010	0.00032	mg/L		03/17/23 14:39	03/18/23 06:31	1
N-Nitrosodi-n-propylamine	ND		0.0010	0.00025	mg/L		03/17/23 14:39	03/18/23 06:31	1
N-Nitrosodiphenylamine	ND		0.0010	0.00044	mg/L		03/17/23 14:39	03/18/23 06:31	1
Naphthalene	ND		0.00020	0.00011	mg/L		03/17/23 14:39	03/18/23 06:31	1
Nitrobenzene	ND		0.0010	0.00051	mg/L		03/17/23 14:39	03/18/23 06:31	1
Pentachlorophenol	ND		0.010	0.0031	mg/L		03/17/23 14:39	03/18/23 06:31	1
Phenanthrene	ND		0.00020	0.00017	mg/L		03/17/23 14:39	03/18/23 06:31	1
Phenol	ND		0.0010	0.00013	mg/L		03/17/23 14:39	03/18/23 06:31	1
Pyrene	ND		0.00020	0.00018	mg/L		03/17/23 14:39	03/18/23 06:31	1
3 & 4 Methylphenol	ND		0.0020	0.00019	mg/L		03/17/23 14:39	03/18/23 06:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	100		46 - 137	03/17/23 14:39	03/18/23 06:31	1
Phenol-d5 (Surr)	77		26 - 120	03/17/23 14:39	03/18/23 06:31	1
Nitrobenzene-d5 (Surr)	78		24 - 120	03/17/23 14:39	03/18/23 06:31	1
2-Fluorophenol (Surr)	87		19 - 120	03/17/23 14:39	03/18/23 06:31	1
2-Fluorobiphenyl (Surr)	83		33 - 120	03/17/23 14:39	03/18/23 06:31	1
2,4,6-Tribromophenol (Surr)	78		10 - 120	03/17/23 14:39	03/18/23 06:31	1

QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: LCS 240-565863/3-A
Matrix: Water
Analysis Batch: 565890

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565863

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.0320	0.0239		mg/L		75	48 - 120
bis (2-chloroisopropyl) ether	0.0320	0.0187		mg/L		58	41 - 120
2,4,5-Trichlorophenol	0.0320	0.0238		mg/L		74	52 - 123
2,4,6-Trichlorophenol	0.0320	0.0240		mg/L		75	51 - 120
2,4-Dichlorophenol	0.0320	0.0239		mg/L		75	53 - 120
2,4-Dimethylphenol	0.0320	0.0253		mg/L		79	44 - 120
2,4-Dinitrophenol	0.0640	0.0416		mg/L		65	11 - 139
2,4-Dinitrotoluene	0.0320	0.0270		mg/L		84	58 - 125
2,6-Dinitrotoluene	0.0320	0.0259		mg/L		81	54 - 132
2-Chloronaphthalene	0.0320	0.0240		mg/L		75	51 - 120
2-Chlorophenol	0.0320	0.0261		mg/L		82	46 - 120
2-Methylnaphthalene	0.0320	0.0235		mg/L		73	49 - 120
2-Methylphenol	0.0320	0.0250		mg/L		78	45 - 120
2-Nitroaniline	0.0320	0.0269		mg/L		84	57 - 121
2-Nitrophenol	0.0320	0.0248		mg/L		77	51 - 120
3,3'-Dichlorobenzidine	0.0640	0.0514		mg/L		80	51 - 154
3-Nitroaniline	0.0320	0.0267		mg/L		84	47 - 123
4,6-Dinitro-2-methylphenol	0.0640	0.0472		mg/L		74	49 - 130
4-Bromophenyl phenyl ether	0.0320	0.0235		mg/L		73	58 - 125
4-Chloro-3-methylphenol	0.0320	0.0238		mg/L		74	52 - 120
4-Chloroaniline	0.0320	0.00416		mg/L		13	10 - 126
4-Chlorophenyl phenyl ether	0.0320	0.0240		mg/L		75	55 - 120
4-Nitroaniline	0.0320	0.0361		mg/L		113	56 - 127
4-Nitrophenol	0.0640	0.0449		mg/L		70	10 - 120
Acenaphthene	0.0320	0.0236		mg/L		74	54 - 120
Acenaphthylene	0.0320	0.0242		mg/L		76	50 - 120
Acetophenone	0.0320	0.0215		mg/L		67	47 - 120
Anthracene	0.0320	0.0237		mg/L		74	58 - 121
Atrazine	0.0320	0.0271		mg/L		85	68 - 126
Benzaldehyde	0.0320	0.0288		mg/L		90	26 - 147
Benzo[a]anthracene	0.0320	0.0251		mg/L		79	61 - 120
Benzo[a]pyrene	0.0320	0.0243		mg/L		76	56 - 131
Benzo[b]fluoranthene	0.0320	0.0226		mg/L		71	57 - 130
Benzo[g,h,i]perylene	0.0320	0.0263		mg/L		82	58 - 120
Benzo[k]fluoranthene	0.0320	0.0232		mg/L		72	53 - 137
Bis(2-chloroethoxy)methane	0.0320	0.0225		mg/L		70	49 - 120
Bis(2-chloroethyl)ether	0.0320	0.0193		mg/L		60	40 - 120
Bis(2-ethylhexyl) phthalate	0.0320	0.0274		mg/L		86	60 - 126
Butyl benzyl phthalate	0.0320	0.0270		mg/L		84	58 - 124
Caprolactam	0.0320	0.0100		mg/L		31	10 - 120
Carbazole	0.0320	0.0254		mg/L		79	60 - 130
Chrysene	0.0320	0.0239		mg/L		75	57 - 120
Dibenz(a,h)anthracene	0.0320	0.0271		mg/L		85	58 - 120
Dibenzofuran	0.0320	0.0237		mg/L		74	54 - 120
Diethyl phthalate	0.0320	0.0252		mg/L		79	55 - 120
Dimethyl phthalate	0.0320	0.0250		mg/L		78	49 - 125
Di-n-butyl phthalate	0.0320	0.0249		mg/L		78	59 - 130
Di-n-octyl phthalate	0.0320	0.0212		mg/L		66	57 - 126

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QC Sample Results

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

Job ID: 240-182044-1

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

Lab Sample ID: LCS 240-565863/3-A
Matrix: Water
Analysis Batch: 565890

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565863

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoranthene	0.0320	0.0249		mg/L		78	58 - 128
Fluorene	0.0320	0.0242		mg/L		76	55 - 120
Hexachlorobenzene	0.0320	0.0235		mg/L		73	55 - 120
Hexachlorobutadiene	0.0320	0.0215		mg/L		67	41 - 120
Hexachlorocyclopentadiene	0.0320	0.0204		mg/L		64	15 - 120
Hexachloroethane	0.0320	0.0202		mg/L		63	39 - 120
Indeno[1,2,3-cd]pyrene	0.0320	0.0259		mg/L		81	59 - 122
Isophorone	0.0320	0.0223		mg/L		70	51 - 120
N-Nitrosodi-n-propylamine	0.0320	0.0204		mg/L		64	49 - 120
N-Nitrosodiphenylamine	0.0320	0.0233		mg/L		73	56 - 125
Naphthalene	0.0320	0.0211		mg/L		66	46 - 120
Nitrobenzene	0.0320	0.0226		mg/L		71	47 - 120
Pentachlorophenol	0.0640	0.0443		mg/L		69	19 - 132
Phenanthrene	0.0320	0.0232		mg/L		73	55 - 120
Phenol	0.0320	0.0249		mg/L		78	10 - 120
Pyrene	0.0320	0.0262		mg/L		82	59 - 120
3 & 4 Methylphenol	0.0320	0.0245		mg/L		77	40 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	83		46 - 137
Phenol-d5 (Surr)	80		26 - 120
Nitrobenzene-d5 (Surr)	73		24 - 120
2-Fluorophenol (Surr)	116		19 - 120
2-Fluorobiphenyl (Surr)	77		33 - 120
2,4,6-Tribromophenol (Surr)	82		10 - 120

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 240-565980/1-A
Matrix: Water
Analysis Batch: 566001

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565980

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	102	J	500	68	ug/L		03/20/23 06:22	03/20/23 11:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	63		52 - 121	03/20/23 06:22	03/20/23 11:10	1

Lab Sample ID: LCS 240-565980/2-A
Matrix: Water
Analysis Batch: 566001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565980

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10 - C28]	2000	1420		ug/L		71	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	82		52 - 121

Eurofins Canton

QC Sample Results

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

Job ID: 240-182044-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-565788/1-A
Matrix: Water
Analysis Batch: 566106

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 565788

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Barium	ND		200	1.3	ug/L		03/17/23 09:50	03/20/23 12:53	1
Cadmium	ND		5.0	0.20	ug/L		03/17/23 09:50	03/20/23 12:53	1
Chromium	ND		10	4.0	ug/L		03/17/23 09:50	03/20/23 12:53	1
Silver	1.52	J	10	0.62	ug/L		03/17/23 09:50	03/20/23 12:53	1
Arsenic	ND		15	4.1	ug/L		03/17/23 09:50	03/20/23 12:53	1
Lead	ND		10	2.8	ug/L		03/17/23 09:50	03/20/23 12:53	1
Selenium	ND		20	6.0	ug/L		03/17/23 09:50	03/20/23 12:53	1

Lab Sample ID: LCS 240-565788/2-A
Matrix: Water
Analysis Batch: 566106

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 565788

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	1000	990		ug/L		99	80 - 120
Chromium	1000	948		ug/L		95	80 - 120
Silver	100	98.9		ug/L		99	80 - 120
Arsenic	2000	2000		ug/L		100	80 - 120
Lead	1000	944		ug/L		94	80 - 120
Selenium	2000	2030		ug/L		101	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-565798/1-A
Matrix: Water
Analysis Batch: 566117

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565798

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.20	0.13	ug/L		03/17/23 11:00	03/20/23 15:13	1

Lab Sample ID: LCS 240-565798/2-A
Matrix: Water
Analysis Batch: 566117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565798

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

Method: 2540D-2015 - Total Suspended Solids (Dried at 103-105°C)

Lab Sample ID: MB 240-566199/1
Matrix: Water
Analysis Batch: 566199

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Suspended Solids	ND		4.0	1.0	mg/L			03/21/23 10:23	1

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QC Sample Results

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

Job ID: 240-182044-1

Method: 2540D-2015 - Total Suspended Solids (Dried at 103-105°C) (Continued)

Lab Sample ID: LCS 240-566199/2
 Matrix: Water
 Analysis Batch: 566199

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	77.7	73.5		mg/L		95	64 - 120

Lab Sample ID: 240-182044-1 DU
 Matrix: Water
 Analysis Batch: 566199

Client Sample ID: WC-257761-STORM SEWER
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	1200		1090		mg/L		6	10

Method: 5310 C-2014 - Total Organic Carbon/Persulfate - Ultrav

Lab Sample ID: MB 240-565995/4
 Matrix: Water
 Analysis Batch: 565995

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.35	mg/L			03/17/23 17:33	1

Lab Sample ID: LCS 240-565995/5
 Matrix: Water
 Analysis Batch: 565995

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	18.3	17.7		mg/L		96	85 - 115
TOC Result 1	18.3	17.9		mg/L		98	85 - 115
TOC Result 2	18.3	17.4		mg/L		95	85 - 115

Method: 9040C - pH

Lab Sample ID: LCS 240-566058/38
 Matrix: Water
 Analysis Batch: 566058

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

Lab Sample ID: LCS 240-566058/80
 Matrix: Water
 Analysis Batch: 566058

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.20	9.3		SU		101	97 - 103

QC Association Summary

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

Job ID: 240-182044-1

GC/MS VOA

Analysis Batch: 565809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	8260D	
MB 240-565809/9	Method Blank	Total/NA	Water	8260D	
LCS 240-565809/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-565809/6	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 565915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	8260D	
MB 240-565915/8	Method Blank	Total/NA	Water	8260D	
LCS 240-565915/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-565915/6	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 565863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	3510C LVI	
240-182044-1 - RA	WC-257761-STORM SEWER	Total/NA	Water	3510C LVI	
MB 240-565863/2-A	Method Blank	Total/NA	Water	3510C LVI	
LCS 240-565863/3-A	Lab Control Sample	Total/NA	Water	3510C LVI	

Analysis Batch: 565890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	8270E	565863
240-182044-1 - RA	WC-257761-STORM SEWER	Total/NA	Water	8270E	565863
MB 240-565863/2-A	Method Blank	Total/NA	Water	8270E	565863
LCS 240-565863/3-A	Lab Control Sample	Total/NA	Water	8270E	565863

GC Semi VOA

Prep Batch: 565980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	3511	
MB 240-565980/1-A	Method Blank	Total/NA	Water	3511	
LCS 240-565980/2-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 566001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	8015D	565980
MB 240-565980/1-A	Method Blank	Total/NA	Water	8015D	565980
LCS 240-565980/2-A	Lab Control Sample	Total/NA	Water	8015D	565980

Metals

Prep Batch: 565788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total Recoverable	Water	3005A	
MB 240-565788/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-565788/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

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QC Association Summary

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

Job ID: 240-182044-1

Metals

Prep Batch: 565798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	7470A	
MB 240-565798/1-A	Method Blank	Total/NA	Water	7470A	
LCS 240-565798/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 566106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total Recoverable	Water	6010D	565788
MB 240-565788/1-A	Method Blank	Total Recoverable	Water	6010D	565788
LCS 240-565788/2-A	Lab Control Sample	Total Recoverable	Water	6010D	565788

Analysis Batch: 566117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	7470A	565798
MB 240-565798/1-A	Method Blank	Total/NA	Water	7470A	565798
LCS 240-565798/2-A	Lab Control Sample	Total/NA	Water	7470A	565798

General Chemistry

Analysis Batch: 565995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	5310 C-2014	
MB 240-565995/4	Method Blank	Total/NA	Water	5310 C-2014	
LCS 240-565995/5	Lab Control Sample	Total/NA	Water	5310 C-2014	

Analysis Batch: 566058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	9040C	
LCS 240-566058/38	Lab Control Sample	Total/NA	Water	9040C	
LCS 240-566058/80	Lab Control Sample	Total/NA	Water	9040C	

Analysis Batch: 566199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182044-1	WC-257761-STORM SEWER	Total/NA	Water	2540D-2015	
MB 240-566199/1	Method Blank	Total/NA	Water	2540D-2015	
LCS 240-566199/2	Lab Control Sample	Total/NA	Water	2540D-2015	
240-182044-1 DU	WC-257761-STORM SEWER	Total/NA	Water	2540D-2015	

Lab Chronicle

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

Job ID: 240-182044-1

Client Sample ID: WC-257761-STORM SEWER

Lab Sample ID: 240-182044-1

Date Collected: 03/16/23 16:00

Matrix: Water

Date Received: 03/16/23 19:00

<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	Analysis	8260D		33.333	565915	SAM	EET CAN	03/18/23 15:09
Total/NA	Analysis	8260D		1	565809	HMB	EET CAN	03/17/23 15:07
Total/NA	Prep	3510C LVI			565863	MDH	EET CAN	03/17/23 14:39
Total/NA	Analysis	8270E		50	565890	TMH	EET CAN	03/18/23 07:18
Total/NA	Prep	3510C LVI	RA		565863	MDH	EET CAN	03/17/23 14:39
Total/NA	Analysis	8270E	RA	333.333	565890	TMH	EET CAN	03/18/23 09:15
Total/NA	Prep	3511			565980	LKG	EET CAN	03/20/23 06:22
Total/NA	Analysis	8015D		20	566001	EPF	EET CAN	03/20/23 12:05
Total Recoverable	Prep	3005A			565788	MRL	EET CAN	03/17/23 09:50
Total Recoverable	Analysis	6010D		1	566106	RKT	EET CAN	03/20/23 13:02
Total/NA	Prep	7470A			565798	MRL	EET CAN	03/17/23 11:00
Total/NA	Analysis	7470A		1	566117	MRL	EET CAN	03/20/23 15:30
Total/NA	Analysis	2540D-2015		1	566199	GH	EET CAN	03/21/23 10:23
Total/NA	Analysis	5310 C-2014		50	565995	MED	EET CAN	03/17/23 18:36
Total/NA	Analysis	9040C		1	566058	JMB	EET CAN	03/17/23 17:16

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: 240-182044-1

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

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



Chain of Custody Record

645687



Environment Testing
America

TAL-8210

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager:		Site Contact:		Date:		COC No.:		of		COCs	
Company Name:		Tel/Email:		Lab Contact:		Carrier:		Sampler:		For Lab Use Only:		Walk-in Client:	
Address:		Analysis Turnaround Time		Filtered Sample (Y/N)		Perform MS / MSD (Y/N)		Job / SDG No.:		Lab Sampling:			
City/State/Zip:		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below:											
Project Name:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
Project #:													
Sample Identification												Sample Specific Notes:	



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

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
 Return to Client Disposal by Lab Archive for _____ Months

Social Instructions/QC Requirements & Comments:

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

Custody Seals Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Therm ID No.:	
Relinquished by:	Company:	Date/Time:	
Relinquished by:	Company:	Date/Time:	3-16-23 1900
Relinquished by:	Company:	Date/Time:	



Eurofins - Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : 182044

Client Arcadis Site Name NSRR-ER
Cooler Received on 3-16-23 Opened on 3-16-23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other

Cooler unpacked by:
[Signature]

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. 3.1 °C Corrected Cooler Temp. 2.9 °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

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

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 No NA
One ← Larger than this. 3-16-23
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____
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: _____



ANALYTICAL REPORT

PREPARED FOR

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

Generated 3/31/2023 1:51:06 PM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-182547-1

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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3/31/2023 1:51:06 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: 240-182547-1

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.
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

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.

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
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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)

Eurofins Canton

Definitions/Glossary

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

Job ID: 240-182547-1

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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: 240-182547-1

Job ID: 240-182547-1

Laboratory: Eurofins Canton

Narrative

Job Narrative 240-182547-1

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 2 coolers at receipt time were 1.6°C and 2.8°C

GC/MS VOA

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-251633-WATER (240-182547-1), WC-AL4771-WATER (240-182547-2), WC-251060-WATER (240-182547-3), WC-251688-WATER (240-182547-4) and WC-251478-WATER (240-182547-5). Elevated reporting limits (RLs) are provided.

Method 8270E: The laboratory control sample (LCS) for preparation batch 240-566966 and analytical batch 240-567104 recovered outside control limits for 4-Chloroaniline. This analyte 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. The following samples were impacted: WC-251633-WATER (240-182547-1), WC-AL4771-WATER (240-182547-2), WC-251060-WATER (240-182547-3), WC-251688-WATER (240-182547-4) and WC-251478-WATER (240-182547-5).

Method 8270E: The continuing calibration verification (CCV) associated with batch 240-567104 recovered above the upper control limit for 2-Nitrophenol and 2,6-Dinitrotoluene. 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-251633-WATER (240-182547-1), WC-AL4771-WATER (240-182547-2), WC-251060-WATER (240-182547-3), WC-251688-WATER (240-182547-4) and WC-251478-WATER (240-182547-5).

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

Diesel Range Organics

Method 8015D_DRO: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-566977.

Method 8015D_DRO: The following sample was diluted due to the nature of the sample matrix: WC-251633-WATER (240-182547-1)

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: 240-182547-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CAN
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CAN
8015D	Diesel Range Organics (DRO) (GC)	SW846	EET CAN
6010D	Metals (ICP)	SW846	EET CAN
7470A	Mercury (CVAA)	SW846	EET CAN
1010B	Ignitability, Pinsky-Martens Closed-Cup Method	SW846	EET CAN
2540D-2015	Total Suspended Solids (Dried at 103-105°C)	SM	EET CAN
5310 C-2014	Total Organic Carbon/Persulfate - Ultrav	SM	EET CAN
9040C	pH	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
3511	Microextraction of Organic Compounds	SW846	EET CAN
5030C	Purge and Trap	SW846	EET CAN
7470A	Preparation, Mercury	SW846	EET CAN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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: 240-182547-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-182547-1	WC-251633-WATER	Water	03/24/23 16:30	03/25/23 18:35
240-182547-2	WC-AL4771-WATER	Water	03/24/23 16:55	03/25/23 18:35
240-182547-3	WC-251060-WATER	Water	03/24/23 16:20	03/25/23 18:35
240-182547-4	WC-251688-WATER	Water	03/24/23 16:40	03/25/23 18:35
240-182547-5	WC-251478-WATER	Water	03/24/23 17:12	03/25/23 18:35
240-182547-6	TRIP BLANK	Water	03/24/23 00:00	03/25/23 18:35

- 1
- 2
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Detection Summary

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

Job ID: 240-182547-1

Client Sample ID: WC-251633-WATER

Lab Sample ID: 240-182547-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0023	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.032		0.010	0.0054	mg/L	1		8260D	Total/NA
Benzene	0.00058	J	0.0010	0.00042	mg/L	1		8260D	Total/NA
Vinyl chloride	0.034		0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.00045	J	0.0020	0.00042	mg/L	1		8260D	Total/NA
Diesel Range Organics [C10 - C28]	4900	B	980	130	ug/L	2		8015D	Total/NA
Barium	0.019	J	0.50	0.0013	mg/L	1		6010D	TCLP
Selenium	0.017	J B	0.050	0.0060	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	240		20	5.0	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	34		10	3.5	mg/L	10		5310 C-2014	Total/NA
corrosivity by pH	7.4	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-AL4771-WATER

Lab Sample ID: 240-182547-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0042	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.033		0.010	0.0054	mg/L	1		8260D	Total/NA
Ethylbenzene	0.0018		0.0010	0.00042	mg/L	1		8260D	Total/NA
Toluene	0.0025		0.0010	0.00044	mg/L	1		8260D	Total/NA
Vinyl chloride	0.0019		0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.013		0.0020	0.00042	mg/L	1		8260D	Total/NA
Diesel Range Organics [C10 - C28]	4200	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.025	J	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	260		21	5.1	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	180		10	3.5	mg/L	10		5310 C-2014	Total/NA
corrosivity by pH	7.5	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0024	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.028		0.010	0.0054	mg/L	1		8260D	Total/NA
Vinyl chloride	0.0089		0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.00050	J	0.0020	0.00042	mg/L	1		8260D	Total/NA
Diesel Range Organics [C10 - C28]	3100	B	490	67	ug/L	1		8015D	Total/NA
Barium	0.026	J	0.50	0.0013	mg/L	1		6010D	TCLP
Cadmium	0.00024	J	0.050	0.00020	mg/L	1		6010D	TCLP
Selenium	0.0077	J B	0.050	0.0060	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	330		23	5.7	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	150		10	3.5	mg/L	10		5310 C-2014	Total/NA
corrosivity by pH	7.6	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-251688-WATER

Lab Sample ID: 240-182547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0020	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.019		0.010	0.0054	mg/L	1		8260D	Total/NA
Cyclohexane	0.00077	J	0.0010	0.00048	mg/L	1		8260D	Total/NA
Ethylbenzene	0.0029		0.0010	0.00042	mg/L	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: 240-182547-1

Client Sample ID: WC-251688-WATER (Continued)

Lab Sample ID: 240-182547-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Isopropylbenzene	0.0014		0.0010	0.00049	mg/L	1		8260D	Total/NA
Methylcyclohexane	0.0061		0.0010	0.00033	mg/L	1		8260D	Total/NA
Toluene	0.0054		0.0010	0.00044	mg/L	1		8260D	Total/NA
Vinyl chloride	0.00066	J	0.0010	0.00045	mg/L	1		8260D	Total/NA
Xylenes, Total	0.038		0.0020	0.00042	mg/L	1		8260D	Total/NA
Diesel Range Organics [C10 - C28]	6700	B	490	66	ug/L	1		8015D	Total/NA
Barium	0.041	J	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	460		20	5.0	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	28		10	3.5	mg/L	10		5310 C-2014	Total/NA
corrosivity by pH	7.5	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Butanone (MEK)	0.0020	J	0.010	0.0012	mg/L	1		8260D	Total/NA
Acetone	0.015		0.010	0.0054	mg/L	1		8260D	Total/NA
Vinyl chloride	0.012		0.0010	0.00045	mg/L	1		8260D	Total/NA
Diesel Range Organics [C10 - C28]	2100	B	490	66	ug/L	1		8015D	Total/NA
Barium	0.024	J	0.50	0.0013	mg/L	1		6010D	TCLP
Ignitability (Flashpoint)	>200				Degrees F	1		1010B	Total/NA
Total Suspended Solids	270		24	6.1	mg/L	1		2540D-2015	Total/NA
Total Organic Carbon	30		10	3.5	mg/L	10		5310 C-2014	Total/NA
corrosivity by pH	7.7	HF	0.1	0.1	SU	1		9040C	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182547-6

No Detections.

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: 240-182547-1

Client Sample ID: WC-251633-WATER

Lab Sample ID: 240-182547-1

Date Collected: 03/24/23 16:30

Matrix: Water

Date Received: 03/25/23 18:35

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			03/28/23 17:13	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 17:13	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 17:13	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 17:13	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 17:13	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 17:13	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 17:13	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 17:13	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 17:13	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 17:13	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 17:13	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 17:13	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 17:13	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 17:13	1
2-Butanone (MEK)	0.0023	J	0.010	0.0012	mg/L			03/28/23 17:13	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 17:13	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 17:13	1
Acetone	0.032		0.010	0.0054	mg/L			03/28/23 17:13	1
Benzene	0.00058	J	0.0010	0.00042	mg/L			03/28/23 17:13	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 17:13	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 17:13	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 17:13	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 17:13	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 17:13	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 17:13	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 17:13	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 17:13	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 17:13	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 17:13	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 17:13	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 17:13	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 17:13	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 17:13	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 17:13	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 17:13	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 17:13	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 17:13	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 17:13	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 17:13	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 17:13	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 17:13	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 17:13	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 17:13	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 17:13	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 17:13	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 17:13	1
Vinyl chloride	0.034		0.0010	0.00045	mg/L			03/28/23 17:13	1
Xylenes, Total	0.00045	J	0.0020	0.00042	mg/L			03/28/23 17:13	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251633-WATER

Lab Sample ID: 240-182547-1

Date Collected: 03/24/23 16:30

Matrix: Water

Date Received: 03/25/23 18:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		78 - 122		03/28/23 17:13	1
Dibromofluoromethane (Surr)	107		73 - 120		03/28/23 17:13	1
4-Bromofluorobenzene (Surr)	99		56 - 136		03/28/23 17:13	1
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		03/28/23 17:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.010	0.0049	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,4,6-Trichlorophenol	ND		0.050	0.018	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,4,5-Trichlorophenol	ND		0.050	0.020	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,4-Dichlorophenol	ND		0.020	0.0026	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,4-Dimethylphenol	ND		0.020	0.0052	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,4-Dinitrophenol	ND		0.10	0.062	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,4-Dinitrotoluene	ND		0.050	0.021	mg/L		03/28/23 08:23	03/29/23 11:35	10
2-Chloronaphthalene	ND		0.010	0.0048	mg/L		03/28/23 08:23	03/29/23 11:35	10
2-Chlorophenol	ND		0.010	0.0027	mg/L		03/28/23 08:23	03/29/23 11:35	10
2-Methylnaphthalene	ND		0.0020	0.0011	mg/L		03/28/23 08:23	03/29/23 11:35	10
2-Methylphenol	ND		0.010	0.0021	mg/L		03/28/23 08:23	03/29/23 11:35	10
2-Nitroaniline	ND		0.020	0.0051	mg/L		03/28/23 08:23	03/29/23 11:35	10
2-Nitrophenol	ND		0.020	0.0056	mg/L		03/28/23 08:23	03/29/23 11:35	10
3 & 4 Methylphenol	ND		0.020	0.0019	mg/L		03/28/23 08:23	03/29/23 11:35	10
3,3'-Dichlorobenzidine	ND		0.050	0.012	mg/L		03/28/23 08:23	03/29/23 11:35	10
3-Nitroaniline	ND		0.020	0.0057	mg/L		03/28/23 08:23	03/29/23 11:35	10
4,6-Dinitro-2-methylphenol	ND		0.050	0.028	mg/L		03/28/23 08:23	03/29/23 11:35	10
4-Bromophenyl phenyl ether	ND		0.020	0.0050	mg/L		03/28/23 08:23	03/29/23 11:35	10
4-Chloro-3-methylphenol	ND		0.020	0.0030	mg/L		03/28/23 08:23	03/29/23 11:35	10
4-Chloroaniline	ND	*	0.020	0.0032	mg/L		03/28/23 08:23	03/29/23 11:35	10
4-Chlorophenyl phenyl ether	ND		0.020	0.0055	mg/L		03/28/23 08:23	03/29/23 11:35	10
4-Nitroaniline	ND		0.020	0.0092	mg/L		03/28/23 08:23	03/29/23 11:35	10
Acenaphthene	ND		0.0020	0.0017	mg/L		03/28/23 08:23	03/29/23 11:35	10
Acenaphthylene	ND		0.0020	0.0013	mg/L		03/28/23 08:23	03/29/23 11:35	10
Acetophenone	ND		0.010	0.0037	mg/L		03/28/23 08:23	03/29/23 11:35	10
Anthracene	ND		0.0020	0.0014	mg/L		03/28/23 08:23	03/29/23 11:35	10
Atrazine	ND		0.020	0.0095	mg/L		03/28/23 08:23	03/29/23 11:35	10
Benzaldehyde	ND		0.020	0.0076	mg/L		03/28/23 08:23	03/29/23 11:35	10
Benzo[a]anthracene	ND		0.0020	0.0017	mg/L		03/28/23 08:23	03/29/23 11:35	10
Benzo[a]pyrene	ND		0.0020	0.0017	mg/L		03/28/23 08:23	03/29/23 11:35	10
Benzo[b]fluoranthene	ND		0.0020	0.0015	mg/L		03/28/23 08:23	03/29/23 11:35	10
Benzo[g,h,i]perylene	ND		0.0020	0.0018	mg/L		03/28/23 08:23	03/29/23 11:35	10
Benzo[k]fluoranthene	ND		0.0020	0.0014	mg/L		03/28/23 08:23	03/29/23 11:35	10
Bis(2-chloroethoxy)methane	ND		0.010	0.0046	mg/L		03/28/23 08:23	03/29/23 11:35	10
Bis(2-chloroethyl)ether	ND		0.010	0.0040	mg/L		03/28/23 08:23	03/29/23 11:35	10
Bis(2-ethylhexyl) phthalate	ND		0.050	0.022	mg/L		03/28/23 08:23	03/29/23 11:35	10
Butyl benzyl phthalate	ND		0.020	0.0067	mg/L		03/28/23 08:23	03/29/23 11:35	10
Caprolactam	ND		0.050	0.0093	mg/L		03/28/23 08:23	03/29/23 11:35	10
Carbazole	ND		0.010	0.0049	mg/L		03/28/23 08:23	03/29/23 11:35	10
Chrysene	ND		0.0020	0.0019	mg/L		03/28/23 08:23	03/29/23 11:35	10
Di-n-butyl phthalate	ND		0.050	0.018	mg/L		03/28/23 08:23	03/29/23 11:35	10
Di-n-octyl phthalate	ND		0.020	0.0082	mg/L		03/28/23 08:23	03/29/23 11:35	10
Dibenz(a,h)anthracene	ND		0.0020	0.0015	mg/L		03/28/23 08:23	03/29/23 11:35	10

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251633-WATER

Lab Sample ID: 240-182547-1

Date Collected: 03/24/23 16:30

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		0.010	0.0056	mg/L		03/28/23 08:23	03/29/23 11:35	10
Diethyl phthalate	ND		0.050	0.038	mg/L		03/28/23 08:23	03/29/23 11:35	10
Dimethyl phthalate	ND		0.020	0.0052	mg/L		03/28/23 08:23	03/29/23 11:35	10
Fluoranthene	ND		0.0020	0.0016	mg/L		03/28/23 08:23	03/29/23 11:35	10
Fluorene	ND		0.0020	0.0017	mg/L		03/28/23 08:23	03/29/23 11:35	10
Hexachlorobenzene	ND		0.0020	0.0016	mg/L		03/28/23 08:23	03/29/23 11:35	10
Hexachlorobutadiene	ND		0.010	0.0054	mg/L		03/28/23 08:23	03/29/23 11:35	10
Hexachlorocyclopentadiene	ND		0.10	0.018	mg/L		03/28/23 08:23	03/29/23 11:35	10
Hexachloroethane	ND		0.010	0.0040	mg/L		03/28/23 08:23	03/29/23 11:35	10
Indeno[1,2,3-cd]pyrene	ND		0.0020	0.0014	mg/L		03/28/23 08:23	03/29/23 11:35	10
Isophorone	ND		0.010	0.0032	mg/L		03/28/23 08:23	03/29/23 11:35	10
N-Nitrosodi-n-propylamine	ND		0.010	0.0025	mg/L		03/28/23 08:23	03/29/23 11:35	10
N-Nitrosodiphenylamine	ND		0.010	0.0044	mg/L		03/28/23 08:23	03/29/23 11:35	10
Naphthalene	ND		0.0020	0.0011	mg/L		03/28/23 08:23	03/29/23 11:35	10
Nitrobenzene	ND		0.010	0.0051	mg/L		03/28/23 08:23	03/29/23 11:35	10
Pentachlorophenol	ND		0.10	0.031	mg/L		03/28/23 08:23	03/29/23 11:35	10
Phenanthrene	ND		0.0020	0.0017	mg/L		03/28/23 08:23	03/29/23 11:35	10
Phenol	ND		0.010	0.0013	mg/L		03/28/23 08:23	03/29/23 11:35	10
Pyrene	ND		0.0020	0.0018	mg/L		03/28/23 08:23	03/29/23 11:35	10
bis (2-chloroisopropyl) ether	ND		0.010	0.0055	mg/L		03/28/23 08:23	03/29/23 11:35	10
2,6-Dinitrotoluene	ND		0.050	0.021	mg/L		03/28/23 08:23	03/29/23 11:35	10
4-Nitrophenol	ND		0.10	0.022	mg/L		03/28/23 08:23	03/29/23 11:35	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	30	S1-	46 - 137	03/28/23 08:23	03/29/23 11:35	10
Phenol-d5 (Surr)	15	S1-	26 - 120	03/28/23 08:23	03/29/23 11:35	10
Nitrobenzene-d5 (Surr)	46		24 - 120	03/28/23 08:23	03/29/23 11:35	10
2-Fluorophenol (Surr)	24		19 - 120	03/28/23 08:23	03/29/23 11:35	10
2-Fluorobiphenyl (Surr)	60		33 - 120	03/28/23 08:23	03/29/23 11:35	10
2,4,6-Tribromophenol (Surr)	54		10 - 120	03/28/23 08:23	03/29/23 11:35	10

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	4900	B	980	130	ug/L		03/28/23 08:59	03/28/23 12:54	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	53		52 - 121	03/28/23 08:59	03/28/23 12:54	2

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		03/29/23 14:00	03/30/23 16:25	1
Barium	0.019	J	0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 16:25	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 16:25	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 16:25	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 16:25	1
Selenium	0.017	J B	0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 16:25	1
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 16:25	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		03/29/23 14:00	03/30/23 14:29	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251633-WATER

Lab Sample ID: 240-182547-1

Date Collected: 03/24/23 16:30

Matrix: Water

Date Received: 03/25/23 18:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/27/23 15:34	1
Total Suspended Solids (SM 2540D-2015)	240		20	5.0	mg/L			03/27/23 14:06	1
Total Organic Carbon (SM 5310 C-2014)	34		10	3.5	mg/L			03/29/23 11:59	10
corrosivity by pH (SW846 9040C)	7.4	HF	0.1	0.1	SU			03/29/23 13:32	1

Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-AL4771-WATER

Lab Sample ID: 240-182547-2

Date Collected: 03/24/23 16:55

Matrix: Water

Date Received: 03/25/23 18:35

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			03/28/23 17:37	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 17:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 17:37	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 17:37	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 17:37	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 17:37	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 17:37	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 17:37	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 17:37	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 17:37	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 17:37	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 17:37	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 17:37	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 17:37	1
2-Butanone (MEK)	0.0042	J	0.010	0.0012	mg/L			03/28/23 17:37	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 17:37	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 17:37	1
Acetone	0.033		0.010	0.0054	mg/L			03/28/23 17:37	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 17:37	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 17:37	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 17:37	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 17:37	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 17:37	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 17:37	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 17:37	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 17:37	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 17:37	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 17:37	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 17:37	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 17:37	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 17:37	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 17:37	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 17:37	1
Ethylbenzene	0.0018		0.0010	0.00042	mg/L			03/28/23 17:37	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 17:37	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 17:37	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 17:37	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 17:37	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 17:37	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 17:37	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 17:37	1
Toluene	0.0025		0.0010	0.00044	mg/L			03/28/23 17:37	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 17:37	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 17:37	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 17:37	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 17:37	1
Vinyl chloride	0.0019		0.0010	0.00045	mg/L			03/28/23 17:37	1
Xylenes, Total	0.013		0.0020	0.00042	mg/L			03/28/23 17:37	1

Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-AL4771-WATER

Lab Sample ID: 240-182547-2

Date Collected: 03/24/23 16:55

Matrix: Water

Date Received: 03/25/23 18:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		78 - 122		03/28/23 17:37	1
Toluene-d8 (Surr)	105		78 - 122		03/29/23 12:49	4
Dibromofluoromethane (Surr)	105		73 - 120		03/28/23 17:37	1
Dibromofluoromethane (Surr)	112		73 - 120		03/29/23 12:49	4
4-Bromofluorobenzene (Surr)	110		56 - 136		03/28/23 17:37	1
4-Bromofluorobenzene (Surr)	112		56 - 136		03/29/23 12:49	4
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		03/28/23 17:37	1
1,2-Dichloroethane-d4 (Surr)	105		62 - 137		03/29/23 12:49	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.5	1.2	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,4,6-Trichlorophenol	ND		13	4.5	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,4,5-Trichlorophenol	ND		13	5.0	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,4-Dichlorophenol	ND		5.0	0.66	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,4-Dimethylphenol	ND		5.0	1.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,4-Dinitrophenol	ND		25	16	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,4-Dinitrotoluene	ND		13	5.2	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2-Chloronaphthalene	ND		2.5	1.2	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2-Chlorophenol	ND		2.5	0.68	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2-Methylnaphthalene	ND		0.50	0.28	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2-Methylphenol	ND		2.5	0.52	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2-Nitroaniline	ND		5.0	1.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2-Nitrophenol	ND		5.0	1.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
3 & 4 Methylphenol	ND		5.0	0.48	mg/L		03/28/23 08:23	03/29/23 13:01	2500
3,3'-Dichlorobenzidine	ND		13	2.9	mg/L		03/28/23 08:23	03/29/23 13:01	2500
3-Nitroaniline	ND		5.0	1.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4,6-Dinitro-2-methylphenol	ND		13	7.1	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4-Bromophenyl phenyl ether	ND		5.0	1.2	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4-Chloro-3-methylphenol	ND		5.0	0.74	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4-Chloroaniline	ND	*	5.0	0.79	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4-Chlorophenyl phenyl ether	ND		5.0	1.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4-Nitroaniline	ND		5.0	2.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Acenaphthene	ND		0.50	0.43	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Acenaphthylene	ND		0.50	0.31	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Acetophenone	ND		2.5	0.92	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Anthracene	ND		0.50	0.34	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Atrazine	ND		5.0	2.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Benzaldehyde	ND		5.0	1.9	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Benzo[a]anthracene	ND		0.50	0.43	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Benzo[a]pyrene	ND		0.50	0.43	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Benzo[b]fluoranthene	ND		0.50	0.39	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Benzo[g,h,i]perylene	ND		0.50	0.45	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Benzo[k]fluoranthene	ND		0.50	0.35	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Bis(2-chloroethoxy)methane	ND		2.5	1.1	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Bis(2-chloroethyl)ether	ND		2.5	1.0	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Bis(2-ethylhexyl) phthalate	ND		13	5.6	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Butyl benzyl phthalate	ND		5.0	1.7	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Caprolactam	ND		13	2.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Carbazole	ND		2.5	1.2	mg/L		03/28/23 08:23	03/29/23 13:01	2500

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-AL4771-WATER

Lab Sample ID: 240-182547-2

Date Collected: 03/24/23 16:55

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.50	0.47	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Di-n-butyl phthalate	ND		13	4.5	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Di-n-octyl phthalate	ND		5.0	2.1	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Dibenz(a,h)anthracene	ND		0.50	0.38	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Dibenzofuran	ND		2.5	1.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Diethyl phthalate	ND		13	9.5	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Dimethyl phthalate	ND		5.0	1.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Fluoranthene	ND		0.50	0.40	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Fluorene	ND		0.50	0.42	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Hexachlorobenzene	ND		0.50	0.40	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Hexachlorobutadiene	ND		2.5	1.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Hexachlorocyclopentadiene	ND		25	4.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Hexachloroethane	ND		2.5	0.99	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Indeno[1,2,3-cd]pyrene	ND		0.50	0.34	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Isophorone	ND		2.5	0.81	mg/L		03/28/23 08:23	03/29/23 13:01	2500
N-Nitrosodi-n-propylamine	ND		2.5	0.63	mg/L		03/28/23 08:23	03/29/23 13:01	2500
N-Nitrosodiphenylamine	ND		2.5	1.1	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Naphthalene	ND		0.50	0.27	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Nitrobenzene	ND		2.5	1.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Pentachlorophenol	ND		25	7.8	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Phenanthrene	ND		0.50	0.42	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Phenol	ND		2.5	0.32	mg/L		03/28/23 08:23	03/29/23 13:01	2500
Pyrene	ND		0.50	0.44	mg/L		03/28/23 08:23	03/29/23 13:01	2500
bis (2-chloroisopropyl) ether	ND		2.5	1.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500
2,6-Dinitrotoluene	ND		13	5.3	mg/L		03/28/23 08:23	03/29/23 13:01	2500
4-Nitrophenol	ND		25	5.4	mg/L		03/28/23 08:23	03/29/23 13:01	2500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/28/23 08:23	03/29/23 13:01	2500
Phenol-d5 (Surr)	0	S1-	26 - 120	03/28/23 08:23	03/29/23 13:01	2500
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/28/23 08:23	03/29/23 13:01	2500
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/28/23 08:23	03/29/23 13:01	2500
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/28/23 08:23	03/29/23 13:01	2500
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/28/23 08:23	03/29/23 13:01	2500

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	4200	B	490	67	ug/L		03/28/23 08:59	03/28/23 13:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	59		52 - 121	03/28/23 08:59	03/28/23 13:22	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		03/29/23 14:00	03/30/23 16:30	1
Barium	0.025	J	0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 16:30	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 16:30	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 16:30	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 16:30	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 16:30	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-AL4771-WATER

Lab Sample ID: 240-182547-2

Date Collected: 03/24/23 16:55

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 16:30	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		03/29/23 14:00	03/30/23 14:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/27/23 15:55	1
Total Suspended Solids (SM 2540D-2015)	260		21	5.1	mg/L			03/27/23 14:06	1
Total Organic Carbon (SM 5310 C-2014)	180		10	3.5	mg/L			03/29/23 12:37	10
corrosivity by pH (SW846 9040C)	7.5	HF	0.1	0.1	SU			03/29/23 13:32	1

Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Date Collected: 03/24/23 16:20

Matrix: Water

Date Received: 03/25/23 18:35

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			03/28/23 18:01	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 18:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 18:01	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 18:01	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 18:01	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 18:01	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 18:01	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 18:01	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 18:01	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 18:01	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 18:01	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 18:01	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 18:01	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 18:01	1
2-Butanone (MEK)	0.0024	J	0.010	0.0012	mg/L			03/28/23 18:01	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 18:01	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 18:01	1
Acetone	0.028		0.010	0.0054	mg/L			03/28/23 18:01	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 18:01	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 18:01	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 18:01	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 18:01	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 18:01	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 18:01	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 18:01	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 18:01	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 18:01	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 18:01	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 18:01	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 18:01	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 18:01	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 18:01	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 18:01	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 18:01	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 18:01	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 18:01	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 18:01	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 18:01	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 18:01	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 18:01	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 18:01	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 18:01	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 18:01	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 18:01	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 18:01	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 18:01	1
Vinyl chloride	0.0089		0.0010	0.00045	mg/L			03/28/23 18:01	1
Xylenes, Total	0.00050	J	0.0020	0.00042	mg/L			03/28/23 18:01	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Date Collected: 03/24/23 16:20

Matrix: Water

Date Received: 03/25/23 18:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		78 - 122		03/28/23 18:01	1
Toluene-d8 (Surr)	101		78 - 122		03/29/23 13:13	4
Dibromofluoromethane (Surr)	104		73 - 120		03/28/23 18:01	1
Dibromofluoromethane (Surr)	110		73 - 120		03/29/23 13:13	4
4-Bromofluorobenzene (Surr)	106		56 - 136		03/28/23 18:01	1
4-Bromofluorobenzene (Surr)	107		56 - 136		03/29/23 13:13	4
1,2-Dichloroethane-d4 (Surr)	98		62 - 137		03/28/23 18:01	1
1,2-Dichloroethane-d4 (Surr)	102		62 - 137		03/29/23 13:13	4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		1.2	0.61	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,4,6-Trichlorophenol	ND		6.2	2.2	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,4,5-Trichlorophenol	ND		6.2	2.5	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,4-Dichlorophenol	ND		2.5	0.32	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,4-Dimethylphenol	ND		2.5	0.64	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,4-Dinitrophenol	ND		12	7.7	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,4-Dinitrotoluene	ND		6.2	2.6	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2-Chloronaphthalene	ND		1.2	0.60	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2-Chlorophenol	ND		1.2	0.34	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2-Methylnaphthalene	ND		0.25	0.14	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2-Methylphenol	ND		1.2	0.26	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2-Nitroaniline	ND		2.5	0.63	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2-Nitrophenol	ND		2.5	0.70	mg/L		03/28/23 08:23	03/29/23 13:24	1250
3 & 4 Methylphenol	ND		2.5	0.24	mg/L		03/28/23 08:23	03/29/23 13:24	1250
3,3'-Dichlorobenzidine	ND		6.2	1.4	mg/L		03/28/23 08:23	03/29/23 13:24	1250
3-Nitroaniline	ND		2.5	0.70	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4,6-Dinitro-2-methylphenol	ND		6.2	3.5	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4-Bromophenyl phenyl ether	ND		2.5	0.62	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4-Chloro-3-methylphenol	ND		2.5	0.37	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4-Chloroaniline	ND	*	2.5	0.39	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4-Chlorophenyl phenyl ether	ND		2.5	0.68	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4-Nitroaniline	ND		2.5	1.1	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Acenaphthene	ND		0.25	0.21	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Acenaphthylene	ND		0.25	0.15	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Acetophenone	ND		1.2	0.45	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Anthracene	ND		0.25	0.17	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Atrazine	ND		2.5	1.2	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Benzaldehyde	ND		2.5	0.94	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Benzo[a]anthracene	ND		0.25	0.21	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Benzo[a]pyrene	ND		0.25	0.21	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Benzo[b]fluoranthene	ND		0.25	0.19	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Benzo[g,h,i]perylene	ND		0.25	0.22	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Benzo[k]fluoranthene	ND		0.25	0.17	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Bis(2-chloroethoxy)methane	ND		1.2	0.56	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Bis(2-chloroethyl)ether	ND		1.2	0.50	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Bis(2-ethylhexyl) phthalate	ND		6.2	2.8	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Butyl benzyl phthalate	ND		2.5	0.82	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Caprolactam	ND		6.2	1.2	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Carbazole	ND		1.2	0.61	mg/L		03/28/23 08:23	03/29/23 13:24	1250

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Date Collected: 03/24/23 16:20

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.25	0.23	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Di-n-butyl phthalate	ND		6.2	2.2	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Di-n-octyl phthalate	ND		2.5	1.0	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Dibenz(a,h)anthracene	ND		0.25	0.19	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Dibenzofuran	ND		1.2	0.69	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Diethyl phthalate	ND		6.2	4.7	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Dimethyl phthalate	ND		2.5	0.64	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Fluoranthene	ND		0.25	0.20	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Fluorene	ND		0.25	0.21	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Hexachlorobenzene	ND		0.25	0.20	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Hexachlorobutadiene	ND		1.2	0.67	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Hexachlorocyclopentadiene	ND		12	2.2	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Hexachloroethane	ND		1.2	0.49	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Indeno[1,2,3-cd]pyrene	ND		0.25	0.17	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Isophorone	ND		1.2	0.40	mg/L		03/28/23 08:23	03/29/23 13:24	1250
N-Nitrosodi-n-propylamine	ND		1.2	0.31	mg/L		03/28/23 08:23	03/29/23 13:24	1250
N-Nitrosodiphenylamine	ND		1.2	0.54	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Naphthalene	ND		0.25	0.13	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Nitrobenzene	ND		1.2	0.64	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Pentachlorophenol	ND		12	3.8	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Phenanthrene	ND		0.25	0.21	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Phenol	ND		1.2	0.16	mg/L		03/28/23 08:23	03/29/23 13:24	1250
Pyrene	ND		0.25	0.22	mg/L		03/28/23 08:23	03/29/23 13:24	1250
bis (2-chloroisopropyl) ether	ND		1.2	0.68	mg/L		03/28/23 08:23	03/29/23 13:24	1250
2,6-Dinitrotoluene	ND		6.2	2.6	mg/L		03/28/23 08:23	03/29/23 13:24	1250
4-Nitrophenol	ND		12	2.7	mg/L		03/28/23 08:23	03/29/23 13:24	1250

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	0	S1-	46 - 137	03/28/23 08:23	03/29/23 13:24	1250
Phenol-d5 (Surr)	0	S1-	26 - 120	03/28/23 08:23	03/29/23 13:24	1250
Nitrobenzene-d5 (Surr)	0	S1-	24 - 120	03/28/23 08:23	03/29/23 13:24	1250
2-Fluorophenol (Surr)	0	S1-	19 - 120	03/28/23 08:23	03/29/23 13:24	1250
2-Fluorobiphenyl (Surr)	0	S1-	33 - 120	03/28/23 08:23	03/29/23 13:24	1250
2,4,6-Tribromophenol (Surr)	0	S1-	10 - 120	03/28/23 08:23	03/29/23 13:24	1250

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	3100	B	490	67	ug/L		03/28/23 08:59	03/28/23 13:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	59		52 - 121	03/28/23 08:59	03/28/23 13:50	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		03/29/23 14:00	03/30/23 16:34	1
Barium	0.026	J	0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 16:34	1
Cadmium	0.00024	J	0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 16:34	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 16:34	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 16:34	1
Selenium	0.0077	J B	0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 16:34	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Date Collected: 03/24/23 16:20

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 16:34	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		03/29/23 14:00	03/30/23 14:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/28/23 17:25	1
Total Suspended Solids (SM 2540D-2015)	330		23	5.7	mg/L			03/27/23 14:06	1
Total Organic Carbon (SM 5310 C-2014)	150		10	3.5	mg/L			03/29/23 12:49	10
corrosivity by pH (SW846 9040C)	7.6	HF	0.1	0.1	SU			03/29/23 13:32	1

Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251688-WATER

Lab Sample ID: 240-182547-4

Date Collected: 03/24/23 16:40

Matrix: Water

Date Received: 03/25/23 18:35

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			03/28/23 18:24	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 18:24	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 18:24	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 18:24	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 18:24	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 18:24	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 18:24	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 18:24	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 18:24	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 18:24	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 18:24	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 18:24	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 18:24	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 18:24	1
2-Butanone (MEK)	0.0020	J	0.010	0.0012	mg/L			03/28/23 18:24	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 18:24	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 18:24	1
Acetone	0.019		0.010	0.0054	mg/L			03/28/23 18:24	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 18:24	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 18:24	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 18:24	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 18:24	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 18:24	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 18:24	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 18:24	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 18:24	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 18:24	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 18:24	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 18:24	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 18:24	1
Cyclohexane	0.00077	J	0.0010	0.00048	mg/L			03/28/23 18:24	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 18:24	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 18:24	1
Ethylbenzene	0.0029		0.0010	0.00042	mg/L			03/28/23 18:24	1
Isopropylbenzene	0.0014		0.0010	0.00049	mg/L			03/28/23 18:24	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 18:24	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 18:24	1
Methylcyclohexane	0.0061		0.0010	0.00033	mg/L			03/28/23 18:24	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 18:24	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 18:24	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 18:24	1
Toluene	0.0054		0.0010	0.00044	mg/L			03/28/23 18:24	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 18:24	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 18:24	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 18:24	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 18:24	1
Vinyl chloride	0.00066	J	0.0010	0.00045	mg/L			03/28/23 18:24	1
Xylenes, Total	0.038		0.0020	0.00042	mg/L			03/28/23 18:24	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251688-WATER

Lab Sample ID: 240-182547-4

Date Collected: 03/24/23 16:40

Matrix: Water

Date Received: 03/25/23 18:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		78 - 122		03/28/23 18:24	1
Toluene-d8 (Surr)	100		78 - 122		03/29/23 14:02	40
Dibromofluoromethane (Surr)	104		73 - 120		03/28/23 18:24	1
Dibromofluoromethane (Surr)	111		73 - 120		03/29/23 14:02	40
4-Bromofluorobenzene (Surr)	101		56 - 136		03/28/23 18:24	1
4-Bromofluorobenzene (Surr)	98		56 - 136		03/29/23 14:02	40
1,2-Dichloroethane-d4 (Surr)	97		62 - 137		03/28/23 18:24	1
1,2-Dichloroethane-d4 (Surr)	106		62 - 137		03/29/23 14:02	40

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.020	0.0098	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,4,6-Trichlorophenol	ND		0.10	0.036	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,4,5-Trichlorophenol	ND		0.10	0.040	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,4-Dichlorophenol	ND		0.040	0.0052	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,4-Dimethylphenol	ND		0.040	0.010	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,4-Dinitrophenol	ND		0.20	0.12	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,4-Dinitrotoluene	ND		0.10	0.041	mg/L		03/28/23 08:23	03/29/23 11:58	20
2-Chloronaphthalene	ND		0.020	0.0097	mg/L		03/28/23 08:23	03/29/23 11:58	20
2-Chlorophenol	ND		0.020	0.0055	mg/L		03/28/23 08:23	03/29/23 11:58	20
2-Methylnaphthalene	ND		0.0040	0.0022	mg/L		03/28/23 08:23	03/29/23 11:58	20
2-Methylphenol	ND		0.020	0.0042	mg/L		03/28/23 08:23	03/29/23 11:58	20
2-Nitroaniline	ND		0.040	0.010	mg/L		03/28/23 08:23	03/29/23 11:58	20
2-Nitrophenol	ND		0.040	0.011	mg/L		03/28/23 08:23	03/29/23 11:58	20
3 & 4 Methylphenol	ND		0.040	0.0038	mg/L		03/28/23 08:23	03/29/23 11:58	20
3,3'-Dichlorobenzidine	ND		0.10	0.023	mg/L		03/28/23 08:23	03/29/23 11:58	20
3-Nitroaniline	ND		0.040	0.011	mg/L		03/28/23 08:23	03/29/23 11:58	20
4,6-Dinitro-2-methylphenol	ND		0.10	0.056	mg/L		03/28/23 08:23	03/29/23 11:58	20
4-Bromophenyl phenyl ether	ND		0.040	0.010	mg/L		03/28/23 08:23	03/29/23 11:58	20
4-Chloro-3-methylphenol	ND		0.040	0.0059	mg/L		03/28/23 08:23	03/29/23 11:58	20
4-Chloroaniline	ND	*	0.040	0.0063	mg/L		03/28/23 08:23	03/29/23 11:58	20
4-Chlorophenyl phenyl ether	ND		0.040	0.011	mg/L		03/28/23 08:23	03/29/23 11:58	20
4-Nitroaniline	ND		0.040	0.018	mg/L		03/28/23 08:23	03/29/23 11:58	20
Acenaphthene	ND		0.0040	0.0034	mg/L		03/28/23 08:23	03/29/23 11:58	20
Acenaphthylene	ND		0.0040	0.0025	mg/L		03/28/23 08:23	03/29/23 11:58	20
Acetophenone	ND		0.020	0.0073	mg/L		03/28/23 08:23	03/29/23 11:58	20
Anthracene	ND		0.0040	0.0027	mg/L		03/28/23 08:23	03/29/23 11:58	20
Atrazine	ND		0.040	0.019	mg/L		03/28/23 08:23	03/29/23 11:58	20
Benzaldehyde	ND		0.040	0.015	mg/L		03/28/23 08:23	03/29/23 11:58	20
Benzo[a]anthracene	ND		0.0040	0.0034	mg/L		03/28/23 08:23	03/29/23 11:58	20
Benzo[a]pyrene	ND		0.0040	0.0035	mg/L		03/28/23 08:23	03/29/23 11:58	20
Benzo[b]fluoranthene	ND		0.0040	0.0031	mg/L		03/28/23 08:23	03/29/23 11:58	20
Benzo[g,h,i]perylene	ND		0.0040	0.0036	mg/L		03/28/23 08:23	03/29/23 11:58	20
Benzo[k]fluoranthene	ND		0.0040	0.0028	mg/L		03/28/23 08:23	03/29/23 11:58	20
Bis(2-chloroethoxy)methane	ND		0.020	0.0091	mg/L		03/28/23 08:23	03/29/23 11:58	20
Bis(2-chloroethyl)ether	ND		0.020	0.0080	mg/L		03/28/23 08:23	03/29/23 11:58	20
Bis(2-ethylhexyl) phthalate	ND		0.10	0.044	mg/L		03/28/23 08:23	03/29/23 11:58	20
Butyl benzyl phthalate	ND		0.040	0.013	mg/L		03/28/23 08:23	03/29/23 11:58	20
Caprolactam	ND		0.10	0.019	mg/L		03/28/23 08:23	03/29/23 11:58	20
Carbazole	ND		0.020	0.0098	mg/L		03/28/23 08:23	03/29/23 11:58	20

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251688-WATER

Lab Sample ID: 240-182547-4

Date Collected: 03/24/23 16:40

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.0040	0.0037	mg/L		03/28/23 08:23	03/29/23 11:58	20
Di-n-butyl phthalate	ND		0.10	0.036	mg/L		03/28/23 08:23	03/29/23 11:58	20
Di-n-octyl phthalate	ND		0.040	0.016	mg/L		03/28/23 08:23	03/29/23 11:58	20
Dibenz(a,h)anthracene	ND		0.0040	0.0030	mg/L		03/28/23 08:23	03/29/23 11:58	20
Dibenzofuran	ND		0.020	0.011	mg/L		03/28/23 08:23	03/29/23 11:58	20
Diethyl phthalate	ND		0.10	0.076	mg/L		03/28/23 08:23	03/29/23 11:58	20
Dimethyl phthalate	ND		0.040	0.010	mg/L		03/28/23 08:23	03/29/23 11:58	20
Fluoranthene	ND		0.0040	0.0032	mg/L		03/28/23 08:23	03/29/23 11:58	20
Fluorene	ND		0.0040	0.0034	mg/L		03/28/23 08:23	03/29/23 11:58	20
Hexachlorobenzene	ND		0.0040	0.0032	mg/L		03/28/23 08:23	03/29/23 11:58	20
Hexachlorobutadiene	ND		0.020	0.011	mg/L		03/28/23 08:23	03/29/23 11:58	20
Hexachlorocyclopentadiene	ND		0.20	0.035	mg/L		03/28/23 08:23	03/29/23 11:58	20
Hexachloroethane	ND		0.020	0.0079	mg/L		03/28/23 08:23	03/29/23 11:58	20
Indeno[1,2,3-cd]pyrene	ND		0.0040	0.0027	mg/L		03/28/23 08:23	03/29/23 11:58	20
Isophorone	ND		0.020	0.0065	mg/L		03/28/23 08:23	03/29/23 11:58	20
N-Nitrosodi-n-propylamine	ND		0.020	0.0051	mg/L		03/28/23 08:23	03/29/23 11:58	20
N-Nitrosodiphenylamine	ND		0.020	0.0088	mg/L		03/28/23 08:23	03/29/23 11:58	20
Naphthalene	ND		0.0040	0.0022	mg/L		03/28/23 08:23	03/29/23 11:58	20
Nitrobenzene	ND		0.020	0.010	mg/L		03/28/23 08:23	03/29/23 11:58	20
Pentachlorophenol	ND		0.20	0.062	mg/L		03/28/23 08:23	03/29/23 11:58	20
Phenanthrene	ND		0.0040	0.0033	mg/L		03/28/23 08:23	03/29/23 11:58	20
Phenol	ND		0.020	0.0026	mg/L		03/28/23 08:23	03/29/23 11:58	20
Pyrene	ND		0.0040	0.0035	mg/L		03/28/23 08:23	03/29/23 11:58	20
bis (2-chloroisopropyl) ether	ND		0.020	0.011	mg/L		03/28/23 08:23	03/29/23 11:58	20
2,6-Dinitrotoluene	ND		0.10	0.043	mg/L		03/28/23 08:23	03/29/23 11:58	20
4-Nitrophenol	ND		0.20	0.043	mg/L		03/28/23 08:23	03/29/23 11:58	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	111		46 - 137	03/28/23 08:23	03/29/23 11:58	20
Phenol-d5 (Surr)	24	S1-	26 - 120	03/28/23 08:23	03/29/23 11:58	20
Nitrobenzene-d5 (Surr)	80		24 - 120	03/28/23 08:23	03/29/23 11:58	20
2-Fluorophenol (Surr)	36		19 - 120	03/28/23 08:23	03/29/23 11:58	20
2-Fluorobiphenyl (Surr)	111		33 - 120	03/28/23 08:23	03/29/23 11:58	20
2,4,6-Tribromophenol (Surr)	97		10 - 120	03/28/23 08:23	03/29/23 11:58	20

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	6700	B	490	66	ug/L		03/28/23 08:59	03/28/23 14:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		52 - 121	03/28/23 08:59	03/28/23 14:18	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		03/29/23 14:00	03/30/23 16:38	1
Barium	0.041	J	0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 16:38	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 16:38	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 16:38	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 16:38	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 16:38	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251688-WATER

Lab Sample ID: 240-182547-4

Date Collected: 03/24/23 16:40

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 16:38	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		03/29/23 14:00	03/30/23 14:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/28/23 18:20	1
Total Suspended Solids (SM 2540D-2015)	460		20	5.0	mg/L			03/27/23 14:06	1
Total Organic Carbon (SM 5310 C-2014)	28		10	3.5	mg/L			03/29/23 13:01	10
corrosivity by pH (SW846 9040C)	7.5	HF	0.1	0.1	SU			03/29/23 13:32	1

Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Date Collected: 03/24/23 17:12

Matrix: Water

Date Received: 03/25/23 18:35

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			03/28/23 18:48	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 18:48	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 18:48	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 18:48	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 18:48	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 18:48	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 18:48	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 18:48	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 18:48	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 18:48	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 18:48	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 18:48	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 18:48	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 18:48	1
2-Butanone (MEK)	0.0020	J	0.010	0.0012	mg/L			03/28/23 18:48	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 18:48	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 18:48	1
Acetone	0.015		0.010	0.0054	mg/L			03/28/23 18:48	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 18:48	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 18:48	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 18:48	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 18:48	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 18:48	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 18:48	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 18:48	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 18:48	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 18:48	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 18:48	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 18:48	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 18:48	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 18:48	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 18:48	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 18:48	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 18:48	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 18:48	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 18:48	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 18:48	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 18:48	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 18:48	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 18:48	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 18:48	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 18:48	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 18:48	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 18:48	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 18:48	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 18:48	1
Vinyl chloride	0.012		0.0010	0.00045	mg/L			03/28/23 18:48	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/28/23 18:48	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Date Collected: 03/24/23 17:12

Matrix: Water

Date Received: 03/25/23 18:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		78 - 122		03/28/23 18:48	1
Toluene-d8 (Surr)	103		78 - 122		03/29/23 13:37	10
Dibromofluoromethane (Surr)	101		73 - 120		03/28/23 18:48	1
Dibromofluoromethane (Surr)	113		73 - 120		03/29/23 13:37	10
4-Bromofluorobenzene (Surr)	100		56 - 136		03/28/23 18:48	1
4-Bromofluorobenzene (Surr)	101		56 - 136		03/29/23 13:37	10
1,2-Dichloroethane-d4 (Surr)	96		62 - 137		03/28/23 18:48	1
1,2-Dichloroethane-d4 (Surr)	107		62 - 137		03/29/23 13:37	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		0.044	0.022	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,4,6-Trichlorophenol	ND		0.22	0.080	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,4,5-Trichlorophenol	ND		0.22	0.088	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,4-Dichlorophenol	ND		0.089	0.012	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,4-Dimethylphenol	ND		0.089	0.023	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,4-Dinitrophenol	ND		0.44	0.28	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,4-Dinitrotoluene	ND		0.22	0.092	mg/L		03/28/23 08:23	03/29/23 12:21	40
2-Chloronaphthalene	ND		0.044	0.021	mg/L		03/28/23 08:23	03/29/23 12:21	40
2-Chlorophenol	ND		0.044	0.012	mg/L		03/28/23 08:23	03/29/23 12:21	40
2-Methylnaphthalene	ND		0.0089	0.0049	mg/L		03/28/23 08:23	03/29/23 12:21	40
2-Methylphenol	ND		0.044	0.0093	mg/L		03/28/23 08:23	03/29/23 12:21	40
2-Nitroaniline	ND		0.089	0.023	mg/L		03/28/23 08:23	03/29/23 12:21	40
2-Nitrophenol	ND		0.089	0.025	mg/L		03/28/23 08:23	03/29/23 12:21	40
3 & 4 Methylphenol	ND		0.089	0.0085	mg/L		03/28/23 08:23	03/29/23 12:21	40
3,3'-Dichlorobenzidine	ND		0.22	0.051	mg/L		03/28/23 08:23	03/29/23 12:21	40
3-Nitroaniline	ND		0.089	0.025	mg/L		03/28/23 08:23	03/29/23 12:21	40
4,6-Dinitro-2-methylphenol	ND		0.22	0.13	mg/L		03/28/23 08:23	03/29/23 12:21	40
4-Bromophenyl phenyl ether	ND		0.089	0.022	mg/L		03/28/23 08:23	03/29/23 12:21	40
4-Chloro-3-methylphenol	ND		0.089	0.013	mg/L		03/28/23 08:23	03/29/23 12:21	40
4-Chloroaniline	ND	*	0.089	0.014	mg/L		03/28/23 08:23	03/29/23 12:21	40
4-Chlorophenyl phenyl ether	ND		0.089	0.024	mg/L		03/28/23 08:23	03/29/23 12:21	40
4-Nitroaniline	ND		0.089	0.041	mg/L		03/28/23 08:23	03/29/23 12:21	40
Acenaphthene	ND		0.0089	0.0076	mg/L		03/28/23 08:23	03/29/23 12:21	40
Acenaphthylene	ND		0.0089	0.0056	mg/L		03/28/23 08:23	03/29/23 12:21	40
Acetophenone	ND		0.044	0.016	mg/L		03/28/23 08:23	03/29/23 12:21	40
Anthracene	ND		0.0089	0.0060	mg/L		03/28/23 08:23	03/29/23 12:21	40
Atrazine	ND		0.089	0.042	mg/L		03/28/23 08:23	03/29/23 12:21	40
Benzaldehyde	ND		0.089	0.034	mg/L		03/28/23 08:23	03/29/23 12:21	40
Benzo[a]anthracene	ND		0.0089	0.0076	mg/L		03/28/23 08:23	03/29/23 12:21	40
Benzo[a]pyrene	ND		0.0089	0.0077	mg/L		03/28/23 08:23	03/29/23 12:21	40
Benzo[b]fluoranthene	ND		0.0089	0.0068	mg/L		03/28/23 08:23	03/29/23 12:21	40
Benzo[g,h,i]perylene	ND		0.0089	0.0079	mg/L		03/28/23 08:23	03/29/23 12:21	40
Benzo[k]fluoranthene	ND		0.0089	0.0062	mg/L		03/28/23 08:23	03/29/23 12:21	40
Bis(2-chloroethoxy)methane	ND		0.044	0.020	mg/L		03/28/23 08:23	03/29/23 12:21	40
Bis(2-chloroethyl)ether	ND		0.044	0.018	mg/L		03/28/23 08:23	03/29/23 12:21	40
Bis(2-ethylhexyl) phthalate	ND		0.22	0.099	mg/L		03/28/23 08:23	03/29/23 12:21	40
Butyl benzyl phthalate	ND		0.089	0.030	mg/L		03/28/23 08:23	03/29/23 12:21	40
Caprolactam	ND		0.22	0.042	mg/L		03/28/23 08:23	03/29/23 12:21	40
Carbazole	ND		0.044	0.022	mg/L		03/28/23 08:23	03/29/23 12:21	40

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Date Collected: 03/24/23 17:12

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chrysene	ND		0.0089	0.0083	mg/L		03/28/23 08:23	03/29/23 12:21	40
Di-n-butyl phthalate	ND		0.22	0.080	mg/L		03/28/23 08:23	03/29/23 12:21	40
Di-n-octyl phthalate	ND		0.089	0.036	mg/L		03/28/23 08:23	03/29/23 12:21	40
Dibenz(a,h)anthracene	ND		0.0089	0.0067	mg/L		03/28/23 08:23	03/29/23 12:21	40
Dibenzofuran	ND		0.044	0.025	mg/L		03/28/23 08:23	03/29/23 12:21	40
Diethyl phthalate	ND		0.22	0.17	mg/L		03/28/23 08:23	03/29/23 12:21	40
Dimethyl phthalate	ND		0.089	0.023	mg/L		03/28/23 08:23	03/29/23 12:21	40
Fluoranthene	ND		0.0089	0.0071	mg/L		03/28/23 08:23	03/29/23 12:21	40
Fluorene	ND		0.0089	0.0075	mg/L		03/28/23 08:23	03/29/23 12:21	40
Hexachlorobenzene	ND		0.0089	0.0072	mg/L		03/28/23 08:23	03/29/23 12:21	40
Hexachlorobutadiene	ND		0.044	0.024	mg/L		03/28/23 08:23	03/29/23 12:21	40
Hexachlorocyclopentadiene	ND		0.44	0.078	mg/L		03/28/23 08:23	03/29/23 12:21	40
Hexachloroethane	ND		0.044	0.018	mg/L		03/28/23 08:23	03/29/23 12:21	40
Indeno[1,2,3-cd]pyrene	ND		0.0089	0.0060	mg/L		03/28/23 08:23	03/29/23 12:21	40
Isophorone	ND		0.044	0.014	mg/L		03/28/23 08:23	03/29/23 12:21	40
N-Nitrosodi-n-propylamine	ND		0.044	0.011	mg/L		03/28/23 08:23	03/29/23 12:21	40
N-Nitrosodiphenylamine	ND		0.044	0.020	mg/L		03/28/23 08:23	03/29/23 12:21	40
Naphthalene	ND		0.0089	0.0048	mg/L		03/28/23 08:23	03/29/23 12:21	40
Nitrobenzene	ND		0.044	0.023	mg/L		03/28/23 08:23	03/29/23 12:21	40
Pentachlorophenol	ND		0.44	0.14	mg/L		03/28/23 08:23	03/29/23 12:21	40
Phenanthrene	ND		0.0089	0.0074	mg/L		03/28/23 08:23	03/29/23 12:21	40
Phenol	ND		0.044	0.0057	mg/L		03/28/23 08:23	03/29/23 12:21	40
Pyrene	ND		0.0089	0.0078	mg/L		03/28/23 08:23	03/29/23 12:21	40
bis (2-chloroisopropyl) ether	ND		0.044	0.024	mg/L		03/28/23 08:23	03/29/23 12:21	40
2,6-Dinitrotoluene	ND		0.22	0.094	mg/L		03/28/23 08:23	03/29/23 12:21	40
4-Nitrophenol	ND		0.44	0.097	mg/L		03/28/23 08:23	03/29/23 12:21	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	50		46 - 137	03/28/23 08:23	03/29/23 12:21	40
Phenol-d5 (Surr)	0	S1-	26 - 120	03/28/23 08:23	03/29/23 12:21	40
Nitrobenzene-d5 (Surr)	49		24 - 120	03/28/23 08:23	03/29/23 12:21	40
2-Fluorophenol (Surr)	25		19 - 120	03/28/23 08:23	03/29/23 12:21	40
2-Fluorobiphenyl (Surr)	62		33 - 120	03/28/23 08:23	03/29/23 12:21	40
2,4,6-Tribromophenol (Surr)	35		10 - 120	03/28/23 08:23	03/29/23 12:21	40

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	2100	B	490	66	ug/L		03/28/23 08:59	03/28/23 14:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	61		52 - 121	03/28/23 08:59	03/28/23 14:46	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		03/29/23 14:00	03/30/23 16:42	1
Barium	0.024	J	0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 16:42	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 16:42	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 16:42	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 16:42	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 16:42	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Date Collected: 03/24/23 17:12

Matrix: Water

Date Received: 03/25/23 18:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 16:42	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		03/29/23 14:00	03/30/23 14:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ignitability (Flashpoint) (SW846 1010B)	>200				Degrees F			03/28/23 20:17	1
Total Suspended Solids (SM 2540D-2015)	270		24	6.1	mg/L			03/27/23 14:06	1
Total Organic Carbon (SM 5310 C-2014)	30		10	3.5	mg/L			03/29/23 13:14	10
corrosivity by pH (SW846 9040C)	7.7	HF	0.1	0.1	SU			03/29/23 13:32	1

Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182547-6

Date Collected: 03/24/23 00:00

Matrix: Water

Date Received: 03/25/23 18:35

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			03/28/23 16:50	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 16:50	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 16:50	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 16:50	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 16:50	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 16:50	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 16:50	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 16:50	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 16:50	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 16:50	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 16:50	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 16:50	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 16:50	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 16:50	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/28/23 16:50	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 16:50	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 16:50	1
Acetone	ND		0.010	0.0054	mg/L			03/28/23 16:50	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 16:50	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 16:50	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 16:50	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 16:50	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 16:50	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 16:50	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 16:50	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 16:50	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 16:50	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 16:50	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 16:50	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 16:50	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 16:50	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 16:50	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 16:50	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 16:50	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 16:50	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 16:50	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 16:50	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 16:50	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 16:50	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 16:50	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 16:50	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 16:50	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 16:50	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 16:50	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 16:50	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 16:50	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/28/23 16:50	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/28/23 16:50	1

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Client Sample Results

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

Job ID: 240-182547-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182547-6

Date Collected: 03/24/23 00:00

Matrix: Water

Date Received: 03/25/23 18:35

<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)	96		78 - 122		03/28/23 16:50	1
Dibromofluoromethane (Surr)	107		73 - 120		03/28/23 16:50	1
4-Bromofluorobenzene (Surr)	92		56 - 136		03/28/23 16:50	1
1,2-Dichloroethane-d4 (Surr)	104		62 - 137		03/28/23 16:50	1

Surrogate Summary

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

Job ID: 240-182547-1

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)
240-182547-1	WC-251633-WATER	98	107	99	101
240-182547-2	WC-AL4771-WATER	99	105	110	98
240-182547-2	WC-AL4771-WATER	105	112	112	105
240-182547-3	WC-251060-WATER	97	104	106	98
240-182547-3	WC-251060-WATER	101	110	107	102
240-182547-4	WC-251688-WATER	95	104	101	97
240-182547-4	WC-251688-WATER	100	111	98	106
240-182547-5	WC-251478-WATER	97	101	100	96
240-182547-5	WC-251478-WATER	103	113	101	107
240-182547-6	TRIP BLANK	96	107	92	104
LCS 240-567011/5	Lab Control Sample	105	105	103	98
LCS 240-567011/6	Lab Control Sample	98	105	104	101
LCS 240-567143/5	Lab Control Sample	107	106	106	101
LCS 240-567143/6	Lab Control Sample	99	106	103	103
MB 240-567011/8	Method Blank	99	108	95	101
MB 240-567143/8	Method Blank	102	115	97	111

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: Water

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)
240-182547-1	WC-251633-WATER	30 S1-	15 S1-	46	24	60	54
240-182547-2	WC-AL4771-WATER	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-182547-3	WC-251060-WATER	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-	0 S1-
240-182547-4	WC-251688-WATER	111	24 S1-	80	36	111	97
240-182547-5	WC-251478-WATER	50	0 S1-	49	25	62	35
LCS 240-566966/24-A	Lab Control Sample	113	30	85	48	104	119
MB 240-566966/23-A	Method Blank	133	27	76	43	92	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: 240-182547-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTPH (52-121)
240-182547-1	WC-251633-WATER	53
240-182547-2	WC-AL4771-WATER	59
240-182547-3	WC-251060-WATER	59
240-182547-4	WC-251688-WATER	76
240-182547-5	WC-251478-WATER	61
LCS 240-566977/2-A	Lab Control Sample	84
MB 240-566977/1-A	Method Blank	85

Surrogate Legend

OTPH = o-Terphenyl

QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: MB 240-567011/8
Matrix: Water
Analysis Batch: 567011

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			03/28/23 15:15	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/28/23 15:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/28/23 15:15	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/28/23 15:15	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/28/23 15:15	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/28/23 15:15	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/28/23 15:15	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/28/23 15:15	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/28/23 15:15	1
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/28/23 15:15	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/28/23 15:15	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/28/23 15:15	1
Acetone	ND		0.010	0.0054	mg/L			03/28/23 15:15	1
Benzene	ND		0.0010	0.00042	mg/L			03/28/23 15:15	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/28/23 15:15	1
Bromoform	ND		0.0010	0.00076	mg/L			03/28/23 15:15	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/28/23 15:15	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/28/23 15:15	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/28/23 15:15	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/28/23 15:15	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/28/23 15:15	1
Chloroform	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/28/23 15:15	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/28/23 15:15	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/28/23 15:15	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/28/23 15:15	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/28/23 15:15	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/28/23 15:15	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/28/23 15:15	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/28/23 15:15	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/28/23 15:15	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/28/23 15:15	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/28/23 15:15	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/28/23 15:15	1
Styrene	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/28/23 15:15	1
Toluene	ND		0.0010	0.00044	mg/L			03/28/23 15:15	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/28/23 15:15	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/28/23 15:15	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/28/23 15:15	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/28/23 15:15	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/28/23 15:15	1

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: MB 240-567011/8
Matrix: Water
Analysis Batch: 567011

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Toluene-d8 (Surr)	99		78 - 122		03/28/23 15:15	1
Dibromofluoromethane (Surr)	108		73 - 120		03/28/23 15:15	1
4-Bromofluorobenzene (Surr)	95		56 - 136		03/28/23 15:15	1
1,2-Dichloroethane-d4 (Surr)	101		62 - 137		03/28/23 15:15	1

Lab Sample ID: LCS 240-567011/5
Matrix: Water
Analysis Batch: 567011

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	0.0244		mg/L		97	64 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0287		mg/L		115	58 - 157
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0254		mg/L		102	51 - 146
1,1,2-Trichloroethane	0.0250	0.0257		mg/L		103	70 - 138
1,1-Dichloroethane	0.0250	0.0239		mg/L		95	72 - 127
1,1-Dichloroethene	0.0250	0.0264		mg/L		106	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0264		mg/L		105	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0248		mg/L		99	53 - 135
Ethylene Dibromide	0.0250	0.0255		mg/L		102	71 - 134
1,2-Dichlorobenzene	0.0250	0.0268		mg/L		107	78 - 120
1,2-Dichloroethane	0.0250	0.0235		mg/L		94	66 - 128
1,2-Dichloropropane	0.0250	0.0249		mg/L		99	75 - 133
1,3-Dichlorobenzene	0.0250	0.0267		mg/L		107	80 - 120
1,4-Dichlorobenzene	0.0250	0.0266		mg/L		107	80 - 120
2-Butanone (MEK)	0.0500	0.0504		mg/L		101	54 - 156
2-Hexanone	0.0500	0.0560		mg/L		112	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0551		mg/L		110	46 - 158
Acetone	0.0500	0.0485		mg/L		97	50 - 149
Benzene	0.0250	0.0256		mg/L		102	77 - 123
Dichlorobromomethane	0.0250	0.0241		mg/L		96	69 - 126
Bromoform	0.0250	0.0245		mg/L		98	57 - 129
Bromomethane	0.0125	0.0120		mg/L		96	36 - 142
Carbon disulfide	0.0250	0.0256		mg/L		102	43 - 140
Carbon tetrachloride	0.0250	0.0237		mg/L		95	55 - 137
Chlorobenzene	0.0250	0.0257		mg/L		103	80 - 121
Chloroethane	0.0125	0.00970		mg/L		78	38 - 152
Chloroform	0.0250	0.0242		mg/L		97	74 - 122
Chloromethane	0.0125	0.0126		mg/L		101	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0248		mg/L		99	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0247		mg/L		99	64 - 130
Cyclohexane	0.0250	0.0263		mg/L		105	58 - 146
Chlorodibromomethane	0.0250	0.0240		mg/L		96	70 - 124
Dichlorodifluoromethane	0.0125	0.0113		mg/L		90	34 - 153
Ethylbenzene	0.0250	0.0262		mg/L		105	80 - 121
Isopropylbenzene	0.0250	0.0274		mg/L		110	74 - 128
Methyl acetate	0.0500	0.0429		mg/L		86	42 - 169
Methyl tert-butyl ether	0.0250	0.0247		mg/L		99	65 - 126
Methylcyclohexane	0.0250	0.0259		mg/L		104	62 - 136

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: LCS 240-567011/5
Matrix: Water
Analysis Batch: 567011

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	0.0254		mg/L		102	71 - 125
Styrene	0.0250	0.0273		mg/L		109	80 - 135
Tetrachloroethene	0.0250	0.0265		mg/L		106	76 - 123
Toluene	0.0250	0.0265		mg/L		106	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0253		mg/L		101	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0254		mg/L		101	57 - 129
Trichloroethene	0.0250	0.0240		mg/L		96	70 - 122
Trichlorofluoromethane	0.0125	0.0103		mg/L		83	30 - 170
Vinyl chloride	0.0125	0.0118		mg/L		94	60 - 144
Xylenes, Total	0.0500	0.0534		mg/L		107	80 - 121
m-Xylene & p-Xylene	0.0250	0.0270		mg/L		108	80 - 120
o-Xylene	0.0250	0.0264		mg/L		106	80 - 123

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	105		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120
4-Bromofluorobenzene (Surr)	103		56 - 136
1,2-Dichloroethane-d4 (Surr)	98		62 - 137

Lab Sample ID: LCS 240-567011/6
Matrix: Water
Analysis Batch: 567011

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	98		78 - 122
Dibromofluoromethane (Surr)	105		73 - 120
4-Bromofluorobenzene (Surr)	104		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: MB 240-567143/8
Matrix: Water
Analysis Batch: 567143

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010	0.00048	mg/L			03/29/23 12:25	1
1,1,2,2-Tetrachloroethane	ND		0.0010	0.00060	mg/L			03/29/23 12:25	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.0010	0.00041	mg/L			03/29/23 12:25	1
1,1,2-Trichloroethane	ND		0.0010	0.00048	mg/L			03/29/23 12:25	1
1,1-Dichloroethane	ND		0.0010	0.00047	mg/L			03/29/23 12:25	1
1,1-Dichloroethene	ND		0.0010	0.00049	mg/L			03/29/23 12:25	1
1,2,4-Trichlorobenzene	ND		0.0010	0.00077	mg/L			03/29/23 12:25	1
1,2-Dibromo-3-Chloropropane	ND		0.0020	0.00091	mg/L			03/29/23 12:25	1
Ethylene Dibromide	ND		0.0010	0.00041	mg/L			03/29/23 12:25	1
1,2-Dichlorobenzene	ND		0.0010	0.00048	mg/L			03/29/23 12:25	1
1,2-Dichloroethane	ND		0.0010	0.00021	mg/L			03/29/23 12:25	1
1,2-Dichloropropane	ND		0.0010	0.00047	mg/L			03/29/23 12:25	1
1,3-Dichlorobenzene	ND		0.0010	0.00045	mg/L			03/29/23 12:25	1
1,4-Dichlorobenzene	ND		0.0010	0.00041	mg/L			03/29/23 12:25	1

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: MB 240-567143/8
Matrix: Water
Analysis Batch: 567143

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	ND		0.010	0.0012	mg/L			03/29/23 12:25	1
2-Hexanone	ND		0.010	0.0011	mg/L			03/29/23 12:25	1
4-Methyl-2-pentanone (MIBK)	ND		0.010	0.00099	mg/L			03/29/23 12:25	1
Acetone	ND		0.010	0.0054	mg/L			03/29/23 12:25	1
Benzene	ND		0.0010	0.00042	mg/L			03/29/23 12:25	1
Dichlorobromomethane	ND		0.0010	0.00017	mg/L			03/29/23 12:25	1
Bromoform	ND		0.0010	0.00076	mg/L			03/29/23 12:25	1
Bromomethane	ND		0.0010	0.00042	mg/L			03/29/23 12:25	1
Carbon disulfide	ND		0.0010	0.00059	mg/L			03/29/23 12:25	1
Carbon tetrachloride	ND		0.0010	0.00026	mg/L			03/29/23 12:25	1
Chlorobenzene	ND		0.0010	0.00038	mg/L			03/29/23 12:25	1
Chloroethane	ND		0.0010	0.00083	mg/L			03/29/23 12:25	1
Chloroform	ND		0.0010	0.00047	mg/L			03/29/23 12:25	1
Chloromethane	ND		0.0010	0.00063	mg/L			03/29/23 12:25	1
cis-1,2-Dichloroethene	ND		0.0010	0.00046	mg/L			03/29/23 12:25	1
cis-1,3-Dichloropropene	ND		0.0010	0.00061	mg/L			03/29/23 12:25	1
Cyclohexane	ND		0.0010	0.00048	mg/L			03/29/23 12:25	1
Chlorodibromomethane	ND		0.0010	0.00039	mg/L			03/29/23 12:25	1
Dichlorodifluoromethane	ND		0.0010	0.00035	mg/L			03/29/23 12:25	1
Ethylbenzene	ND		0.0010	0.00042	mg/L			03/29/23 12:25	1
Isopropylbenzene	ND		0.0010	0.00049	mg/L			03/29/23 12:25	1
Methyl acetate	ND		0.010	0.0017	mg/L			03/29/23 12:25	1
Methyl tert-butyl ether	ND		0.0010	0.00047	mg/L			03/29/23 12:25	1
Methylcyclohexane	ND		0.0010	0.00033	mg/L			03/29/23 12:25	1
Methylene Chloride	ND		0.0050	0.0026	mg/L			03/29/23 12:25	1
Styrene	ND		0.0010	0.00045	mg/L			03/29/23 12:25	1
Tetrachloroethene	ND		0.0010	0.00044	mg/L			03/29/23 12:25	1
Toluene	ND		0.0010	0.00044	mg/L			03/29/23 12:25	1
trans-1,2-Dichloroethene	ND		0.0010	0.00051	mg/L			03/29/23 12:25	1
trans-1,3-Dichloropropene	ND		0.0010	0.00067	mg/L			03/29/23 12:25	1
Trichloroethene	ND		0.0010	0.00044	mg/L			03/29/23 12:25	1
Trichlorofluoromethane	ND		0.0010	0.00045	mg/L			03/29/23 12:25	1
Vinyl chloride	ND		0.0010	0.00045	mg/L			03/29/23 12:25	1
Xylenes, Total	ND		0.0020	0.00042	mg/L			03/29/23 12:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	102		78 - 122		03/29/23 12:25	1
Dibromofluoromethane (Surr)	115		73 - 120		03/29/23 12:25	1
4-Bromofluorobenzene (Surr)	97		56 - 136		03/29/23 12:25	1
1,2-Dichloroethane-d4 (Surr)	111		62 - 137		03/29/23 12:25	1

Lab Sample ID: LCS 240-567143/5
Matrix: Water
Analysis Batch: 567143

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	0.0241		mg/L		97	64 - 131
1,1,1,2-Tetrachloroethane	0.0250	0.0285		mg/L		114	58 - 157

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: LCS 240-567143/5
Matrix: Water
Analysis Batch: 567143

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0250	0.0264		mg/L		105	51 - 146
1,1,2-Trichloroethane	0.0250	0.0257		mg/L		103	70 - 138
1,1-Dichloroethane	0.0250	0.0238		mg/L		95	72 - 127
1,1-Dichloroethene	0.0250	0.0260		mg/L		104	63 - 134
1,2,4-Trichlorobenzene	0.0250	0.0260		mg/L		104	44 - 147
1,2-Dibromo-3-Chloropropane	0.0250	0.0243		mg/L		97	53 - 135
Ethylene Dibromide	0.0250	0.0248		mg/L		99	71 - 134
1,2-Dichlorobenzene	0.0250	0.0265		mg/L		106	78 - 120
1,2-Dichloroethane	0.0250	0.0236		mg/L		95	66 - 128
1,2-Dichloropropane	0.0250	0.0250		mg/L		100	75 - 133
1,3-Dichlorobenzene	0.0250	0.0261		mg/L		104	80 - 120
1,4-Dichlorobenzene	0.0250	0.0262		mg/L		105	80 - 120
2-Butanone (MEK)	0.0500	0.0492		mg/L		98	54 - 156
2-Hexanone	0.0500	0.0546		mg/L		109	43 - 167
4-Methyl-2-pentanone (MIBK)	0.0500	0.0548		mg/L		110	46 - 158
Acetone	0.0500	0.0482		mg/L		96	50 - 149
Benzene	0.0250	0.0260		mg/L		104	77 - 123
Dichlorobromomethane	0.0250	0.0239		mg/L		96	69 - 126
Bromoform	0.0250	0.0231		mg/L		92	57 - 129
Bromomethane	0.0125	0.0129		mg/L		103	36 - 142
Carbon disulfide	0.0250	0.0259		mg/L		104	43 - 140
Carbon tetrachloride	0.0250	0.0239		mg/L		96	55 - 137
Chlorobenzene	0.0250	0.0251		mg/L		100	80 - 121
Chloroethane	0.0125	0.0110		mg/L		88	38 - 152
Chloroform	0.0250	0.0243		mg/L		97	74 - 122
Chloromethane	0.0125	0.0132		mg/L		105	47 - 143
cis-1,2-Dichloroethene	0.0250	0.0251		mg/L		100	77 - 123
cis-1,3-Dichloropropene	0.0250	0.0245		mg/L		98	64 - 130
Cyclohexane	0.0250	0.0274		mg/L		109	58 - 146
Chlorodibromomethane	0.0250	0.0231		mg/L		92	70 - 124
Dichlorodifluoromethane	0.0125	0.0121		mg/L		97	34 - 153
Ethylbenzene	0.0250	0.0258		mg/L		103	80 - 121
Isopropylbenzene	0.0250	0.0270		mg/L		108	74 - 128
Methyl acetate	0.0500	0.0429		mg/L		86	42 - 169
Methyl tert-butyl ether	0.0250	0.0240		mg/L		96	65 - 126
Methylcyclohexane	0.0250	0.0270		mg/L		108	62 - 136
Methylene Chloride	0.0250	0.0253		mg/L		101	71 - 125
Styrene	0.0250	0.0267		mg/L		107	80 - 135
Tetrachloroethene	0.0250	0.0257		mg/L		103	76 - 123
Toluene	0.0250	0.0262		mg/L		105	80 - 123
trans-1,2-Dichloroethene	0.0250	0.0250		mg/L		100	75 - 124
trans-1,3-Dichloropropene	0.0250	0.0248		mg/L		99	57 - 129
Trichloroethene	0.0250	0.0237		mg/L		95	70 - 122
Trichlorofluoromethane	0.0125	0.0110		mg/L		88	30 - 170
Vinyl chloride	0.0125	0.0121		mg/L		97	60 - 144
Xylenes, Total	0.0500	0.0516		mg/L		103	80 - 121
m-Xylene & p-Xylene	0.0250	0.0258		mg/L		103	80 - 120
o-Xylene	0.0250	0.0258		mg/L		103	80 - 123

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QC Sample Results

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

Job ID: 240-182547-1

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	107		78 - 122
Dibromofluoromethane (Surr)	106		73 - 120
4-Bromofluorobenzene (Surr)	106		56 - 136
1,2-Dichloroethane-d4 (Surr)	101		62 - 137

Lab Sample ID: LCS 240-567143/6
Matrix: Water
Analysis Batch: 567143

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Toluene-d8 (Surr)	99		78 - 122
Dibromofluoromethane (Surr)	106		73 - 120
4-Bromofluorobenzene (Surr)	103		56 - 136
1,2-Dichloroethane-d4 (Surr)	103		62 - 137

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

Lab Sample ID: MB 240-566966/23-A
Matrix: Water
Analysis Batch: 567104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566966

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1'-Biphenyl	ND		0.0010	0.00049	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,4,6-Trichlorophenol	ND		0.0050	0.0018	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,4,5-Trichlorophenol	ND		0.0050	0.0020	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,4-Dichlorophenol	ND		0.0020	0.00026	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,4-Dimethylphenol	ND		0.0020	0.00052	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,4-Dinitrophenol	ND		0.010	0.0062	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,4-Dinitrotoluene	ND		0.0050	0.0021	mg/L		03/28/23 08:23	03/29/23 10:23	1
2-Chloronaphthalene	ND		0.0010	0.00048	mg/L		03/28/23 08:23	03/29/23 10:23	1
2-Chlorophenol	ND		0.0010	0.00027	mg/L		03/28/23 08:23	03/29/23 10:23	1
2-Methylnaphthalene	ND		0.00020	0.00011	mg/L		03/28/23 08:23	03/29/23 10:23	1
2-Methylphenol	ND		0.0010	0.00021	mg/L		03/28/23 08:23	03/29/23 10:23	1
2-Nitroaniline	ND		0.0020	0.00051	mg/L		03/28/23 08:23	03/29/23 10:23	1
2-Nitrophenol	ND		0.0020	0.00056	mg/L		03/28/23 08:23	03/29/23 10:23	1
3 & 4 Methylphenol	ND		0.0020	0.00019	mg/L		03/28/23 08:23	03/29/23 10:23	1
3,3'-Dichlorobenzidine	ND		0.0050	0.0012	mg/L		03/28/23 08:23	03/29/23 10:23	1
3-Nitroaniline	ND		0.0020	0.00057	mg/L		03/28/23 08:23	03/29/23 10:23	1
4,6-Dinitro-2-methylphenol	ND		0.0050	0.0028	mg/L		03/28/23 08:23	03/29/23 10:23	1
4-Bromophenyl phenyl ether	ND		0.0020	0.00050	mg/L		03/28/23 08:23	03/29/23 10:23	1
4-Chloro-3-methylphenol	ND		0.0020	0.00030	mg/L		03/28/23 08:23	03/29/23 10:23	1
4-Chloroaniline	ND		0.0020	0.00032	mg/L		03/28/23 08:23	03/29/23 10:23	1
4-Chlorophenyl phenyl ether	ND		0.0020	0.00055	mg/L		03/28/23 08:23	03/29/23 10:23	1
4-Nitroaniline	ND		0.0020	0.00092	mg/L		03/28/23 08:23	03/29/23 10:23	1
Acenaphthene	ND		0.00020	0.00017	mg/L		03/28/23 08:23	03/29/23 10:23	1
Acenaphthylene	ND		0.00020	0.00013	mg/L		03/28/23 08:23	03/29/23 10:23	1
Acetophenone	ND		0.0010	0.00037	mg/L		03/28/23 08:23	03/29/23 10:23	1
Anthracene	ND		0.00020	0.00014	mg/L		03/28/23 08:23	03/29/23 10:23	1
Atrazine	ND		0.0020	0.00095	mg/L		03/28/23 08:23	03/29/23 10:23	1
Benzaldehyde	ND		0.0020	0.00076	mg/L		03/28/23 08:23	03/29/23 10:23	1
Benzo[a]anthracene	ND		0.00020	0.00017	mg/L		03/28/23 08:23	03/29/23 10:23	1

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: MB 240-566966/23-A
Matrix: Water
Analysis Batch: 567104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566966

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.00020	0.00017	mg/L		03/28/23 08:23	03/29/23 10:23	1
Benzo[b]fluoranthene	ND		0.00020	0.00015	mg/L		03/28/23 08:23	03/29/23 10:23	1
Benzo[g,h,i]perylene	ND		0.00020	0.00018	mg/L		03/28/23 08:23	03/29/23 10:23	1
Benzo[k]fluoranthene	ND		0.00020	0.00014	mg/L		03/28/23 08:23	03/29/23 10:23	1
Bis(2-chloroethoxy)methane	ND		0.0010	0.00046	mg/L		03/28/23 08:23	03/29/23 10:23	1
Bis(2-chloroethyl)ether	ND		0.0010	0.00040	mg/L		03/28/23 08:23	03/29/23 10:23	1
Bis(2-ethylhexyl) phthalate	ND		0.0050	0.0022	mg/L		03/28/23 08:23	03/29/23 10:23	1
Butyl benzyl phthalate	ND		0.0020	0.00067	mg/L		03/28/23 08:23	03/29/23 10:23	1
Caprolactam	ND		0.0050	0.00093	mg/L		03/28/23 08:23	03/29/23 10:23	1
Carbazole	ND		0.0010	0.00049	mg/L		03/28/23 08:23	03/29/23 10:23	1
Chrysene	ND		0.00020	0.00019	mg/L		03/28/23 08:23	03/29/23 10:23	1
Di-n-butyl phthalate	ND		0.0050	0.0018	mg/L		03/28/23 08:23	03/29/23 10:23	1
Di-n-octyl phthalate	ND		0.0020	0.00082	mg/L		03/28/23 08:23	03/29/23 10:23	1
Dibenz(a,h)anthracene	ND		0.00020	0.00015	mg/L		03/28/23 08:23	03/29/23 10:23	1
Dibenzofuran	ND		0.0010	0.00056	mg/L		03/28/23 08:23	03/29/23 10:23	1
Diethyl phthalate	ND		0.0050	0.0038	mg/L		03/28/23 08:23	03/29/23 10:23	1
Dimethyl phthalate	ND		0.0020	0.00052	mg/L		03/28/23 08:23	03/29/23 10:23	1
Fluoranthene	ND		0.00020	0.00016	mg/L		03/28/23 08:23	03/29/23 10:23	1
Fluorene	ND		0.00020	0.00017	mg/L		03/28/23 08:23	03/29/23 10:23	1
Hexachlorobenzene	ND		0.00020	0.00016	mg/L		03/28/23 08:23	03/29/23 10:23	1
Hexachlorobutadiene	ND		0.0010	0.00054	mg/L		03/28/23 08:23	03/29/23 10:23	1
Hexachlorocyclopentadiene	ND		0.010	0.0018	mg/L		03/28/23 08:23	03/29/23 10:23	1
Hexachloroethane	ND		0.0010	0.00040	mg/L		03/28/23 08:23	03/29/23 10:23	1
Indeno[1,2,3-cd]pyrene	ND		0.00020	0.00014	mg/L		03/28/23 08:23	03/29/23 10:23	1
Isophorone	ND		0.0010	0.00032	mg/L		03/28/23 08:23	03/29/23 10:23	1
N-Nitrosodi-n-propylamine	ND		0.0010	0.00025	mg/L		03/28/23 08:23	03/29/23 10:23	1
N-Nitrosodiphenylamine	ND		0.0010	0.00044	mg/L		03/28/23 08:23	03/29/23 10:23	1
Naphthalene	ND		0.00020	0.00011	mg/L		03/28/23 08:23	03/29/23 10:23	1
Nitrobenzene	ND		0.0010	0.00051	mg/L		03/28/23 08:23	03/29/23 10:23	1
Pentachlorophenol	ND		0.010	0.0031	mg/L		03/28/23 08:23	03/29/23 10:23	1
Phenanthrene	ND		0.00020	0.00017	mg/L		03/28/23 08:23	03/29/23 10:23	1
Phenol	ND		0.0010	0.00013	mg/L		03/28/23 08:23	03/29/23 10:23	1
Pyrene	ND		0.00020	0.00018	mg/L		03/28/23 08:23	03/29/23 10:23	1
bis (2-chloroisopropyl) ether	ND		0.0010	0.00055	mg/L		03/28/23 08:23	03/29/23 10:23	1
2,6-Dinitrotoluene	ND		0.0050	0.0021	mg/L		03/28/23 08:23	03/29/23 10:23	1
4-Nitrophenol	ND		0.010	0.0022	mg/L		03/28/23 08:23	03/29/23 10:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	133		46 - 137	03/28/23 08:23	03/29/23 10:23	1
Phenol-d5 (Surr)	27		26 - 120	03/28/23 08:23	03/29/23 10:23	1
Nitrobenzene-d5 (Surr)	76		24 - 120	03/28/23 08:23	03/29/23 10:23	1
2-Fluorophenol (Surr)	43		19 - 120	03/28/23 08:23	03/29/23 10:23	1
2-Fluorobiphenyl (Surr)	92		33 - 120	03/28/23 08:23	03/29/23 10:23	1
2,4,6-Tribromophenol (Surr)	90		10 - 120	03/28/23 08:23	03/29/23 10:23	1

QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: LCS 240-566966/24-A
Matrix: Water
Analysis Batch: 567104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	0.0200	0.0188		mg/L		94	48 - 120
2,4,6-Trichlorophenol	0.0200	0.0207		mg/L		104	51 - 120
2,4,5-Trichlorophenol	0.0200	0.0205		mg/L		102	52 - 123
2,4-Dichlorophenol	0.0200	0.0181		mg/L		90	53 - 120
2,4-Dimethylphenol	0.0200	0.0151		mg/L		76	44 - 120
2,4-Dinitrophenol	0.0400	0.0342		mg/L		86	11 - 139
2,4-Dinitrotoluene	0.0200	0.0224		mg/L		112	58 - 125
2-Chloronaphthalene	0.0200	0.0193		mg/L		96	51 - 120
2-Chlorophenol	0.0200	0.0156		mg/L		78	46 - 120
2-Methylnaphthalene	0.0200	0.0174		mg/L		87	49 - 120
2-Methylphenol	0.0200	0.0129		mg/L		64	45 - 120
2-Nitroaniline	0.0200	0.0201		mg/L		100	57 - 121
2-Nitrophenol	0.0200	0.0195		mg/L		97	51 - 120
3 & 4 Methylphenol	0.0200	0.0126		mg/L		63	40 - 120
3,3'-Dichlorobenzidine	0.0400	0.0421		mg/L		105	51 - 154
3-Nitroaniline	0.0200	0.0122		mg/L		61	47 - 123
4,6-Dinitro-2-methylphenol	0.0400	0.0374		mg/L		93	49 - 130
4-Bromophenyl phenyl ether	0.0200	0.0201		mg/L		101	58 - 125
4-Chloro-3-methylphenol	0.0200	0.0186		mg/L		93	52 - 120
4-Chloroaniline	0.0200	0.00152	J *	mg/L		8	10 - 126
4-Chlorophenyl phenyl ether	0.0200	0.0205		mg/L		103	55 - 120
4-Nitroaniline	0.0200	0.0204		mg/L		102	56 - 127
Acenaphthene	0.0200	0.0191		mg/L		96	54 - 120
Acenaphthylene	0.0200	0.0192		mg/L		96	50 - 120
Acetophenone	0.0200	0.0172		mg/L		86	47 - 120
Anthracene	0.0200	0.0196		mg/L		98	58 - 121
Atrazine	0.0400	0.0398		mg/L		100	68 - 126
Benzaldehyde	0.0400	0.0320		mg/L		80	26 - 147
Benzo[a]anthracene	0.0200	0.0205		mg/L		102	61 - 120
Benzo[a]pyrene	0.0200	0.0177		mg/L		88	56 - 131
Benzo[b]fluoranthene	0.0200	0.0160		mg/L		80	57 - 130
Benzo[g,h,i]perylene	0.0200	0.0195		mg/L		98	58 - 120
Benzo[k]fluoranthene	0.0200	0.0181		mg/L		91	53 - 137
Bis(2-chloroethoxy)methane	0.0200	0.0168		mg/L		84	49 - 120
Bis(2-chloroethyl)ether	0.0200	0.0130		mg/L		65	40 - 120
Bis(2-ethylhexyl) phthalate	0.0200	0.0176		mg/L		88	60 - 126
Butyl benzyl phthalate	0.0200	0.0182		mg/L		91	58 - 124
Caprolactam	0.0400	0.00484	J	mg/L		12	10 - 120
Carbazole	0.0200	0.0205		mg/L		103	60 - 130
Chrysene	0.0200	0.0203		mg/L		102	57 - 120
Di-n-butyl phthalate	0.0200	0.0186		mg/L		93	59 - 130
Di-n-octyl phthalate	0.0200	0.0159		mg/L		79	57 - 126
Dibenz(a,h)anthracene	0.0200	0.0181		mg/L		90	58 - 120
Dibenzofuran	0.0200	0.0197		mg/L		98	54 - 120
Diethyl phthalate	0.0200	0.0211		mg/L		106	55 - 120
Dimethyl phthalate	0.0200	0.0214		mg/L		107	49 - 125
Fluoranthene	0.0200	0.0205		mg/L		103	58 - 128
Fluorene	0.0200	0.0198		mg/L		99	55 - 120

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: LCS 240-566966/24-A
Matrix: Water
Analysis Batch: 567104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566966

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorobenzene	0.0200	0.0200		mg/L		100	55 - 120
Hexachlorobutadiene	0.0200	0.0174		mg/L		87	41 - 120
Hexachlorocyclopentadiene	0.0200	0.0130		mg/L		65	15 - 120
Hexachloroethane	0.0200	0.0163		mg/L		82	39 - 120
Indeno[1,2,3-cd]pyrene	0.0200	0.0193		mg/L		96	59 - 122
Isophorone	0.0200	0.0174		mg/L		87	51 - 120
N-Nitrosodi-n-propylamine	0.0200	0.0167		mg/L		83	49 - 120
N-Nitrosodiphenylamine	0.0200	0.0189		mg/L		95	56 - 125
Naphthalene	0.0200	0.0159		mg/L		79	46 - 120
Nitrobenzene	0.0200	0.0167		mg/L		83	47 - 120
Pentachlorophenol	0.0400	0.0287		mg/L		72	19 - 132
Phenanthrene	0.0200	0.0188		mg/L		94	55 - 120
Phenol	0.0200	0.00583		mg/L		29	10 - 120
Pyrene	0.0200	0.0210		mg/L		105	59 - 120
bis (2-chloroisopropyl) ether	0.0200	0.0150		mg/L		75	41 - 120
2,6-Dinitrotoluene	0.0200	0.0236		mg/L		118	54 - 132
4-Nitrophenol	0.0400	0.0165		mg/L		41	10 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	113		46 - 137
Phenol-d5 (Surr)	30		26 - 120
Nitrobenzene-d5 (Surr)	85		24 - 120
2-Fluorophenol (Surr)	48		19 - 120
2-Fluorobiphenyl (Surr)	104		33 - 120
2,4,6-Tribromophenol (Surr)	119		10 - 120

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 240-566977/1-A
Matrix: Water
Analysis Batch: 566982

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566977

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10 - C28]	106	J	500	68	ug/L		03/28/23 08:59	03/28/23 11:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	85		52 - 121	03/28/23 08:59	03/28/23 11:31	1

Lab Sample ID: LCS 240-566977/2-A
Matrix: Water
Analysis Batch: 566982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566977

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10 - C28]	2000	1450		ug/L		73	56 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	84		52 - 121

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QC Sample Results

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

Job ID: 240-182547-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 240-567196/2-A
Matrix: Water
Analysis Batch: 567433

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/29/23 14:00	03/30/23 15:25	1
Barium	ND		0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 15:25	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 15:25	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 15:25	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 15:25	1
Selenium	ND		0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 15:25	1
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 15:25	1

Lab Sample ID: LCS 240-567196/3-A
Matrix: Water
Analysis Batch: 567433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	2.00	2.29		mg/L		114	50 - 150
Barium	2.00	1.95		mg/L		97	50 - 150
Cadmium	1.00	1.08		mg/L		108	50 - 150
Chromium	1.00	0.990		mg/L		99	50 - 150
Lead	1.00	0.958		mg/L		96	50 - 150
Selenium	2.00	2.33		mg/L		117	50 - 150
Silver	0.100	0.106		mg/L		106	50 - 150

Lab Sample ID: LB 240-567059/1-B
Matrix: Water
Analysis Batch: 567433

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 567196

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.050	0.0041	mg/L		03/29/23 14:00	03/30/23 15:21	1
Barium	ND		0.50	0.0013	mg/L		03/29/23 14:00	03/30/23 15:21	1
Cadmium	ND		0.050	0.00020	mg/L		03/29/23 14:00	03/30/23 15:21	1
Chromium	ND		0.050	0.0040	mg/L		03/29/23 14:00	03/30/23 15:21	1
Lead	ND		0.050	0.0028	mg/L		03/29/23 14:00	03/30/23 15:21	1
Selenium	0.00709	J	0.050	0.0060	mg/L		03/29/23 14:00	03/30/23 15:21	1
Silver	ND		0.050	0.00062	mg/L		03/29/23 14:00	03/30/23 15:21	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 240-567199/2-A
Matrix: Water
Analysis Batch: 567395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 567199

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/29/23 14:00	03/30/23 14:13	1

Lab Sample ID: LCS 240-567199/3-A
Matrix: Water
Analysis Batch: 567395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 567199

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00500	0.00497		mg/L		99	80 - 120

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QC Sample Results

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

Job ID: 240-182547-1

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

Lab Sample ID: LB 240-567059/1-C
Matrix: Water
Analysis Batch: 567395

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 567199

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0020	0.00013	mg/L		03/29/23 14:00	03/30/23 14:11	1

Method: 1010B - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 240-566838/1
Matrix: Water
Analysis Batch: 566838

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ignitability (Flashpoint)	81.0	81.0		Fahrenheit		100	97 - 103

Lab Sample ID: LCS 240-567064/1
Matrix: Water
Analysis Batch: 567064

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ignitability (Flashpoint)	81.0	82.6		Fahrenheit		102	97 - 103

Lab Sample ID: 240-182547-5 DU
Matrix: Water
Analysis Batch: 567064

Client Sample ID: WC-251478-WATER
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ignitability (Flashpoint)	>200		>200		Degrees F		NC	20

Method: 2540D-2015 - Total Suspended Solids (Dried at 103-105°C)

Lab Sample ID: MB 240-566895/1
Matrix: Water
Analysis Batch: 566895

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.0	mg/L			03/27/23 14:06	1

Lab Sample ID: LCS 240-566895/2
Matrix: Water
Analysis Batch: 566895

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	77.7	76.5		mg/L		98	64 - 120

Lab Sample ID: 240-182547-5 DU
Matrix: Water
Analysis Batch: 566895

Client Sample ID: WC-251478-WATER
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	270		264		mg/L		2	10

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QC Sample Results

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

Job ID: 240-182547-1

Method: 5310 C-2014 - Total Organic Carbon/Persulfate - Ultrav

Lab Sample ID: MB 240-567211/4
Matrix: Water
Analysis Batch: 567211

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.35	mg/L			03/29/23 11:34	1

Lab Sample ID: LCS 240-567211/5
Matrix: Water
Analysis Batch: 567211

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	18.3	18.4		mg/L		100	85 - 115
TOC Result 1	18.3	18.5		mg/L		101	85 - 115
TOC Result 2	18.3	18.3		mg/L		100	85 - 115

Lab Sample ID: 240-182547-1 MS
Matrix: Water
Analysis Batch: 567211

Client Sample ID: WC-251633-WATER
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon	34		100	137		mg/L		103	65 - 134
TOC Result 1	34		100	139		mg/L		105	65 - 134
TOC Result 2	34		100	136		mg/L		102	65 - 134

Lab Sample ID: 240-182547-1 MSD
Matrix: Water
Analysis Batch: 567211

Client Sample ID: WC-251633-WATER
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Total Organic Carbon	34		100	137		mg/L		103	65 - 134	0	10
TOC Result 1	34		100	138		mg/L		103	65 - 134	1	10
TOC Result 2	34		100	136		mg/L		102	65 - 134	0	10

Method: 9040C - pH

Lab Sample ID: LCS 240-567204/2
Matrix: Water
Analysis Batch: 567204

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
corrosivity by pH	9.24	9.2		SU		100	97 - 103

Lab Sample ID: 240-182547-1 DU
Matrix: Water
Analysis Batch: 567204

Client Sample ID: WC-251633-WATER
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
corrosivity by pH	7.4	HF	7.4		SU		0.3	20

QC Association Summary

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

Job ID: 240-182547-1

GC/MS VOA

Analysis Batch: 567011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	8260D	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	8260D	
240-182547-3	WC-251060-WATER	Total/NA	Water	8260D	
240-182547-4	WC-251688-WATER	Total/NA	Water	8260D	
240-182547-5	WC-251478-WATER	Total/NA	Water	8260D	
240-182547-6	TRIP BLANK	Total/NA	Water	8260D	
MB 240-567011/8	Method Blank	Total/NA	Water	8260D	
LCS 240-567011/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-567011/6	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 567143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-2	WC-AL4771-WATER	Total/NA	Water	8260D	
240-182547-3	WC-251060-WATER	Total/NA	Water	8260D	
240-182547-4	WC-251688-WATER	Total/NA	Water	8260D	
240-182547-5	WC-251478-WATER	Total/NA	Water	8260D	
MB 240-567143/8	Method Blank	Total/NA	Water	8260D	
LCS 240-567143/5	Lab Control Sample	Total/NA	Water	8260D	
LCS 240-567143/6	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 566966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	3510C	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	3510C	
240-182547-3	WC-251060-WATER	Total/NA	Water	3510C	
240-182547-4	WC-251688-WATER	Total/NA	Water	3510C	
240-182547-5	WC-251478-WATER	Total/NA	Water	3510C	
MB 240-566966/23-A	Method Blank	Total/NA	Water	3510C	
LCS 240-566966/24-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 567104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	8270E	566966
240-182547-2	WC-AL4771-WATER	Total/NA	Water	8270E	566966
240-182547-3	WC-251060-WATER	Total/NA	Water	8270E	566966
240-182547-4	WC-251688-WATER	Total/NA	Water	8270E	566966
240-182547-5	WC-251478-WATER	Total/NA	Water	8270E	566966
MB 240-566966/23-A	Method Blank	Total/NA	Water	8270E	566966
LCS 240-566966/24-A	Lab Control Sample	Total/NA	Water	8270E	566966

GC Semi VOA

Prep Batch: 566977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	3511	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	3511	
240-182547-3	WC-251060-WATER	Total/NA	Water	3511	
240-182547-4	WC-251688-WATER	Total/NA	Water	3511	
240-182547-5	WC-251478-WATER	Total/NA	Water	3511	
MB 240-566977/1-A	Method Blank	Total/NA	Water	3511	

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QC Association Summary

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

Job ID: 240-182547-1

GC Semi VOA (Continued)

Prep Batch: 566977 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-566977/2-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 566982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	8015D	566977
240-182547-2	WC-AL4771-WATER	Total/NA	Water	8015D	566977
240-182547-3	WC-251060-WATER	Total/NA	Water	8015D	566977
240-182547-4	WC-251688-WATER	Total/NA	Water	8015D	566977
240-182547-5	WC-251478-WATER	Total/NA	Water	8015D	566977
MB 240-566977/1-A	Method Blank	Total/NA	Water	8015D	566977
LCS 240-566977/2-A	Lab Control Sample	Total/NA	Water	8015D	566977

Metals

Leach Batch: 567059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	TCLP	Water	1311	
240-182547-2	WC-AL4771-WATER	TCLP	Water	1311	
240-182547-3	WC-251060-WATER	TCLP	Water	1311	
240-182547-4	WC-251688-WATER	TCLP	Water	1311	
240-182547-5	WC-251478-WATER	TCLP	Water	1311	
LB 240-567059/1-B	Method Blank	TCLP	Water	1311	
LB 240-567059/1-C	Method Blank	TCLP	Water	1311	

Prep Batch: 567196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	TCLP	Water	3010A	567059
240-182547-2	WC-AL4771-WATER	TCLP	Water	3010A	567059
240-182547-3	WC-251060-WATER	TCLP	Water	3010A	567059
240-182547-4	WC-251688-WATER	TCLP	Water	3010A	567059
240-182547-5	WC-251478-WATER	TCLP	Water	3010A	567059
LB 240-567059/1-B	Method Blank	TCLP	Water	3010A	567059
MB 240-567196/2-A	Method Blank	Total/NA	Water	3010A	
LCS 240-567196/3-A	Lab Control Sample	Total/NA	Water	3010A	

Prep Batch: 567199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	TCLP	Water	7470A	567059
240-182547-2	WC-AL4771-WATER	TCLP	Water	7470A	567059
240-182547-3	WC-251060-WATER	TCLP	Water	7470A	567059
240-182547-4	WC-251688-WATER	TCLP	Water	7470A	567059
240-182547-5	WC-251478-WATER	TCLP	Water	7470A	567059
LB 240-567059/1-C	Method Blank	TCLP	Water	7470A	567059
MB 240-567199/2-A	Method Blank	Total/NA	Water	7470A	
LCS 240-567199/3-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 567395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	TCLP	Water	7470A	567199
240-182547-2	WC-AL4771-WATER	TCLP	Water	7470A	567199
240-182547-3	WC-251060-WATER	TCLP	Water	7470A	567199

Eurofins Canton

QC Association Summary

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

Job ID: 240-182547-1

Metals (Continued)

Analysis Batch: 567395 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-4	WC-251688-WATER	TCLP	Water	7470A	567199
240-182547-5	WC-251478-WATER	TCLP	Water	7470A	567199
LB 240-567059/1-C	Method Blank	TCLP	Water	7470A	567199
MB 240-567199/2-A	Method Blank	Total/NA	Water	7470A	567199
LCS 240-567199/3-A	Lab Control Sample	Total/NA	Water	7470A	567199

Analysis Batch: 567433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	TCLP	Water	6010D	567196
240-182547-2	WC-AL4771-WATER	TCLP	Water	6010D	567196
240-182547-3	WC-251060-WATER	TCLP	Water	6010D	567196
240-182547-4	WC-251688-WATER	TCLP	Water	6010D	567196
240-182547-5	WC-251478-WATER	TCLP	Water	6010D	567196
LB 240-567059/1-B	Method Blank	TCLP	Water	6010D	567196
MB 240-567196/2-A	Method Blank	Total/NA	Water	6010D	567196
LCS 240-567196/3-A	Lab Control Sample	Total/NA	Water	6010D	567196

General Chemistry

Analysis Batch: 566838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	1010B	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	1010B	
LCS 240-566838/1	Lab Control Sample	Total/NA	Water	1010B	

Analysis Batch: 566895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	2540D-2015	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	2540D-2015	
240-182547-3	WC-251060-WATER	Total/NA	Water	2540D-2015	
240-182547-4	WC-251688-WATER	Total/NA	Water	2540D-2015	
240-182547-5	WC-251478-WATER	Total/NA	Water	2540D-2015	
MB 240-566895/1	Method Blank	Total/NA	Water	2540D-2015	
LCS 240-566895/2	Lab Control Sample	Total/NA	Water	2540D-2015	
240-182547-5 DU	WC-251478-WATER	Total/NA	Water	2540D-2015	

Analysis Batch: 567064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-3	WC-251060-WATER	Total/NA	Water	1010B	
240-182547-4	WC-251688-WATER	Total/NA	Water	1010B	
240-182547-5	WC-251478-WATER	Total/NA	Water	1010B	
LCS 240-567064/1	Lab Control Sample	Total/NA	Water	1010B	
240-182547-5 DU	WC-251478-WATER	Total/NA	Water	1010B	

Analysis Batch: 567204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	9040C	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	9040C	
240-182547-3	WC-251060-WATER	Total/NA	Water	9040C	
240-182547-4	WC-251688-WATER	Total/NA	Water	9040C	
240-182547-5	WC-251478-WATER	Total/NA	Water	9040C	

Eurofins Canton

QC Association Summary

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

Job ID: 240-182547-1

General Chemistry (Continued)

Analysis Batch: 567204 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-567204/2	Lab Control Sample	Total/NA	Water	9040C	
240-182547-1 DU	WC-251633-WATER	Total/NA	Water	9040C	

Analysis Batch: 567211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-182547-1	WC-251633-WATER	Total/NA	Water	5310 C-2014	
240-182547-2	WC-AL4771-WATER	Total/NA	Water	5310 C-2014	
240-182547-3	WC-251060-WATER	Total/NA	Water	5310 C-2014	
240-182547-4	WC-251688-WATER	Total/NA	Water	5310 C-2014	
240-182547-5	WC-251478-WATER	Total/NA	Water	5310 C-2014	
MB 240-567211/4	Method Blank	Total/NA	Water	5310 C-2014	
LCS 240-567211/5	Lab Control Sample	Total/NA	Water	5310 C-2014	
240-182547-1 MS	WC-251633-WATER	Total/NA	Water	5310 C-2014	
240-182547-1 MSD	WC-251633-WATER	Total/NA	Water	5310 C-2014	

Lab Chronicle

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

Job ID: 240-182547-1

Client Sample ID: WC-251633-WATER

Lab Sample ID: 240-182547-1

Date Collected: 03/24/23 16:30

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 17:13
Total/NA	Prep	3510C			566966	MDH	EET CAN	03/28/23 08:23
Total/NA	Analysis	8270E		10	567104	MRU	EET CAN	03/29/23 11:35
Total/NA	Prep	3511			566977	LKG	EET CAN	03/28/23 08:59
Total/NA	Analysis	8015D		2	566982	EPF	EET CAN	03/28/23 12:54
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	3010A			567196	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	6010D		1	567433	KLC	EET CAN	03/30/23 16:25
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	7470A			567199	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	7470A		1	567395	MRL	EET CAN	03/30/23 14:29
Total/NA	Analysis	1010B		1	566838	MED	EET CAN	03/27/23 15:34
Total/NA	Analysis	2540D-2015		1	566895	GH	EET CAN	03/27/23 14:06
Total/NA	Analysis	5310 C-2014		10	567211	MED	EET CAN	03/29/23 11:59
Total/NA	Analysis	9040C		1	567204	MED	EET CAN	03/29/23 13:32

Client Sample ID: WC-AL4771-WATER

Lab Sample ID: 240-182547-2

Date Collected: 03/24/23 16:55

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 17:37
Total/NA	Analysis	8260D		4	567143	SAM	EET CAN	03/29/23 12:49
Total/NA	Prep	3510C			566966	MDH	EET CAN	03/28/23 08:23
Total/NA	Analysis	8270E		2500	567104	MRU	EET CAN	03/29/23 13:01
Total/NA	Prep	3511			566977	LKG	EET CAN	03/28/23 08:59
Total/NA	Analysis	8015D		1	566982	EPF	EET CAN	03/28/23 13:22
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	3010A			567196	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	6010D		1	567433	KLC	EET CAN	03/30/23 16:30
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	7470A			567199	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	7470A		1	567395	MRL	EET CAN	03/30/23 14:36
Total/NA	Analysis	1010B		1	566838	MED	EET CAN	03/27/23 15:55
Total/NA	Analysis	2540D-2015		1	566895	GH	EET CAN	03/27/23 14:06
Total/NA	Analysis	5310 C-2014		10	567211	MED	EET CAN	03/29/23 12:37
Total/NA	Analysis	9040C		1	567204	MED	EET CAN	03/29/23 13:32

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Date Collected: 03/24/23 16:20

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 18:01

Eurofins Canton

Lab Chronicle

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

Job ID: 240-182547-1

Client Sample ID: WC-251060-WATER

Lab Sample ID: 240-182547-3

Date Collected: 03/24/23 16:20

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		4	567143	SAM	EET CAN	03/29/23 13:13
Total/NA	Prep	3510C			566966	MDH	EET CAN	03/28/23 08:23
Total/NA	Analysis	8270E		1250	567104	MRU	EET CAN	03/29/23 13:24
Total/NA	Prep	3511			566977	LKG	EET CAN	03/28/23 08:59
Total/NA	Analysis	8015D		1	566982	EPF	EET CAN	03/28/23 13:50
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	3010A			567196	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	6010D		1	567433	KLC	EET CAN	03/30/23 16:34
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	7470A			567199	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	7470A		1	567395	MRL	EET CAN	03/30/23 14:38
Total/NA	Analysis	1010B		1	567064	JWW	EET CAN	03/28/23 17:25
Total/NA	Analysis	2540D-2015		1	566895	GH	EET CAN	03/27/23 14:06
Total/NA	Analysis	5310 C-2014		10	567211	MED	EET CAN	03/29/23 12:49
Total/NA	Analysis	9040C		1	567204	MED	EET CAN	03/29/23 13:32

Client Sample ID: WC-251688-WATER

Lab Sample ID: 240-182547-4

Date Collected: 03/24/23 16:40

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 18:24
Total/NA	Analysis	8260D		40	567143	SAM	EET CAN	03/29/23 14:02
Total/NA	Prep	3510C			566966	MDH	EET CAN	03/28/23 08:23
Total/NA	Analysis	8270E		20	567104	MRU	EET CAN	03/29/23 11:58
Total/NA	Prep	3511			566977	LKG	EET CAN	03/28/23 08:59
Total/NA	Analysis	8015D		1	566982	EPF	EET CAN	03/28/23 14:18
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	3010A			567196	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	6010D		1	567433	KLC	EET CAN	03/30/23 16:38
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	7470A			567199	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	7470A		1	567395	MRL	EET CAN	03/30/23 14:40
Total/NA	Analysis	1010B		1	567064	JWW	EET CAN	03/28/23 18:20
Total/NA	Analysis	2540D-2015		1	566895	GH	EET CAN	03/27/23 14:06
Total/NA	Analysis	5310 C-2014		10	567211	MED	EET CAN	03/29/23 13:01
Total/NA	Analysis	9040C		1	567204	MED	EET CAN	03/29/23 13:32

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Date Collected: 03/24/23 17:12

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 18:48

Eurofins Canton

Lab Chronicle

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

Job ID: 240-182547-1

Client Sample ID: WC-251478-WATER

Lab Sample ID: 240-182547-5

Date Collected: 03/24/23 17:12

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		10	567143	SAM	EET CAN	03/29/23 13:37
Total/NA	Prep	3510C			566966	MDH	EET CAN	03/28/23 08:23
Total/NA	Analysis	8270E		40	567104	MRU	EET CAN	03/29/23 12:21
Total/NA	Prep	3511			566977	LKG	EET CAN	03/28/23 08:59
Total/NA	Analysis	8015D		1	566982	EPF	EET CAN	03/28/23 14:46
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	3010A			567196	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	6010D		1	567433	KLC	EET CAN	03/30/23 16:42
TCLP	Leach	1311			567059	DRJ	EET CAN	03/29/23 09:57 - 03/29/23 10:30 ¹
TCLP	Prep	7470A			567199	DEE	EET CAN	03/29/23 14:00
TCLP	Analysis	7470A		1	567395	MRL	EET CAN	03/30/23 14:42
Total/NA	Analysis	1010B		1	567064	JWW	EET CAN	03/28/23 20:17
Total/NA	Analysis	2540D-2015		1	566895	GH	EET CAN	03/27/23 14:06
Total/NA	Analysis	5310 C-2014		10	567211	MED	EET CAN	03/29/23 13:14
Total/NA	Analysis	9040C		1	567204	MED	EET CAN	03/29/23 13:32

Client Sample ID: TRIP BLANK

Lab Sample ID: 240-182547-6

Date Collected: 03/24/23 00:00

Matrix: Water

Date Received: 03/25/23 18:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	567011	SAM	EET CAN	03/28/23 16:50

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: 240-182547-1

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

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

Chain of Custody Record

645682 Environment Testing America

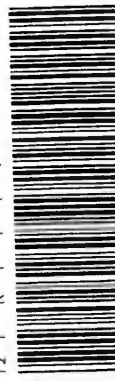
Address: 180 Van Buren Ave
 Boston, MA 02108-3543
 Tel: 330-497-9396
 Fax: 330-497-9396

Regulatory Program: DW NPDES RCRA Other: TAL-8210

Client Contact
 Company Name: Arcadis
 Address: 4665 Cornhill Rd Ste 200
 City/State/Zip: Concord, NH 03301
 Phone: 603-271-4243
 Fax: 603-271-4243
 Project Name: East Palestine Train Derailment
 Site: East Palestine OH
 PO #: 24036745

Project Manager: Jason Arrrip
 Tel/Email: jason.arrrip@arcadis.com
 Analysis Turnaround Time
 CALENDAR DAYS WORKING DAYS
 TAT if different from Below
 2 weeks
 1 week
 2 days
 1 day
 Rush

Date: 3/25/23
 Carrier: Courier
 COC No: 1 of 1 COCs
 Sampler: Michelle Clayton
 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-25163-Water	3/24/23	1630	G	W	13	N	N	<div style="text-align: center;">  240-182547 Chain of Custody </div>
WC-AL4771-Water	3/24/23	1655	G	W	13	N	N	
WC-251660-Water	3/24/23	1620	G	W	13	N	N	
WC-251688-Water	3/24/23	1640	G	W	13	N	N	
WC-251478-Water	3/24/23	1712	G	W	13	N	N	
Trip Blank	3/24/23	-	-	W	2	M	M	

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.
 Comments Section: U043 (Vinyl Chloride)

Special Instructions/QC Requirements & Comments:

Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.:
 Company: Arcadis
 Relinquished by: Michelle Clayton
 Date/Time: 3/24/23 1800
 Company: Arcadis
 Relinquished by: Eusebio Torresen
 Date/Time: 3/25/23 1700
 Company: Eurofins
 Relinquished by: Jason Arrrip
 Date/Time: 3/25/23 1835



Eurofins.- Canton Sample Receipt Form/Narrative
Barberton Facility

Login # : 182547

Client Arcadis Site Name NSRR-ER

Cooler unpacked by:

Cooler Received on 3-25-23 Opened on 3-27-23

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 # _____ (CF _____ °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)? 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

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

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES additional next page

Samples processed by:

For sample #1 the ID on the COC = 25163
but the ID on the bottles = 251633. Logged per
IDs on bottles. There is no ID at all on the plastic
1L bottle. Sample was determined to go with 251633 by process of

19. SAMPLE CONDITION elimination due 3.25-23

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: Carolyn Grogan
ARCADIS U.S., Inc.
7575 Huntington Park Drive
Suite 130
Columbus, Ohio 43235

Generated 2/15/2023 8:06:07 AM

JOB DESCRIPTION

NS East Palestine

JOB NUMBER

240-180173-2

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



Generated
2/15/2023 8:06:07 AM

Authorized for release by
Michael DeMonico, Project Manager I
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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Job ID: 240-180173-2

Laboratory: Eurofins Canton

Narrative

**Job Narrative
240-180173-2**

Receipt

The samples were received on 2/10/2023 7:00 AM. 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 1.2°C, 1.2°C, 2.5°C and 3.8°C

PFAS

Method PFC_IDA: The sample injection standard peak areas in the following sample: WC-Composite-01 to 05 (240-180173-7) 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.



Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
SPE	PFAS by SPE	Lab SOP	ELLE

Protocol References:

EPA = US Environmental Protection Agency
Lab SOP = Laboratory Standard Operating Procedure

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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-180173-7	WC-Composite-01 to 05	Water	02/09/23 00:00	02/10/23 07:00

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Client Sample ID: WC-Composite-01 to 05

Lab Sample ID: 240-180173-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	9.4		2.1	0.31	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid	8.7		2.1	0.52	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid - RA	9.8		2.1	0.31	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid - RA	8.2		2.1	0.52	ng/L	1		537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Canton

- 1
- 2
- 3
- 4
- 5
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- 11
- 12
- 13
- 14
- 15

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: NS East Palestine

Job ID: 240-180173-2

Client Sample ID: WC-Composite-01 to 05

Lab Sample ID: 240-180173-7

Date Collected: 02/09/23 00:00

Matrix: Water

Date Received: 02/10/23 07:00

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	9.4		2.1	0.31	ng/L		02/14/23 15:19	02/15/23 06:45	1
Perfluorooctanesulfonic acid	8.7		2.1	0.52	ng/L		02/14/23 15:19	02/15/23 06:45	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOA	115		48 - 162				02/14/23 15:19	02/15/23 06:45	1
13C8 PFOS	126		51 - 159				02/14/23 15:19	02/15/23 06:45	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid	9.8		2.1	0.31	ng/L		02/14/23 15:19	02/15/23 07:07	1
Perfluorooctanesulfonic acid	8.2		2.1	0.52	ng/L		02/14/23 15:19	02/15/23 07:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOA	115		48 - 162				02/14/23 15:19	02/15/23 07:07	1
13C8 PFOS	124		51 - 159				02/14/23 15:19	02/15/23 07:07	1

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-344533/1-A
Matrix: Water
Analysis Batch: 344292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 344533

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanoic acid	ND		2.0	0.30	ng/L		02/14/23 15:19	02/15/23 06:11	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		02/14/23 15:19	02/15/23 06:11	1
Isotope Dilution	MB MB		Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
13C8 PFOA	123		48 - 162				02/14/23 15:19	02/15/23 06:11	1
13C8 PFOS	121		51 - 159				02/14/23 15:19	02/15/23 06:11	1

Lab Sample ID: LCS 410-344533/2-A
Matrix: Water
Analysis Batch: 344292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 344533

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorooctanoic acid	25.6	23.3		ng/L		91	51 - 145		
Perfluorooctanesulfonic acid	23.7	22.4		ng/L		95	45 - 150		
Isotope Dilution	LCS LCS		Limits			D	%Rec	%Rec Limits	RPD
	%Recovery	Qualifier							
13C8 PFOA	124		48 - 162						
13C8 PFOS	122		51 - 159						

Lab Sample ID: LCSD 410-344533/3-A
Matrix: Water
Analysis Batch: 344292

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 344533

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanoic acid	25.6	23.8		ng/L		93	51 - 145	2	30
Perfluorooctanesulfonic acid	23.7	22.2		ng/L		94	45 - 150	1	30
Isotope Dilution	LCSD LCSD		Limits			D	%Rec	%Rec Limits	RPD
	%Recovery	Qualifier							
13C8 PFOA	122		48 - 162						
13C8 PFOS	125		51 - 159						

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

LCMS

Analysis Batch: 344292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-7	WC-Composite-01 to 05	Total/NA	Water	537 IDA	344533
240-180173-7 - RA	WC-Composite-01 to 05	Total/NA	Water	537 IDA	344533
MB 410-344533/1-A	Method Blank	Total/NA	Water	537 IDA	344533
LCS 410-344533/2-A	Lab Control Sample	Total/NA	Water	537 IDA	344533
LCSD 410-344533/3-A	Lab Control Sample Dup	Total/NA	Water	537 IDA	344533

Prep Batch: 344533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-180173-7	WC-Composite-01 to 05	Total/NA	Water	SPE	
240-180173-7 - RA	WC-Composite-01 to 05	Total/NA	Water	SPE	
MB 410-344533/1-A	Method Blank	Total/NA	Water	SPE	
LCS 410-344533/2-A	Lab Control Sample	Total/NA	Water	SPE	
LCSD 410-344533/3-A	Lab Control Sample Dup	Total/NA	Water	SPE	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Client Sample ID: WC-Composite-01 to 05

Lab Sample ID: 240-180173-7

Date Collected: 02/09/23 00:00

Matrix: Water

Date Received: 02/10/23 07:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			344533	JU9U	ELLE	02/14/23 15:19
Total/NA	Analysis	537 IDA		1	344292	VK3G	ELLE	02/15/23 06:45
Total/NA	Prep	SPE	RA		344533	JU9U	ELLE	02/14/23 15:19
Total/NA	Analysis	537 IDA	RA	1	344292	VK3G	ELLE	02/15/23 07:07

Laboratory References:

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



Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

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	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
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
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	01-31-23 *
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.

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 240-180173-2

Login Number: 180173

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 02/14/23 10:48 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: ARCADIS U.S., Inc.
Project/Site: NS East Palestine

Job ID: 240-180173-2

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		C8PFOA (48-162)	C8PFOS (51-159)
240-180173-7	WC-Composite-01 to 05	115	126
240-180173-7 - RA	WC-Composite-01 to 05	115	124
LCS 410-344533/2-A	Lab Control Sample	124	122
LCSD 410-344533/3-A	Lab Control Sample Dup	122	125
MB 410-344533/1-A	Method Blank	123	121

Surrogate Legend

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS



Profile Summary Report

Generator	NO36008	Norfolk Southern Railway	MP PC49 RAILROAD TRACKS EAST PALESTINE, OH 44413-0000	East Palastine	OH	44413
Customer	NO36007	Norfolk Southern Railway	US NE OF intersection N PLEASANT DR TAGGART RD	Atlanta	GA	30308
			650 West Peachtree Street Northwest			

<u>Clean Harbors Profile No.</u>	<u>Waste Description</u>	<u>Waste Classification Codes</u>	<u>Profile Type</u>	<u>Approval Status</u>	<u>Exp. Date</u>
CH2580626	Soil impacted w vinyl chloride (>10x UTS)	CCRK	W	Approved	4/5/2024
	<u>EPA/State/Provincial/Texas Waste Codes</u>	U043OUTS301H			
	<u>DOT Ship Information</u>	NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (VINYL CHLORIDE, BUTYL ACRYLATE), 9, PG III			
	<u>Approved Facilities</u>	DE - Deer Park, TX Facility			

Total: 1 Profiles



WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH2580626

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # **OHR000221457** GENERATOR NAME: **Norfolk Southern Railway**
 GENERATOR CODE (Assigned by Clean Harbors) **NO36008** CITY **East Palastine** STATE/PROVINCE **OH** ZIP/POSTAL CODE **44413**
 ADDRESS **MP PC49 RAILROAD TRACKS** PHONE: **(404) 273-4472**
 CUSTOMER CODE (Assigned by Clean Harbors) **NO36007** CUSTOMER NAME: **Norfolk Southern Railway**
 ADDRESS **650 West Peachtree Street Northwest** CITY **Atlanta** STATE/PROVINCE **GA** ZIP/POSTAL CODE **30308**

B. WASTE DESCRIPTION

WASTE DESCRIPTION: **Soil impacted w vinyl chloride (>10x UTS)**

PROCESS GENERATING WASTE: **remediation following train derailment. Chemicals released include unused commercial grade vinyl chloride.**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE	NUMBER OF PHASES/LAYERS				VISCOSITY (If liquid present)	COLOR
	1	2	3	TOP		
<input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID				0.00	1 - 100 (e.g. Water)	brown, black, white
POWDER	% BY VOLUME (Approx.)			MIDDLE	101 - 500 (e.g. Motor Oil)	
MONOLITHIC SOLID				BOTTOM	501 - 10,000 (e.g. Molasses)	
LIQUID WITH NO SOLIDS					> 10,000	
LIQUID/SOLID MIXTURE						
% FREE LIQUID						
% SETTLED SOLID	ODOR				MELTING POINT °F (°C)	TOTAL ORGANIC CARBON
% TOTAL SUSPENDED SOLID	NONE				< 140 (<60)	<= 1%
SLUDGE	<input checked="" type="checkbox"/> MILD				140-200 (60-93)	<input checked="" type="checkbox"/> 1-9%
GAS/AEROSOL	STRONG				<input checked="" type="checkbox"/> > 200 (>93)	>= 10%
	Describe:					
	BOILING POINT °F (°C)					
	<= 95 (<=35)					
	95 - 100 (35-38)					
	101 - 129 (38-54)					
	>= 130 (>54)					
FLASH POINT °F (°C)	pH	SPECIFIC GRAVITY	ASH		BTU/LB (MJ/kg)	
< 73 (<23)	<= 2	< 0.8 (e.g. Gasoline)	< 0.1	> 20	< 2,000 (<4.6)	
73 - 100 (23-38)	2.1 - 6.9	0.8-1.0 (e.g. Ethanol)	0.1 - 1.0	<input checked="" type="checkbox"/> Unknown	<input checked="" type="checkbox"/> 2,000-5,000 (4.6-11.6)	
101 - 140 (38-60)	<input checked="" type="checkbox"/> 7 (Neutral)	1.0 (e.g. Water)	1.1 - 5.0		5,000-10,000 (11.6-23.2)	
141 - 200 (60-93)	7.1 - 12.4	1.0-1.2 (e.g. Antifreeze)	5.1 - 20.0		> 10,000 (>23.2)	
> 200 (>93)	>= 12.5	<input checked="" type="checkbox"/> > 1.2 (e.g. Methylene Chloride)			Actual:	

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
DEBRIS (POLY SHEETING, PPE, WOOD)	0.0000000	5.0000000	%
GRAVEL AND ROCKS (< 3 INCHES)	15.0000000	40.0000000	%
SOIL	60.0000000	85.0000000	%
VINYL CHLORIDE	0.0000000	85.0000000	PPM

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G32** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W301**

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				<input type="checkbox"/>
D005	BARIUM	100.0				<input type="checkbox"/>
D006	CADMIUM	1.0				<input type="checkbox"/>
D007	CHROMIUM	5.0				<input type="checkbox"/>
D008	LEAD	5.0				<input type="checkbox"/>
D009	MERCURY	0.2				<input type="checkbox"/>
D010	SELENIUM	1.0				<input type="checkbox"/>
D011	SILVER	5.0				<input type="checkbox"/>
VOLATILE COMPOUNDS				OTHER CONSTITUENTS		
D018	BENZENE	0.5			MAX	UOM
D019	CARBON TETRACHLORIDE	0.5				NOT APPLICABLE
D021	CHLOROBENZENE	100.0				<input type="checkbox"/>
D022	CHLOROFORM	6.0				<input type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5				<input type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7				<input type="checkbox"/>
D035	METHYL ETHYL KETONE	200.0				<input type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7				<input type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5				<input type="checkbox"/>
D043	VINYL CHLORIDE	0.2				<input type="checkbox"/>
SEMI-VOLATILE COMPOUNDS				OTHER CONSTITUENTS		
D023	o-CRESOL	200.0				<input type="checkbox"/>
D024	m-CRESOL	200.0				<input type="checkbox"/>
D025	p-CRESOL	200.0				<input type="checkbox"/>
D026	CRESOL (TOTAL)	200.0				<input type="checkbox"/>
D027	1,4-DICHLOROBENZENE	7.5				<input type="checkbox"/>
D030	2,4-DINITROTOLUENE	0.13				<input type="checkbox"/>
D032	HEXACHLOROBENZENE	0.13				<input type="checkbox"/>
D033	HEXACHLOROBUTADIENE	0.5				<input type="checkbox"/>
D034	HEXACHLOROETHANE	3.0				<input type="checkbox"/>
D036	NITROBENZENE	2.0				<input type="checkbox"/>
D037	PENTACHLOROPHENOL	100.0				<input type="checkbox"/>
D038	PYRIDINE	5.0				<input type="checkbox"/>
D041	2,4,5-TRICHLOROPHENOL	400.0				<input type="checkbox"/>
D042	2,4,6-TRICHLOROPHENOL	2.0				<input type="checkbox"/>
PESTICIDES AND HERBICIDES				HOCs		
D012	ENDRIN	0.02				<input checked="" type="checkbox"/> NONE
D013	LINDANE	0.4				<input type="checkbox"/> < 1000 PPM
D014	METHOXYCHLOR	10.0				<input type="checkbox"/> >= 1000 PPM
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				
ADDITIONAL HAZARDS				PCBs		
DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?				<input checked="" type="checkbox"/> NONE		
YES <input checked="" type="checkbox"/> NO (If yes, explain)				< 50 PPM		
CHOOSE ALL THAT APPLY				>=50 PPM		
DEA REGULATED SUBSTANCES				IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?		
EXPLOSIVE				YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		
FUMING						
POLYMERIZABLE						
RADIOACTIVE						
REACTIVE MATERIAL						
OSHA REGULATED CARCINOGENS						
NONE OF THE ABOVE						

Addendum

D. COMPOSITION

F. REGULATORY STATUS



1250 St. George Street
East Liverpool, Ohio 43920-3400

Telephone 330-385-7336
Telefax 330-385-7813

February 26, 2023

DAN HUNT
NORFOLK SOUTHERN RAILWAY CORP
650 W PEACHTREE ST NW # 13
ATLANTA, GA 30308-1925
UNITED STATES

RE: Generator ID Number : 224090
Wastestream : 224090-1
Waste Name : SOIL WITH VINYL CHLORIDE

Dear Dan Hunt:

In compliance with OAC 3745-54-12(B), we are notifying you that we are fully permitted to store and/or treat your waste. We will accept wastestream 224090-1 as reviewed and approved by Heritage Thermal Services, Inc. (HTS).

We at HTS look forward to the opportunity to serve you.

Sincerely,

A handwritten signature in black ink that reads "Christopher T. Pherson". The signature is written in a cursive, flowing style.

Christopher T. Pherson, President



WASTESTREAM SURVEY FORM • (877) 436-8778

www.heritage-emails.com

Please review instructions before completing this form.

Heritage Use Only Quote#	WS #
Business Type: Repeatable: <input type="checkbox"/>	Non-Repeatable: <input checked="" type="checkbox"/>
Product Code: 8033	

TSD: Coolidge, AZ Indianapolis, IN Kansas City, MO Roachdale, IN HTT Orange, TX HTS Rineco

1. GENERATOR SITE INFORMATION (Heritage # 224090)	2. BILLING INFORMATION (Heritage # 189479)
Generator Name: NORFOLK SOUTHERN RAILWAY CORP <i>COMPANY</i>	Customer Name: GREEN ROCK STRATEGIES LLC
Address: MP PC49 R/R TRACKS, NE OF N PLEASANT DR	Address: 1640 MEETING STREET RD
City, State: EAST PALESTINE, OH	City, State: CHARLESTON, SC
Zip, County: 44413	Zip, County: 29405
Tech. Contact Name: DAN HUNT	Contact Name: ACCOUNTS PAYABLE
Phone: 404 273-4472 Fax:	Phone: 843 697-5709 Fax:
24 HR Emergency No.: 800 326-1221	Email Address:
24 HR Emergency Contact: HERITAGE	ACCOUNTSPAYABLE@GREENROCK.COM
Email Address:	

3. MANIFEST MAIL ADDRESS (If different from generator)
Contact Name: DAN HUNT
Company Name: NORFOLK SOUTHERN RAILWAY CORP
Address: 650 W PEACHTREE ST NW, BOX 13
City, State, Zip: ATLANTA, GA 30308
US EPA ID Number: OHR 000 221 457
State ID Numbers:
Generator SIC/NAICS Code: 48211
Generator Status: LQG <input checked="" type="checkbox"/> SQG <input type="checkbox"/> CESQG/VSQG <input type="checkbox"/> Non-Hazardous <input type="checkbox"/>

4. Common Name: SOIL WITH VINYL CHLORIDE & BUTYL ACRYLATE

5. Process Generating Waste: REMEDIATION OF TRAIN DERAILMENT SITE

6. DOT Description: NA3077, HAZARDOUS WASTE, SOLID, NOS (VINYL CHLORIDE, BUTYL ACRYLATE), 9, PG III

7. Wastestream/Generator Information: Episodic Generation Originates from CERCLA Activity Originates in a Foreign Country NA
 EPA Import/Export Consent ID: Foreign Address (if different from 1. above):

8. Identify US EPA Hazardous Waste Codes: U043

9. Identify State Waste Codes: U043

10. Universal Waste? Federal Yes No State Yes No Identify Type:

11. D001-D043, F001-F005, or F039 underlying or hazardous constituents present? Yes No NA If yes, list in Section 13.

12. US EPA Form Code: W301 **US EPA Source Code:** G32

13. Waste Composition: Using specific chemical names, when applicable, and/or non-chemical descriptions of the entire waste composition, list all constituents present in the wastestream, and identify those that are underlying hazardous constituents (UHCs), or F001-F005/F039 hazardous constituents. Attach available analysis or SDS. Total composition must equal or exceed 100%. Waste composition based on Generator/Process Knowledge (GK) and/or Laboratory Data (LD). Check where applicable.

Constituents	LD	GK	CAS Number	Conc.	Range	Units	UHC?	F-Listed?
SOIL	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			60-85	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
GRAVEL (RAIL BALLAST)	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			15-40	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
VINYL CHLORIDE	Yes <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>			0 - 59	MG/KG	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
POLY SHEETING	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			0-5	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
ROCKS (<4")	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			0-5	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>					Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>					Yes <input type="checkbox"/>	Yes <input type="checkbox"/>

14. Color: VARIES **Odor:** SLIGHT

15a. Chemical Properties		15b. Physical Properties at 70°F			
Flash Point (F°)	BTU/lb Range	Solid <input checked="" type="checkbox"/>	Free Liquids/Fail Paint Filter?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<73 <input type="checkbox"/>	Low 500	Liquid <input type="checkbox"/>	Will Waste dump out of drums?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
73-<100 <input type="checkbox"/>	High 6000	Sludge <input type="checkbox"/>	Is the waste pumpable?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100-<140 <input type="checkbox"/>	pH Range	Semi-Solid <input type="checkbox"/>	Liquid waste Clog 1/16 nozzle	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
140-<200 <input type="checkbox"/>	Low 5	Powder <input type="checkbox"/>	Will heat improve flow?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
>200 <input checked="" type="checkbox"/>	High 11	Gas <input type="checkbox"/>	Debris? (List type in Section 13)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
			Dust Hazard?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Boiling Point (F°)	Density/Specific Gravity 1.1 - 1.5	%Solids 100	%Liquids 0		
<100 <input type="checkbox"/>	Units TON / CY	Fluid Viscosity Low <input type="checkbox"/> (water) Medium <input type="checkbox"/> (motor oil) High <input type="checkbox"/> (honey) Highest <input type="checkbox"/> (grease) N/A <input checked="" type="checkbox"/>			
>100 <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Layers Single <input checked="" type="checkbox"/> Bi-Layered <input type="checkbox"/> Multi <input type="checkbox"/>			

Common Name (same as Section # 5) SOIL WITH VINYL CHLORIDE & BUTYL ACRYLATE			
16. Check all that apply. Marking any of these may require additional documentation or follow up information for approval.			
16a. Potential High Hazards	Air Reactive <input type="checkbox"/>	Autoignitable <input type="checkbox"/>	Cyanide <input type="checkbox"/>
Metal Fines <input type="checkbox"/>	Metal Powders <input type="checkbox"/>	Organic Peroxides <input type="checkbox"/>	Causes Cyanosis <input type="checkbox"/>
Pyrophoric <input type="checkbox"/>	Self-Heating <input type="checkbox"/>	Shock Sensitive <input type="checkbox"/>	Oxidizers <input type="checkbox"/>
Temp. Control Required <input type="checkbox"/>	Temp Sensitive <input type="checkbox"/>	Water Reactive <input type="checkbox"/>	Spontaneously Combustible <input type="checkbox"/>
16b. Other Properties	Aerosols <input type="checkbox"/>	Ammonia <input type="checkbox"/>	Asbestos <input type="checkbox"/>
Chelating Agent <input type="checkbox"/>	Compressed Gas <input type="checkbox"/>	DEA Controlled Substance <input type="checkbox"/>	Dioxins, Furans <input type="checkbox"/>
Insecticide <input type="checkbox"/>	Lab Pack <input type="checkbox"/>	Medical <input type="checkbox"/>	Pathogen/Infectious <input type="checkbox"/>
Pharmaceutical/Alcohol <input type="checkbox"/>	Polymerizable <input type="checkbox"/>	Radioactive <input type="checkbox"/>	Sanitary/Biological <input type="checkbox"/>
			Explosive <input type="checkbox"/>
			Peroxide Forming <input type="checkbox"/>
			Sulfide <input type="checkbox"/>
			Not Applicable <input checked="" type="checkbox"/>
16c. Used oil? (40 CFR 279)			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Used Oil mixed with hazardous waste?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Total Halogens (TX) concentration?		< 1000 PPM <input type="checkbox"/>	> 1000 PPM <input type="checkbox"/>
16d. PCBs? (40 CFR 761)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, PCB concentration? (PPM)	0-49 <input type="checkbox"/> 50-499 <input type="checkbox"/> >=500 <input type="checkbox"/>
16e. Subject to Subpart CC? (40 CFR 264/5, 1080-1091, LQG 26 gal, 500ppmw VOC)			Yes <input type="checkbox"/> No <input type="checkbox"/>
16f. Is this an Oil Like Material subject to requirements of 40 CFR Part 112?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16g. If SIC 28, 2911, 3312, or 4953, what is the Total Annual Benzene (TAB) in Megagrams/year?			N/A
If 3312, Generated from Coke Oven Byproduct Recovery Operations?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Subject to Benzene NESHAP controls? (40 CFR 61.340-358)			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Benzene Concentration 10 PPM or more?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Greater than 10% moisture?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16h. Is this waste subject to NESHAP controls for transfer offsite or to another company for management? If yes, identify NESHAP.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16i. Do any regulatory exclusions/exemptions apply? If yes, provide reference information.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16j. Additional Comments/Special Waste Type. Explain			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16k. Does this material require any special handling related to employee safety, storage conditions, spill clean-up, sampling, etc.? If yes, explain.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16l. Is this material overpacked or in a salvage container? If yes, explain.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16m. Is this material designated as a DOT Poison Inhalation Hazard?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16n. Does the packaging have inner containers? If yes, explain.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16o. Does this material have potential to build pressure in the container? If yes, explain.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16p. Have the containers been stored outside? If yes, condition of containers?			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16q. Has this material been rejected by another facility? If yes, explain.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
16r. Does this waste have any undisclosed hazards or prior incidents associated with it, which could affect the way it should be handled? If yes, attach detailed explanation.			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
17. Transporter: Heritage Transport <input checked="" type="checkbox"/> Other (complete below) <input type="checkbox"/>	18. Packaging		
Transporter Name: _____	Bulk Liquid <input type="checkbox"/>	Size _____ Cylinder <input type="checkbox"/>	Size _____ Tote (Metal) <input type="checkbox"/>
Address: _____	Bulk Solid <input checked="" type="checkbox"/>	DT / IM _____ Drum <input type="checkbox"/>	Size _____ Tote (Poly) <input type="checkbox"/>
City, State, Zip _____	Cu Yd Bag/Box <input type="checkbox"/>		
Contact/Phone _____	19. Volume: 22 T / Shipment 1000 T / Year		
US EPA ID No. _____	20. Check or list attachments: Lab Data <input checked="" type="checkbox"/> Cylinder Forms <input type="checkbox"/> Packing List <input type="checkbox"/>		
	SDS <input type="checkbox"/> Other (list) <input type="checkbox"/>		
21. COMPLETE THIS SECTION FOR NON-HAZARDOUS MATERIAL		21a. Is this waste a listed waste? (U, P, K, or F codes)? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
21b. This waste is not characteristically hazardous for D001-D043 based on attached lab data (LD), attached Safety Data Sheet (SDS), or generator knowledge (GK).			
	TCLP VOLATILES	TCLP SEMI-VOLATILES	HERBICIDES & PESTICIDES
D001 (Ignitability) _____	D018 Benzene _____	D023 o-Cresol _____	D012 Endrin _____
D002 (Corrosivity) _____	D019 Carbon Tetrachloride _____	D024 m-Cresol _____	D013 Lindane _____
D003 (Reactivity) _____	D021 Chlorobenzene _____	D025 p-Cresol _____	D014 Methoxychlor _____
	D022 Chloroform _____	D026 Cresol _____	D015 Toxaphene _____
TCLP METALS	D028 1,2-Dichloroethane _____	D027 1,4-Dichlorobenzene _____	D016 2,4-D _____
D004 Arsenic _____	D029 1,1-Dichloroethylene _____	D030 2,4-Dinitrotoluene _____	D017 2,4,5-TP (Silvex) _____
D005 Barium _____	D035 Methyl Ethyl Ketone _____	D032 Hexachlorobenzene _____	D020 Chlordane _____
D006 Cadmium _____	D039 Tetrachloroethylene _____	D033 Hexachlorobutadiene _____	D031 Heptachlor _____
D007 Chromium _____	D040 Trichloroethylene _____	D034 Hexachloroethane _____	
D008 Lead _____	D043 Vinyl Chloride _____	D036 Nitrobenzene _____	
D009 Mercury _____		D037 Pentachlorophenol _____	
D010 Selenium _____		D038 Pyridine _____	
D011 Silver _____		D041 2,4,5-Trichlorophenol _____	
		D042 2,4,6-Trichlorophenol _____	

Common Name (Same as Section # 5) **SOIL WITH VINYL CHLORIDE & BUTYL ACRYLATE**

22. CERTIFICATION: Sign and date the certification. I hereby certify that I am an authorized agent of the generator, and warrant on behalf of the generator, that all information submitted herein and attached documentation contains true, accurate and complete descriptions of this material. Any sample submitted for analysis or attached laboratory data is representative of the material being offered for approval. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I will notify Heritage Environmental Services, LLC, Heritage Thermal Services, Inc., Rineco Chemical Industries, LLC, or Heritage Thermal of Texas, LLC of any changes in generator status, any information on this form, or any information on the attachments. This certification and signature apply to this form, to all attachments checked in section 20, and to the land disposal restriction notification (LDR) generated from this information. For Lab Packs only: To the best of my knowledge, all labels on the inner and outer containers, and all information recorded on the packing inventory sheet for each Lab Pack, correctly identifies the contained chemicals where testing has been necessary to characterize material in the lab pack. I have used test methods equivalent to those specified in the Permittee's current operating permit Lab Pack Procedure.

Signature: 

Printed Name: Robert Scoble

Date: 2/24/23

Company: NORTHEASTERN RAILWAY CORP



Profile Summary Report

Generator	NO35969	NORFOLK SOUTHERN RAILWAY COMPANY	MP PC49 RAILROAD TRACKS NE OF intersection N PLEASANT DR TAGGART RD	EAST PALESTINE	OH	44413
Customer	NO35943	Norfolk Southern Corporation	127 Reed Drive	Jefferson Hill	PA	15025

<u>Waste Description</u>	<u>Waste Classification Codes</u>	<u>Profile Type</u>	<u>Approval Status</u>	<u>Exp. Date</u>
Soil impacted w vinyl chloride & butyl acrylate (<10x UTS)	CBPR	W	Approved	3/8/2024
<u>EPA/State/Provincial/Texas Waste Codes</u>	U043			
<u>DOT Ship Information</u>	NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (VINYL CHLORIDE, BUTYL ACRYLATE), 9, PG III			
<u>Approved Facilities</u>	DR - Deer Trail, CO Facility			



WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH2567444-DR

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION #	OHR000221457	GENERATOR NAME:	NORFOLK SOUTHERN RAILWAY COMPANY
GENERATOR CODE (Assigned by Clean Harbors)	NO35969	CITY	EAST PALESTINE
ADDRESS	MP PC49 RAILROAD TRACKS NE OF intersection	STATE/PROVINCE	OH ZIP/POSTAL CODE 44413
CUSTOMER CODE (Assigned by Clean Harbors)	NO35943	PHONE:	(412) 614-1624
ADDRESS	127 Reed Drive	CUSTOMER NAME:	Norfolk Southern Corporation
		CITY	Jefferson Hill
		STATE/PROVINCE	PA ZIP/POSTAL CODE 15025

B. WASTE DESCRIPTION

WASTE DESCRIPTION: **Soil impacted w vinyl chloride & butyl acrylate (<10x UTS)**

PROCESS GENERATING WASTE: **remediation following train derailment**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE <input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	NUMBER OF PHASES/LAYERS 1 2 3 TOP 0.00 % BY VOLUME (Approx.) MIDDLE 0.00 BOTTOM 0.00				VISCOSITY (If liquid present) 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000	COLOR <u>brown,</u> <u>black,</u> <u>white</u>
	ODOR NONE <input checked="" type="checkbox"/> MILD STRONG Describe:	BOILING POINT °F (°C) <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) >= 130 (>54)		MELTING POINT °F (°C) < 140 (<60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (>93)		
FLASH POINT °F (°C) < 73 (<23) 73 - 100 (23-38) 101 -140 (38-60) 141 -200 (60-93) > 200 (>93)	pH <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5	SPECIFIC GRAVITY < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) <input checked="" type="checkbox"/> > 1.2 (e.g. Methylene Chloride)	ASH < 0.1 0.1 - 1.0 1.1 - 5.0 5.1 - 20.0 <input checked="" type="checkbox"/> > 20 <input checked="" type="checkbox"/> Unknown		BTU/LB (MJ/kg) < 2,000 (<4.6) <input checked="" type="checkbox"/> 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2) Actual:	

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
BUTYL ACRYLATE	0.0000000	250.0000000	PPM
DEBRIS (POLY SHEETING, PPE, WOOD)	0.0000000	5.0000000	%
DIOXINS	0.0000000	0.0000000	PPB
GRAVEL AND ROCKS (< 3 INCHES)	15.0000000	40.0000000	%
SOIL	60.0000000	85.0000000	%
VINYL CHLORIDE	0.0000000	59.0000000	PPM

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G32** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W301**

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE	
D004	ARSENIC	5.0				<input checked="" type="checkbox"/>	
D005	BARIUM	100.0				<input checked="" type="checkbox"/>	
D006	CADMIUM	1.0				<input checked="" type="checkbox"/>	
D007	CHROMIUM	5.0				<input checked="" type="checkbox"/>	
D008	LEAD	5.0				<input checked="" type="checkbox"/>	
D009	MERCURY	0.2				<input checked="" type="checkbox"/>	
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>	
D011	SILVER	5.0				<input checked="" type="checkbox"/>	
VOLATILE COMPOUNDS			OTHER CONSTITUENTS		MAX	UOM	NOT APPLICABLE
D018	BENZENE	0.5		BROMINE			<input checked="" type="checkbox"/>
D019	CARBON TETRACHLORIDE	0.5		CHLORINE			<input checked="" type="checkbox"/>
D021	CHLOROBENZENE	100.0		FLUORINE			<input checked="" type="checkbox"/>
D022	CHLOROFORM	6.0		IODINE			<input checked="" type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5		SULFUR			<input checked="" type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7		POTASSIUM			<input checked="" type="checkbox"/>
D035	METHYL ETHYL KETONE	200.0		SODIUM			<input checked="" type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7		AMMONIA			<input checked="" type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5		CYANIDE AMENABLE			<input checked="" type="checkbox"/>
D043	VINYL CHLORIDE	0.2		CYANIDE REACTIVE			<input checked="" type="checkbox"/>
SEMI-VOLATILE COMPOUNDS							
D023	o-CRESOL	200.0		CYANIDE TOTAL			<input checked="" type="checkbox"/>
D024	m-CRESOL	200.0		SULFIDE REACTIVE			<input checked="" type="checkbox"/>
D025	p-CRESOL	200.0					
D026	CRESOL (TOTAL)	200.0					
D027	1,4-DICHLOROBENZENE	7.5					
D030	2,4-DINITROTOLUENE	0.13					
D032	HEXACHLOROBENZENE	0.13					
D033	HEXACHLOROBUTADIENE	0.5					
D034	HEXACHLOROETHANE	3.0					
D036	NITROBENZENE	2.0					
D037	PENTACHLOROPHENOL	100.0					
D038	PYRIDINE	5.0					
D041	2,4,5-TRICHLOROPHENOL	400.0					
D042	2,4,6-TRICHLOROPHENOL	2.0					
PESTICIDES AND HERBICIDES							
D012	ENDRIN	0.02					
D013	LINDANE	0.4					
D014	METHOXYCHLOR	10.0					
D015	TOXAPHENE	0.5					
D016	2,4-D	10.0					
D017	2,4,5-TP (SILVEX)	1.0					
D020	CHLORDANE	0.03					
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008					

HOCs <input checked="" type="checkbox"/> NONE <input type="checkbox"/> < 1000 PPM <input type="checkbox"/> >= 1000 PPM	PCBs <input checked="" type="checkbox"/> NONE <input type="checkbox"/> < 50 PPM <input type="checkbox"/> >=50 PPM IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
--	---

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES NO (If yes, explain)

CHOOSE ALL THAT APPLY

- | | | | |
|--------------------------|-------------|-------------------|---|
| DEA REGULATED SUBSTANCES | EXPLOSIVE | FUMING | OSHA REGULATED CARCINOGENS |
| POLYMERIZABLE | RADIOACTIVE | REACTIVE MATERIAL | <input checked="" type="checkbox"/> NONE OF THE ABOVE |



F. REGULATORY STATUS

YES NO USEPA HAZARDOUS WASTE? U043
YES NO DO ANY STATE WASTE CODES APPLY?
Texas Waste Code
YES NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?
YES NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
LDR CATEGORY: VARIANCE INFO: Alternate Soil Std-meets std. (with listed hazardous waste only)
YES NO IS THIS A UNIVERSAL WASTE?
YES NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS A VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?
YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?
YES NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?
YES NO IS THIS WASTE STREAM PROHIBITED FROM INCINERATION BASED ON THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?
YES NO IS THIS WASTE STREAM "USED OIL" WHICH IS TO BE MANAGED UNDER 40 CFR PART 279 - STANDARDS FOR THE MANAGEMENT OF USED OIL?
YES NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?
YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?
YES NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 76.6 KPA (11.1 PSIA)?
YES NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?
YES NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?
Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)
YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?
YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?
YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?
What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)
The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing
Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:
NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (VINYL CHLORIDE, BUTYL ACRYLATE), 9, PG III

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY [X] ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

CONTAINERIZED 0-0 CONTAINERS/SHIPMENT STORAGE CAPACITY: CONTAINER TYPE: PORTABLE TOTE TANK BOX|CARTON|CASE CUBIC YARD BOX DRUM OTHER: DRUM SIZE:
BULK LIQUID GALLONS/SHIPMENT: 0 Min -0 Max GAL.
BULK SOLID [X] SHIPMENT UOM: [X] TON YARD TONS/YARDS/SHIPMENT: 5000.00 Min - 30000.00 Max

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT) Robert J. Scoble

TITLE Mgr. Env Ops

DATE 3/24/2023

*40 CFR Sec. 264.12 required notice:

As required by Federal Resource Conservation and Recovery Act regulations found in 40 CFR Part 264.12(b) and all equivalent State hazardous waste regulations, notice is hereby provided that all Clean Harbors facilities that may be used to treat, store, and /or dispose of the hazardous waste described on this waste profile have the appropriate permits and the capacity to manage these wastes.



Please note this profile must be submitted for re-evaluation if there has been a change in the waste generating process or when there have been changes in the chemical composition or physical characteristics of the material.

Addendum

D. COMPOSITION

F. REGULATORY STATUS



Corporate Headquarters
6510 Telecom Drive, Suite 400
Indianapolis, Indiana 46278

Service Location
HERITAGE ENVIRONMENTAL
SERVICES
4370 W COUNTY ROAD 1275 N

February 28, 2023

DAN HUNT
NORFOLK SOUTHERN RAILWAY CORP
650 W PEACHTREE ST NW # 13
ATLANTA, GA 30308-1925
UNITED STATES

RE: Generator ID Number : 224090
Wastestream : 224090-2
Waste Name : SOIL WITH VINYL CHLORIDE & BUTYL ACRYLAT

Dear Dan Hunt:

Heritage Environmental Services, LLC is notifying you, in accordance with 40 CFR Part 264.12(b) and equivalent State regulation, that we have the appropriate permits for treating, storing, or disposing of your hazardous waste. We will accept wastestream 224090-2 based on the information provided that was reviewed and approved by Heritage Environmental Services, LLC.

If there are any changes that occur at your facility or to the waste that has been approved that would affect the shipping, safe handling, or a regulatory classification, please provide an appropriate notice to Heritage concerning the waste approved for acceptance.

Thank you for your business.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ernest Walker", is written over a light blue horizontal line.

Ernest Walker, President



WASTESTREAM SURVEY FORM • (877) 436-8778

www.heritage-environment.com

Please review instructions before completing this form.

Heritage Use Only Quote#	WS #
Business Type: Repeatable: <input type="checkbox"/>	Non-Repeatable: <input checked="" type="checkbox"/>
Product Code: 211	

TSD: Coolidge, AZ Indianapolis, IN Kansas City, MO Roachdale, IN HTT Orange, TX HTS Rinco

1. GENERATOR SITE INFORMATION (Heritage # 224090) Generator Name: NORFOLK SOUTHERN RAILWAY CORP COMPANY <i>NO</i> Address: MP PC49 R/R TRACKS, NE OF N PLEASANT DR City, State: EAST PALESTINE, OH Zip, County: 44413 Tech. Contact Name: DAN HUNT Phone: 404 273-4472 Fax: 24 HR Emergency No.: 800 326-1221 24 HR Emergency Contact: HERITAGE Email Address: US EPA ID Number: OHR 000 221 457 State ID Numbers: Generator SIC/NAICS Code: 48211	2. BILLING INFORMATION (Heritage # 189479) Customer Name: GREEN ROCK STRATEGIES LLC Address: 1640 MEETING STREET RD City, State: CHARLESTON, SC Zip, County: 29405 Contact Name: ACCOUNTS PAYABLE Phone: 843 697-5709 Fax: Email Address: ACCOUNTSPAYABLE@GREENROCK.COM
3. MANIFEST MAIL ADDRESS (If different from generator) Contact Name: DAN HUNT Company Name: NORFOLK SOUTHERN RAILWAY CORP Address: 650 W PEACHTREE ST NW, BOX 13 City, State, Zip: ATLANTA, GA 30308	

Generator Status: LQG SQG CESQG/VSQG Non-Hazardous

4. Common Name: SOIL WITH VINYL CHLORIDE & BUTYL ACRYLATE – MEETS 10X UTS

5. Process Generating Waste: REMEDIATION OF TRAIN DERAILMENT SITE

6. DOT Description: NA3077, HAZARDOUS WASTE, SOLID, NOS (VINYL CHLORIDE, BUTYL ACRYLATE), 9, PG III

7. Wastestream/Generator Information: Episodic Generation Originates from CERCLA Activity Originates in a Foreign Country NA
EPA Import/Export Consent ID: Foreign Address (if different from 1. above):

8. Identify US EPA Hazardous Waste Codes: U043

9. Identify State Waste Codes: U043

10. Universal Waste? Federal Yes No State Yes No Identify Type:

11. D001-D043, F001-F005, or F039 underlying or hazardous constituents present? Yes No NA If yes, list in Section 13.

12. US EPA Form Code: W301 US EPA Source Code: G32

13. Waste Composition: Using specific chemical names, when applicable, and/or non-chemical descriptions of the entire waste composition, list all constituents present in the wastestream, and identify those that are underlying hazardous constituents (UHCs), or F001-F005/F039 hazardous constituents. Attach available analysis or SDS. Total composition must equal or exceed 100%. Waste composition based on Generator/Process Knowledge (GK) and/or Laboratory Data (LD). Check where applicable.

Constituents	LD	GK	CAS Number	Conc.	Range	Units	UHC?	F-Listed?
SOIL	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			60-85	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
GRAVEL (RAIL BALLAST)	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			15-40	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
VINYL CHLORIDE	Yes <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>			0-59	MG/KG	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
POLY SHEETING	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			0-5	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
ROCKS	Yes <input type="checkbox"/>	Yes <input checked="" type="checkbox"/>			0-5	%	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>					Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>					Yes <input type="checkbox"/>	Yes <input type="checkbox"/>


14. Color: VARIES Odor: SLIGHT

15a. Chemical Properties		15b. Physical Properties at 70°F			
Flash Point (F°)	BTU/lb Range	Solid <input checked="" type="checkbox"/>	Free Liquids/Fail Paint Filter?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<73 <input type="checkbox"/>	Low 500	Liquid <input type="checkbox"/>	Will Waste dump out of drums?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
73-<100 <input type="checkbox"/>	High 3000	Sludge <input type="checkbox"/>	Is the waste pumpable?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
100-<140 <input type="checkbox"/>	pH Range	Semi-Solid <input type="checkbox"/>	Liquid waste Clog 1/16 nozzle	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
140-<200 <input type="checkbox"/>	Low 5	Powder <input type="checkbox"/>	Will heat improve flow?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
>200 <input checked="" type="checkbox"/>	High 11	Gas <input type="checkbox"/>	Debris? (List type in Section 13)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
			Dust Hazard?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Boiling Point (F°)	Density/Specific Gravity 1.1 – 1.5	%Solids 100	%Liquids 0		
<100 <input type="checkbox"/>	Units TON / CY	Fluid Viscosity Low <input type="checkbox"/> (water) Medium <input type="checkbox"/> (motor oil) High <input type="checkbox"/> (honey) Highest <input type="checkbox"/> (grease) N/A <input checked="" type="checkbox"/>			
>100 <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Layers Single <input checked="" type="checkbox"/> Bi-Layered <input type="checkbox"/> Multi <input type="checkbox"/>			

Common Name (same as Section # 5) SOIL WITH VINYL CHLORIDE & BUTYL ACRYLATE										
16. Check all that apply. Marking any of these may require additional documentation or follow up information for approval.										
16a. Potential High Hazards	Air Reactive <input type="checkbox"/>	Autoignitable <input type="checkbox"/>	Cyanide <input type="checkbox"/>	Explosive <input type="checkbox"/>	Metal Fines <input type="checkbox"/>	Metal Powders <input type="checkbox"/>	Organic Peroxides <input type="checkbox"/>	Causes Cyanosis <input type="checkbox"/>	Peroxide Forming <input type="checkbox"/>	
	Pyrophoric <input type="checkbox"/>	Self-Heating <input type="checkbox"/>	Shock Sensitive <input type="checkbox"/>	Oxidizers <input type="checkbox"/>	Sulfide <input type="checkbox"/>	Temp. Control Required <input type="checkbox"/>	Temp Sensitive <input type="checkbox"/>	Water Reactive <input type="checkbox"/>	Spontaneously Combustible <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>
16b. Other Properties	Aerosols <input type="checkbox"/>	Ammonia <input type="checkbox"/>	Asbestos <input type="checkbox"/>	Carcinogen <input type="checkbox"/>	Chelating Agent <input type="checkbox"/>	Compressed Gas <input type="checkbox"/>	DEA Controlled Substance <input type="checkbox"/>	Dioxins, Furans <input type="checkbox"/>	Herbicide <input type="checkbox"/>	
	Insecticide <input type="checkbox"/>	Lab Pack <input type="checkbox"/>	Medical <input type="checkbox"/>	Pathogen/Infectious <input type="checkbox"/>	Pesticide <input type="checkbox"/>	Pharmaceutical/Alcohol <input type="checkbox"/>	Polymerizable <input type="checkbox"/>	Radioactive <input type="checkbox"/>	Sanitary/Biological <input type="checkbox"/>	Sharps <input type="checkbox"/>
				Not Applicable <input checked="" type="checkbox"/>						
16c. Used oil? (40 CFR 279)								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Used Oil mixed with hazardous waste?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Total Halogens (TX) concentration?								< 1000 PPM <input type="checkbox"/>	> 1000 PPM <input type="checkbox"/>	
16d. PCBs? (40 CFR 761)		Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	If yes, PCB concentration? (PPM)		0-49 <input type="checkbox"/>	50-499 <input type="checkbox"/>	>=500 <input type="checkbox"/>		
16e. Subject to Subpart CC? (40 CFR 264/5, 1080-1091, LQG 26 gal, 500ppmw VOC)								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16f. Is this an Oil Like Material subject to requirements of 40 CFR Part 112?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16g. If SIC 28 __, 2911, 3312, or 4953, what is the Total Annual Benzene (TAB) in Megagrams/year?								N/A		
If 3312, Generated from Coke Oven Byproduct Recovery Operations?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Subject to Benzene NESHAP controls? (40 CFR 61.340-358)								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Benzene Concentration 10 PPM or more?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Greater than 10% moisture?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16h. Is this waste subject to NESHAP controls for transfer offsite or to another company for management? If yes, identify NESHAP.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
NESHAP										
16i. Do any regulatory exclusions/exemptions apply? If yes, provide reference information.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16j. Additional Comments/Special Waste Type. Explain 40 CFR 268.49								Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
16k. Does this material require any special handling related to employee safety, storage conditions, spill clean-up, sampling, etc.? If yes, explain.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16l. Is this material overpacked or in a salvage container? If yes, explain.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16m. Is this material designated as a DOT Poison Inhalation Hazard?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16n. Does the packaging have inner containers? If yes, explain.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16o. Does this material have potential to build pressure in the container? If yes, explain.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16p. Have the containers been stored outside? If yes, condition of containers?								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16q. Has this material been rejected by another facility? If yes, explain.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
16r. Does this waste have any undisclosed hazards or prior incidents associated with it, which could affect the way it should be handled? If yes, attach detailed explanation.								Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
17. Transporter:		Heritage Transport <input checked="" type="checkbox"/>	Other (complete below) <input type="checkbox"/>	18. Packaging		Size		Size		
Transporter Name:				Bulk Liquid <input type="checkbox"/>	Cylinder <input type="checkbox"/>	Tote (Metal) <input type="checkbox"/>				
Address:				Bulk Solid <input checked="" type="checkbox"/>	DT / IM Drum <input type="checkbox"/>	Tote (Poly) <input type="checkbox"/>				
City, State, Zip				Cu Yd Bag/Box <input type="checkbox"/>						
Contact/Phone				19. Volume:		22 T / Shipment		1000 T / Year		
US EPA ID No.				20. Check or list attachments:		Lab Data <input checked="" type="checkbox"/>	Cylinder Forms <input type="checkbox"/>	Packing List <input type="checkbox"/>		
						SDS <input type="checkbox"/>	Other (list) <input type="checkbox"/>			
21. COMPLETE THIS SECTION FOR NON-HAZARDOUS MATERIAL					21a. Is this waste a listed waste? (U, P, K, or F codes)?					
					Yes <input checked="" type="checkbox"/>					
					No <input type="checkbox"/>					
21b. This waste is not characteristically hazardous for D001-D043 based on attached lab data (LD), attached Safety Data Sheet (SDS), or generator knowledge (GK).										
		TCLP VOLATILES			TCLP SEMI-VOLATILES			HERBICIDES & PESTICIDES		
D001 (Ignitability)		D018 Benzene		D023 o-Cresol		D012 Endrin				
D002 (Corrosivity)		D019 Carbon Tetrachloride		D024 m-Cresol		D013 Lindane				
D003 (Reactivity)		D021 Chlorobenzene		D025 p-Cresol		D014 Methoxychlor				
		D022 Chloroform		D026 Cresol		D015 Toxaphene				
TCLP METALS		D028 1,2-Dichloroethane		D027 1,4-Dichlorobenzene		D016 2,4-D				
D004 Arsenic		D029 1,1-Dichloroethylene		D030 2,4-Dinitrotoluene		D017 2,4,5-TP (Silvex)				
D005 Barium		D035 Methyl Ethyl Ketone		D032 Hexachlorobenzene		D020 Chlordane				
D006 Cadmium		D039 Tetrachloroethylene		D033 Hexachlorobutadiene		D031 Heptachlor				
D007 Chromium		D040 Trichloroethylene		D034 Hexachloroethane						
D008 Lead		D043 Vinyl Chloride		D036 Nitrobenzene						
D009 Mercury				D037 Pentachlorophenol						
D010 Selenium				D038 Pyridine						
D011 Silver				D041 2,4,5-Trichlorophenol						
				D042 2,4,6-Trichlorophenol						

Common Name (Same as Section # 5) **SOIL WITH VINYL CHLORIDE & BUTYL ACRYLATE**

22. CERTIFICATION: Sign and date the certification. I hereby certify that I am an authorized agent of the generator, and warrant on behalf of the generator, that all information submitted herein and attached documentation contains true, accurate and complete descriptions of this material. Any sample submitted for analysis or attached laboratory data is representative of the material being offered for approval. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I will notify Heritage Environmental Services, LLC, Heritage Thermal Services, Inc., Rineco Chemical Industries, LLC, or Heritage Thermal of Texas, LLC of any changes in generator status, any information on this form, or any information on the attachments. This certification and signature apply to this form, to all attachments checked in section 20, and to the land disposal restriction notification (LDR) generated from this information. For Lab Packs only: To the best of my knowledge, all labels on the inner and outer containers, and all information recorded on the packing inventory sheet for each Lab Pack, correctly identifies the contained chemicals where testing has been necessary to characterize material in the lab pack. I have used test methods equivalent to those specified in the Permittee's current operating permit Lab Pack Procedure.

Signature:  Printed Name: Robert Seible Date: 2/24/23 Company: AMERICAN RASDAQ CORP



March 28, 2023

Daniel Hunt, P.G.
Norfolk Southern
650 West Peachtree Street NW
Atlanta, GA 30308

RE: Approval of Waste Profile at the Andrews, Texas facility for Waste Control Specialists LLC
HW Permit No. 50358, EPA ID. No. TXD988088464

Dear Mr. Hunt:

This letter is to inform you that Waste Control Specialists LLC (WCS) has the required permits necessary for acceptance and management of the material as submitted on the Waste Profile Form submitted for **Norfolk Southern Railway Company for Soil impacted with butyl acrylate and vinyl chloride (< 10 x UTS)**. This waste has been assigned a waste profile number of **WP-9984 Rev. 1** and this number must be used on all manifests and correspondence related to this waste stream. This approval is valid for twelve (12) months and expires on **March 28, 2024**.

Waste Control Specialists LLC is pleased to have the opportunity to provide you with the quality waste management services that you need. If you have any questions or need further assistance, please feel free to contact Customer Service at (432) 525-8729 or (432) 525-8651.

WASTE CONTROL SPECIALISTS LLC
Integrated Customer Service Specialist

Corporate

17103 Preston Rd. Ste. 200
Dallas, TX 75248
Ph. 682.503.0030
Fax. 214.853.5720

Facility

P.O. Box 1129
Andrews, TX 79714
Ph. 432.525.8500
Fax. 432.203.2359

Section 1: Generator & Billing Information

EPA ID OHR000221457		
Generator Name Norfolk Southern Railway Company		Technical Contact clayton, michelle
Physical Address MP PC49 RAILROAD TRACKS NE OF N PLEASANT DR TAGGART RD INTERSECT		E-Mail michelle.clayton@arcadis.com
City, State, Zip East Palestine OH 44413	Office Phone 4126141624	Mobile Number
Generator Certification ID:		

Billing Company Norfolk Southern Railway Company		
Mail Address 650 West Peachtree St. NW		Billing Contact Dan Hunt
City, State, Zip Atlanta GA 30308		E-Mail Daniel.Hunt@nscorp.com
Office Phone 404-273-4472	Mobile Number	

Section 2: Attachments

Name	File Type	Nickname	Uploaded On
[EN] - BUTYL ACRYLATE - 2017-01-21.pdf	MSDS		3/18/2023
03 17 23 Alert to States.pdf	Other		3/18/2023
2-Ethylhexyl Acrylate.pdf	MSDS		3/18/2023
2023 03 19 EP Soil impacted with VC and BA less than 10X UTS_WP-9984_SIGNED.pdf	Other		3/19/2023
AFFF_MTR_HGHS_EN.pdf	MSDS		3/18/2023
ECUX 860375 Polyethylene Exxonmobil SDS.pdf	MSDS		3/18/2023
Ethylene Glycol.pdf	MSDS		3/18/2023
Excavation Map.pdf	Other		3/18/2023
Isobutylene.pdf	MSDS		3/18/2023
J180645-1 WS-2.pdf	RCRA Data		3/18/2023
J180646-1 WS-2.pdf	RCRA Data		3/18/2023
J180646-2 WS-2_Dioxins.pdf	RCRA Data		3/18/2023
J181838-1 WC-South Track east.pdf	RCRA Data		3/18/2023
J181894-1 WC-S. Track west (samples 1-7).pdf	RCRA Data		3/25/2023
J181894-1 WC-S. Track west (samples 8-14).pdf	RCRA Data		3/25/2023
Semolina Flour SDS.pdf	MSDS		3/18/2023
UTLX 100055 - petro lube oil.pdf	MSDS		3/18/2023
VINYL CHLORIDE.pdf	MSDS		3/18/2023

Section 3: Radioactive Waste Regulatory Status at the time of shipment to WCS (check only one option)

Waste is NOT regulated as NORM, TENORM, exempt radioactive waste or licensed radioactive waste. If Section 13 is not applicable, check this box.

Licensed Low Level Radioactive Waste (includes LLMW) that is considered:

- Commercial Waste generated in:
 - Texas and/or
 - Vermont
 - Any other state
- Federal Facility Waste

Radioactive Byproduct Material [11.e(2)] as defined by THSC §401.003(3)(B)

Waste will be radiologically exempt PRIOR to shipment (including exempt NORM)

Oil field NORM waste regulated by the Texas Railroad Commission that meets their exemption requirements

Section 4: Hazardous Waste Status (Check only one option)

- Waste **is not** considered RCRA Hazardous or Mixed Waste
- Waste **is** considered RCRA Hazardous or Mixed Waste, and is
 - Hazardous Waste that meets applicable 40 CFR 268 standards prior to receipt at WCS
 - Hazardous Waste that will require treatment (check only one):
 - Waste is subject to the treatment standards found in 40 CFR Part 268.40
 - Waste meets the definition of debris or lead per 40 CFR Part 268 - Macroencapsulation is a viable treatment method for this waste
 - Waste subject to the LDR alternative treatment standards for soil (40 CFR Part 268.49)

Section 5: Other Regulatory Statuses of Waste (check all that apply)

- PCB Waste regulated under TSCA: If checked, list maximum concentration of PCBs:
- Waste contains asbestos: If Checked, Is Asbestos Friable Non-Friable
- Waste contains beryllium; list maximum beryllium concentration:

Section 6a: Requested Processing Services

<input checked="" type="checkbox"/>	Direct Disposal - Waste will not require any processing prior to disposal
<input type="checkbox"/>	RCRA Treatment
<input type="checkbox"/>	WCS Dewatering / Void-Fill process
<input type="checkbox"/>	Other Processing (Please describe the processing you are requesting): <input type="text"/>
<input type="checkbox"/>	Other (Please describe): <input type="text"/>

Section 6b: Final Disposal Facility

<input checked="" type="checkbox"/>	Subtitle C RCRA Disposal Facility (No licensed Radioactive Waste at the time of disposal)		
<input type="checkbox"/>	Federal Disposal Facility	Generator Certification Name:	Waste Control Specialists LLC
<input type="checkbox"/>	Compact Disposal Facility	Certification Expiration Date:	8/31/2023 12:00:00 AM
		Generator Certification Number:	TXWCSTWCS
<input type="checkbox"/>	Byproduct Disposal Facility		
<input type="checkbox"/>	Not Disposed at WCS		

Section 7: General Description

Waste Name:	Soil impacted with butyl acrylate and vinyl chloride (< 10 x UTS)
Process Generating Waste:	Remediation of train derailment (CERCLA site). Derailment resulted in releases of unused commercial grade vinyl chloride, butyl acrylate, 2-Butoxyethanol, ethylhexyl acrylate, isobutylene, ethanol (beer), lube oil, plastic pellets and flour and included 2 cars listed as "empty, last containing benzene" based on generator knowledge these cars meet the definition of RCRA empty containers. Approximately 40 gal of AFFF concentrate was utilized by local fire dept prior to NS arrival. SDS are attached

Section 8: RCRA Waste Codes

Selected RCRA Codes:
U043 - Vinyl chloride

Selected UHC Codes in ppm:
(No Underlying Hazardous Constituents)

Section 9: EPA Regulated Chemicals

RCRA

TCLP
 Totals
 Generator's Knowledge
 ppm (mg/kg)
 ppb(ug/kg)

Antimony:	<UTS	Beryllium:	<UTS	Lead:	<UTS	Silver:	<UTS
Arsenic:	<UTS	Cadmium:	<UTS	Nickel:	<UTS	Thallium:	<UTS
Barium:	<UTS	Chromium:	<UTS	Selenium:	<UTS	Zinc:	<UTS
Mercury:	<UTS	(TCLP)					
Mercury:	<UTS	(Totals)					

Inorganic Constituents

ppm (mg/kg)
 ppb(ug/kg)

	Total	Amenable	Total
Cyanides:	0	0	0
Sulfides:	0		0
Chlorine:	0		

EPA Regulated Organic Constituents

N/A (none apply)

ppm (mg/kg)
 ppb(ug/kg)
 %by Weight
 %by Volume

Constituent	Concentration	TCLP	Totals	Gen Knowledge

Section 10: Waste Description

% by Weight
 % by Volume
 Range. Sum of Max Column must be greater than or equal to 100%

Waste Description (ie: soil, debris, etc)	Average	Min %	Max %
Soil	70%	60%	85%
gravel (rail ballast) and rocks	30%	15%	40%
debris(PPE, polysheeting, RR tie pieces, vegetation, plastic pellets, trash, metal peices, flour)	3%	0%	5%
vinyl chloride	0%	0%	0.01%
butyl acrylate	0%	0%	0.025%

Waste Profile: WP-9984 Rev 1

Section 11: Other Physical Characteristics

<input type="text" value="100"/> % solid	<input type="text" value="0"/> % sludge	<input type="text" value="0"/> % Liquid	<input type="text"/> %by Weight	<input checked="" type="checkbox"/> %by Volume	
Density Range: From: <input type="text" value="1.5"/>	To: <input type="text" value="1.7"/>	<input type="text" value="ton/cu yd"/>			
Percent Moisture content Range (Bulk Soil Only): From: <input type="text" value="5"/>	To: <input type="text" value="25"/>				
or <input type="checkbox"/> N/A (Not Bulk Soil for Disposal in CWF or FWF)					
Color: <input type="text" value="gray, brown, black"/>	Odor: <input type="text" value="mild- butyl acrylate"/>				
pH: <input type="checkbox"/> 0-2	<input type="checkbox"/> 2.1-4	<input checked="" type="checkbox"/> 4-10	<input type="checkbox"/> 10-12.4	<input type="checkbox"/> >12.4	Measured pH Value: <input type="text" value="0.0"/>
Flashpoint: <input type="checkbox"/> N/A (Waste is solid)	Actual: <input type="text"/>	<input checked="" type="checkbox"/> >200	<input type="checkbox"/> >140-200	<input type="checkbox"/> <140	
Is Waste considered biohazardous?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO			
Does waste contain Sharps?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO			
Is waste considered putrescible?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO			
Are waste containers pressurized or contain radioactive gases under pressure?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO			

Section 12: Chelating Agents

(Not Applicable)

Section 13: Radioactive Constituents

(Not Applicable)

Section 14: Shipping Information

- Shipments of this waste will NOT be DOT regulated
- Shipments of this waste WILL be DOT regulated but are NOT Class 7 radioactive shipments
- Shipments of this waste WILL be DOT Class 7 shipments

Shipments of this waste be received via: Rail Highway

Waste shipped in a DOT Cask Type A and/or Type B

List Model Numbers:

Description of the lifting mechanism for removal of the internal containers/liners (i.e. slings, gropies, etc)

Packaging Information

Container Category	Container Type Description
CM	25 cu yd intermodal

If container Category "XX" was chosen please describe "Unspecified Container Type"

Containers are over packed. Package description:

If waste is LLMW or LLRW being shipped for disposal in the RCRA/TSCA cell, will containers have less than 10% void space? Yes No

Estimated Number of Containers:

Estimated Volume:

Section 15a: Certification

N/A (IF ANY of the waste associated with this profile will be disposed in the Federal Waste Disposal Facility or the Compact Waste Disposal Facility, check N/A and complete the certification found in Section 15b. If NONE of your waste will be disposed in the Federal Waste Disposal Facility or the Compact Waste Disposal Facility, complete this certification.)

(Certification must be signed by a company officer or an authorized agent of the company)

The information contained herein is based on generator's knowledge and/or analytical data.

I hereby certify that the above and attached description is complete and accurate to the best of my knowledge and ability to determine that no deliberate or willful omissions of composition properties exist and that all known or suspected hazards have been disclosed. I certify that the sample(s) provided to WCS is representative of all materials described by this document, that the materials tested are representative of all materials described by this document, and that the methods of analysis used are the appropriate analytical methods as specified in the current editions of EPA (SW-846) or equivalent methods and HASL-300 or equivalent methods as applicable.

Authorized Signature  Date 3/27/2023
Printed Name Robert Scoble Title Manager Environmental Ops

Section 15b: Licenses and Certifications for CWF

N/A (If NONE of the waste associated with this profile will be disposed in the Federal Facility Waste Disposal Facility or the Compact Waste Disposal Facility, check N/A and complete the certification found in Section 15a. If ANY of your waste will be disposed in the Federal Facility Waste Disposal Facility or the Compact Waste Disposal Facility, complete this certification.)

150 Innovation Drive
Elyria, OH 44035
www.rossenvironmental.com

2/27/2023

Chad Runnion
GREEN ROCK STRATEGIES LLC
1640 Meeting Street Rd., Suite 305
Charleston, SC 29405

Jennifer Bennison
Technical Service Rep I
Email: jbennison@rossenvironmental.com
Direct Phone: (440) 366-2048
Direct Fax: (440) 366-2348

REF: Quotation 154632 - SOIL IMPACTED WITH VINYL CHLORIDE (>10X UTS)

Dear Chad:

Thank you for offering Ross Environmental Services, Inc. (RES) the opportunity to quote Waste Product Survey(s) (WPS) # 154632. As regulation requires, I am providing the following statement on behalf of Ross Incineration Services, Inc. (RIS): The required waste stream evaluation has been completed for WPS # 154632. As part of that review, it has been determined that RIS has the appropriate permits for, and can accept, the waste that Green Rock Strategies LLC is shipping, subject to the terms and conditions of the Waste Management Agreement between RES and Green Rock Strategies LLC.

The USEPA recognizes that it is customary for transporters to modify the manifest with respect to transporter additions or substitutions, and that this activity as a common occurrence in the industry when providing waste management services. Therefore, as part of the E-Manifest rules effective June 30, 2018, amended regulatory provision 40 CFR 263.21 allows transporters to add or substitute transporters on the manifest with advanced contractual authorization to do so. We believe that our Waste Management Agreement ("WMA") and accompanying purchase orders provide the needed contractual authorization for these Services, and we will continue to fulfill your needs under the WMA.

Action Required for shipment:

- Please review the enclosed WPS(s). I have marked any items where modifications are suggested or where your input is needed. Please make any revisions necessary, complete any items left blank, then sign, date and **return all pages of the WPS(s)** to me.
- Please review the enclosed Waste Management pricing. You may use the pricing document provided as a purchase order or purchase order amendment if you wish by completing any items left blank. Sign, date and return the purchase order to me for processing.
- For transportation of this material, please refer to the previous quotation for Ross Transportation Services, Inc. (RTS).
- Vacboxes may require to be dropped for processing. Expect a 7-10 day receipt, sampling, and processing time upon delivery.

If you have any questions, please contact me at (440) 366-2048. If you would like to schedule a waste pick-up please contact the Logistics Department at (800) 783-6555. Thank you for the opportunity to be of service.

Sincerely,



Ethan Suran
Territory Sales Manager
M: (440) 219-9791 | (440) 366-2106
esuran@rossenvironmental.com

36790 Giles Road, Grafton, Ohio 44044

(440) 748-5800

US EPA ID# OHD048415665

former WPS# (if applicable)

Please do not leave any blank spaces.

1. WPS# 154632 N

2. GENERATOR INFORMATION

Generator: NORFOLK SOUTHERN RAILWAY COMPA

U.S. EPA ID #: OHR000221457

Plant Address: MP PC49 RAILROAD TRACKS

City: EAST PALESTINE

St: OH Zp: 44413

Ship From Address: EAST TAGGART STREET

City: EAST PALESTINE

St: OH Zp: 44413

Emergency #: (404)-273-4472

After hours #: (404)-273-4472

Business contact: Chad Runnion

Business title: Senior Business Manager

Mailing Address: 1640 Meeting Street Rd, Suite 305

City: Charleston

State: SC Zip: 29405

Phone: (843)-697-5709 Ext.:

Cell: (615)-454-0461

Technical contact: Dan Hunt

Mailing Address: 650 W Peachtree Street NW

City: Atlanta

State: GA Zip: 30308

Phone: (404)-273-4472 Ext.:

Cell: (

3. GENERAL INFORMATION

Waste name: SOIL IMPACTED WITH VINYL CHLORIDE (>10X UTS)

Was this waste generated from a CERCLA activity: Y

Do you receive RCRA hazardous waste from another company: N

Are you the original generator: Y

Do you produce, use, or receive munitions or explosives: N

Is facility a 10 Mg Generator, per 40 CFR 61.340: N

Generator code:

Waste generating process: REMEDIATION FROM RAIL DERAILMENT

Primary business activity at generating facility: RAIL TRANSPORT

Rate of Generation

Container

Quantity

Time

Period

Accum

One Time

Service Agreement Entity

END DUMPS

200

YEAR

200

N

GREEN ROCK STRATEGIES LLC

Per Subpart CC,

VOC > 500 ppm: N

Physical Descr: SOIL WITH POSSIBLE DEBRIS/SLUDGE POSSIBLY WHITE

4. SHIPPING CONTAINERS (must meet DOT/RCRA requirements)

Drum Size

Material of

D.O.T.

Gal.

Construction

Specification

6. SOURCE OF INFORMATION

Method used to obtain a representative

sample of the analyzed waste:

GENERATOR KNOWLEDGE

MSDS

Other: SDS FOR VINYL CHLORIDE IN CSDB

Bulk shipment: END DUMPS, ROLL-OFFS

Pallet: N Gaylord: N Hopper: N Drum: N

Overall: Length: Width: Height: Volume:

Waste: Length: Width: Height:

7. SPECIFIC ANALYSIS OF WASTE (p=ppm)

A. Organic Bound Total B. Metals maximum content: Y

Constituents Concentration Sb 25.00p Pb 25.00p

Range Wt%: Y Range Wt%: As 10.00p Hg .00p

S .0 .1 .0 .1 Ba 25.00p Ni 1.00p

Cl .0 2.8 .0 2.8 Be 1.00p Se 1.00p

P .0 .1 .0 .1 Cd 20.00p Ag 25.00p

Br .0 .1 .0 .1 Cr 25.00p Tl 25.00p

I .0 .1 .0 .1 Cu 1.00p Zn 1.00p

N .0 .1 .0 .1 Li 1.00p Mo 1.00p

P .0 .1 .0 .1 Al 6.0 8.5% Si 18.0 25.5

Mg 1.2 2.6% Na 1.8 2.6

C. Does the waste contain: K 1.8 2.6%

PCBs: N

Asbestos: N Is this waste TSCA regulated: N

Insecticides, pesticides, herbicides, rodenticides: N

Name Concentration ppm/%

Dioxin: N Detection Limit: .000 %

Total available cyanides >250 ppm: N

Amenable cyanide: N Concentration: .000 %

Total available sulfides >500 ppm: N

Radioactivity above background: N

Infectious waste: N

5. CHEMICAL COMPOSITION

Components including but not limited

to 40 CFR 261 Subpart B, C & D

Chemical Components Concentration

SOIL Range Wt% PPM

GRAVEL 15.00 40.00 .00

DEBRIS CONSISTING OF: .00 5.00 .00

PLASTIC, PPE, WOOD, CARDBOARD .00 .00 .00

VINYL CHLORIDE .00 .00 100.00

CONSUMER COMMODITY: .00 5.00 .00

FLOUR, PVC BEADS, MULCH .00 .00 .00

TOTAL >= 100%

36790 Giles Road, Grafton, Ohio 44044

(440) 748-5800

US EPA ID# OH048415665

former WPS# (if applicable)

Please do not leave any blank spaces.

1. WPS# 154632 N

8. PHYSICAL PROPERTIES

Physical state 70° F: Solid Sludge

Toxicity (Using HMIS System): 2

Eye: Y

Viscosity at 70° F:

Dusting Hazard? N

Inhalation: Y

***** CPS Range *****

Dermal: Y

From To Fixed Description

Ingestion: Y

0 0 0

Other: N

Is material pumpable at 70° F (<2,000 cP)? N Describe:

Carcinogen: N

Attach supporting data, including detection limit

Is material multi-layered? N Describe:

10. EPA AND DOT INFORMATION

Description of Layer

From To Fixed

A. Is this waste hazardous as defined in 40 CFR: Y Part 261 (OAC) 3745-51?

1. (Top)

0 0 0

B. EPA Haz. Waste No.(s) / Reason for Selection

2.

0 0 0

U043 / Vinyl chloride

3.

0 0 0

Dissolved solids: 0 %WT Suspended solids: 0 %WT

BTU/lb.: 0 to 12000 Ash content: 99 %WT

Flash pt: N/A °F Vap pr: N/A 70°F

Specific gravity: 2.000 to 2.500 pH: N/A

Corrosivity MPY: <30

Colors: BLACK

BROWN

VARIOUS

Odorous? Y MILD

C. State Haz. Waste No.(s) / Reason for Selection

9. REACTIVITY AND STABILITY

A. Reactivity group number(s): 101

D. DOT Description:

B. Is material stable? Y (If unstable i.e., polymerization with age, water/air reactive please explain below)

NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (VINYL CHLORIDE), 9, PG III, RQ, (U043)

C. Sensitive: Shock? N Heat? N Friction? N

D. Is this waste stream reactive as defined by DOT? N

11. LAND DISPOSAL RESTRICTIONS

DOT "Poison inhalation hazard?" N

A. Have treatment standards/methods been established? Y If yes, refer to 40CFR 268.40 for the Universal Treatment Standards

Container label(s): Placard(s): CLASS 9 CLASS 9

B. Wastewater: N Non-wastewater: Y

C. Is this waste a lab pack (Y) / loose pack (L)? N

COMMENTS:

THIS WASTE IS NOT SHOCK OR FRICTION SENSITIVE, SPONTANEOUSLY COMBUSTIBLE, PYROPHORIC OR EXPLOSIVE. CONTAINERS ARE SAFE FOR RIS TO OPEN, INSPECT AND SAMPLE RAILROAD TIES MUST BE LESS <4FT; NO STEEL PLATES/SPIKES CONCRETE MUST BE NO LARGER THAN 1FT IN ANY DIRECTION. NO REBAR, PLATES OR PUMPS, NO OBNOXIOUS ODOR.

12. ACCOUNTABILITY STATEMENT

I hereby certify that I have personally examined and am familiar with the information submitted in this and all attached documents. Based on my inquiry of those individuals immediately responsible for obtaining the information, the submitted information is true, accurate and complete and all known and suspected hazards have been disclosed.

R. Nathan Williams

Authorized Signature

2/27/2023

Date

R. Nathan Williams

Print Name

Manager Environmental ops

Print Title

Clayton, Michelle

From: Joshua Lindley <Lindley@callspsi.com>
Sent: Tuesday, March 21, 2023 4:10 PM
To: Clayton, Michelle
Subject: FW: Approval Number

See below

Josh Lindley, RSO



Compliance Manager

O: 724-228-2700

C: 724-579-8700

You can only do better if your willing to make a change

From: Frank Marine <frank.marine@vlses.com>
Sent: Tuesday, February 14, 2023 2:23 PM
To: Joshua Lindley <Lindley@callspsi.com>
Subject: Approval Number

Josh,

We are doing what we can to get as many items cleared up as possible

This is the proposed and preliminary approval number for the East Palestine hazardous water project: **13230211**. This number would be entered in Section 14 of the manifest.

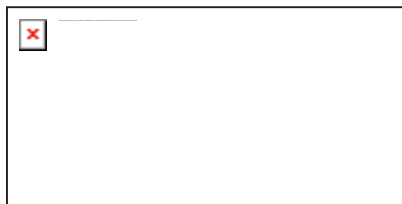
This approval number is not active until the waste profile is signed and returned to us, we send you a confirmation (Sales & Pricing Agreement), and it signed by SPSI and returned.

Anything you do with this number like printing manifests is at your own risk. We will not accept any trailers for delivery that are not formally approved.

Frank

Frank Marine
Business Development | Waste

Cell: (281) 222-6641
Office: (281) 930-2500
2525 Independence Parkway S, Deer Park, Tx 77536
frank.marine@vlses.com | www.vlses.com





TM Deer Park Services LLC

TM Deer Park Services LLC

2525 Independence Parkway South, P.O. Box 1914, Deer Park, TX 77536

SERVICE AND PRICING AGREEMENT

U.S. EPA ID Number **TXD000719518**

Date: **02/15/2023**

State Facility's ID **32299**

CUSTOMER:

SPECIALIZED PROFESSIONAL SERVICES, INC.
ATTN: ACCOUNTS PAYABLE
300 COMMERCIAL DRIVE
WASHINGTON, PA 15301

GENERATOR:

NORFOLK SOUTHERN RAILWAY CORPORATION
MP PC49 RAILROAD TRACKS NE of N PLEASANT DR-TAGGART RD INT.
EAST PALESTINE, OH 44413

Waste Stream Number: **13230231**

Waste Description: **VCM, LUBE OIL, GLYCOLS IMPACTED WATER**

Handling Code: **H134**

Account Manager: **GARY BURTON**

Estimated Volume: **Varies**

PAYMENT TERMS:

NO CREDIT IS BEING OFFERED TO CUSTOMER. ALL WASTE SERVICES WILL BE PROVIDED AND WASTE MATERIAL WILL ONLY BE ACCEPTED ONLY IF FULL PAYMENT FOR CHARGES AND FEES ARE DEPOSITED WITH TMDP IN ADVANCE. FOR SPECIFICS, SEE SECTION 12 OF THE GENERAL TERMS AND CONDITIONS FOR WASTE SERVICES BY TM DEER PARK SERVICES LIMITED PARTNERSHIP, TMDP FORM NO. DPW080424 AS MODIFIED FOR SPSI PROJECT EFFECTIVE FEBRUARY 15, 2023.

DISPOSAL:

Disposal per Gallon:

NOTE: MAX TEMPERATURE ON LOADS <130°F.

\$ 0.82 (NEAT; must filter in <15 seconds)

\$ 0.82 (1:1; must filter in <15 seconds)

\$ 0.87 (3:1; must filter in <15 seconds)

\$ 0.97 (10:1; must filter in <15 seconds)

>10:1 SPECIAL PRICING OR SUBJECT TO REJECTION

\$1.95 Batch Pricing (includes up to 10% solids. Solids >10% will be case by case)

Suspended Solids:

\$ 0.06 per gallon 0.5%

Insoluble Organic Fraction:

\$ 0.03 per gallon 0.5%

Minimum Disposal per Load:

2,500 Gallons

Weekend/Holiday Fee:

WAIVED

EPA e-Manifest Fee:

\$ 25.00

TRANSPORTATION:

Trailer Rinse out:

CUSTOMER TRANSPORTS

\$125.00 when requested. This is not a certified wash.

GOVERNMENT FEES:

State of Texas Commercial Waste Fees are charged based on applicable waste class and handling code(s).

WASTE IDENTIFICATION/ACCEPTANCE: The Waste Profile Document provided by CUSTOMER describes Conforming Waste and is incorporated by reference into this Service and Pricing Agreement. TM DEER PARK SERVICES LLC (hereinafter "TMDP") is an appropriately permitted facility and will provide Waste Services for Conforming Waste at its facilities or the facilities of its affiliates, or may subcontract with other permitted facilities (including affiliates) for the Waste Services. However, use of an affiliate or subcontractor shall not relieve of its obligations under this Agreement. **SCHEDULING/SHIPPING:** Scheduling must be arranged through TMDPS by calling Scheduling at (281) 930-2540 between 8:00 AM - 5:00 PM Mon.-Fri. at least 48 hours in advance unless TMDP agrees otherwise. Shipments must travel with a Uniform Hazardous Waste Manifest and a Land Disposal Restriction Notification (LDRN), where applicable. CUSTOMER acknowledges that it has received and understands TMDP's procedures for entry and exit to and from its facilities and agrees to comply with such procedures. Any violation of these procedures by CUSTOMER or its agents shall for all purposes be considered material and TMDP shall have, in addition to any other remedy available, the option, in its sole discretion, to terminate this Agreement without prior notice, upon TMDP's determination, in its sole discretion, that CUSTOMER or any of its employees, invitees, contractors, or other agents are not in complete compliance with all such procedures.

EFFECTIVE DATE: This Service and Price Agreement shall be effective as of the date of acceptance by CUSTOMER.

ACCEPTANCE: The proposal for this Service and Price Agreement must be accepted by CUSTOMER within 30 calendar days from the Price Effective Date above or it shall be null and void. Acceptance by CUSTOMER shall be by (i) signature below and return to TMDP by facsimile, mail, electronic mail, over night service or USPS or (ii) in the event CUSTOMER has accepted an earlier service and price agreement in this form which adopted by reference TMDP Form No. DPW080424 by signature as provided for in Subsection (i) above, then acceptance of this Service and Price Agreement shall be considered completed by CUSTOMER upon CUSTOMER's delivery of Waste Material covered by this Agreement to TMDP.

TM DEER PARK SERVICES LLC

CUSTOMER

By: *J Bracher*
Authorized Representative

By: _____
Authorized Representative

Date: 02/15/2023

Date: _____

General Terms and Conditions for Waste Services
by TM Deer Park Services Limited Partnership
TMDP Form No. DPW080424 as Modified for SPSI/Norfolk Southern Project
EFFECTIVE FEBRUARY 15, 2023

The following terms and conditions shall apply to all waste services performed by or under the control of TM DEER PARK SERVICES LIMITED PARTNERSHIP, including transportation, storage, treatment and disposal services.

1. Definitions

1.1 "Generator" shall mean TMDP's customer and/or any third-party generator of Waste Material for which the TMDP customer is acting.

1.2 "Party" shall mean either TMDP or Generator or both.

1.3 "TMDP" shall mean TM Deer Park Service LLC, a Limited Liability Company.

1.4 "Waste Material" shall mean those solid, liquid, semi-solid, or contained gaseous materials which are generally described in, and which have physical, chemical, biological or radioactive constituents, characteristics and properties within the specifications stated in Generator's waste profile document. The term "Waste Material" also includes containers supplied by Generator containing Waste Material such as a barrel, drum, tank or box.

1.5 "Waste Services" shall mean the handling, packaging, transportation, storage, processing, treatment, reclamation, recycling, recovery, incineration and/or disposal of Waste Material by TMDP or its affiliates or subcontractor(s).

2. In no event shall any term or condition attached or made part of a future purchase order, shipping document, manifest or other document associated with the Waste Material and/or Waste Services have any controlling effect unless specifically adopted in writing by an authorized representative of both TMDP and Generator making specific reference to both these Terms and Conditions and their amendment, supplement or modification.

3. Upon delivery of the Waste Material to TMDP, Generator shall tender to TMDP those completed documents, shipping papers or manifests as are required for lawful transfer of the Waste Material to TMDP by valid and applicable statutes, ordinances, orders, rules or regulations of the federal, state or local governments.

4. TMDP shall have the right, but not the obligation, to inspect, sample, analyze or test any tendered Waste Material before accepting such Waste Material.

5. A Waste Material shall be considered to be non-conforming if

5.1 the Waste Material is not materially in accordance with the specifications of the Generator's waste profile document, or

5.2 the Waste Materials

- (a) Materially increases the nature or extent of the hazard and risk undertaken by TMDP in agreeing to provide Waste Services, or
- (b) are such that TMDP's facility is not designated, permitted or authorized to provide the Waste Services by law, rule, or regulation.

6. If the Waste Material, any unit thereof, or the tender of delivery is non-conforming, TMDP may, at any time after its receipt of the Waste Material and at its exclusive option:

- (a) reject all Waste Material tendered, or
- (b) accept all Waste Material tendered; or,
- (c) accept any unit or units of Waste Materials and reject the rest.

Unless TMDP specifically provides to the contrary in writing, failure of TMDP to reject non-conforming Waste Material shall not be deemed acceptance of the non-conforming Waste Material. Upon rejection of Waste Material, Generator shall be responsible for all costs incurred by TMDP prior to such rejection and all costs of returning the Waste Material so rejected to Generator. Such costs shall include, but not be limited to, equipment or facility damage, remediation or corrective action, administrative and/or legal costs, as well as any fines and/or penalties. Acceptance of the Waste Material, or any unit thereof, does not, however, impair, or operate as a waiver of, any right or remedy available to TMDP in the event the Waste Material are later discovered to be non-conforming. Without limiting any other remedy available, Generator shall make prompt arrangements for the removal of the non-conforming Waste Material from TMDP's Facility to another lawful place of disposition. To the extent Generator delivers conforming Waste Material to TMDP but such conforming Waste Material becomes non-conforming Waste Material after such delivery, Generator shall not have any liability for, or

obligations to remove or remediate, any such non-conforming Waste Material as contemplated by this section; provided however, that the burden of proving that Waste Material was conforming at the time of delivery shall be on Generator.

7. Except as required by law, title to and ownership of the Waste Material shall at all times remain with Generator.

8. TMDP warrants and represents to Generator that:

8.1 TMDP is engaged in the business of and has developed the requisite expertise for providing Waste Services. All Waste Services provided by TMDP shall be performed utilizing the same standard of due diligence and reasonable care demonstrated by other companies within the industry providing similar Waste Services. All TMDP personnel, employees, agents, affiliates, subcontractors, and contractors engaged in providing the Waste Services shall be appropriately skilled and, where necessary, licensed to perform the work to which they are assigned; and,

8.2 Each facility, vehicle or any equipment in which TMDP provides Waste Services pursuant to these Terms and Conditions shall be in full compliance at all relevant times with all applicable environmental, health and safety legal requirements, including statutes, regulations, ordinances and common law; and,

8.3 TMDP will, and will ensure all persons referenced in Section 8.1 above who provide Waste Services for Generator hereunder will, provide Waste Services in a safe and workmanlike manner and in full compliance with all valid and applicable statutes, ordinances, orders, rules, regulations, and common law of the federal, state and local governments in whose jurisdictions such activities are performed; and,

8.4 No Waste Services will infringe any patent, trademark, copyright, trade secret or other intellectual property right owned or controlled by any other corporation, firm or person or other third party; and,

8.5 TMDP makes no other warranty, expressed or implied, other than as is specifically set forth above and none shall be implied. The warranties set forth above are exclusive and are given by TMDP and accepted by Generator in lieu of any and all other warranties, whether expressed or implied, all such warranties being hereby expressly disclaimed and waived by Generator.

9. Generator warrants and represents to TMDP that:

9.1 The description and specifications of the Waste Material in the Generator's waste profile document is or shall be true and correct in all material respects, that they fairly advises TMDP of the hazards and risks known by Generator to be incident to the Waste Services as requested by Generator and are otherwise in full compliance with all materials description requirements of valid and applicable statutes, ordinances, orders, rules and regulations of the federal, state and local government in whose jurisdictions such Waste Material is to be tendered to TMDP; and

9.2 Generator will promptly disclose to TMDP any and all information known to Generator relating to the Waste Materials that presents or may present a hazard or risk to persons, property, the environment or the ecosystem whether such information is received or developed by Generator before or after delivery of the Waste Material to TMDP; and,

9.3 Generator will comply with all valid and applicable statutes, ordinances, orders, rules and regulations, of the federal, state and local governments in whose jurisdiction such Waste Material is to be tendered to TMDP, pertaining to Generator and the Waste Material; and,

9.4 Unless otherwise specified in writing, Generator has sole title to the Waste Material which will be tendered to TMDP, and is not under legal restraint, statutory, regulatory, administrative or judicial, which prohibits the transfer of possession or title to such Waste Material to TMDP; and,

9.5 Except as specifically set forth in the applicable waste profile document, the Waste Material delivered to TMDP shall be free of all toxic, radioactive or hazardous chemicals, compounds or organisms and all medical waste which, if present in any waste stream, would bring the waste stream under the regulatory classification of hazardous or toxic within the meaning of any Federal, state or local law or regulation or the rules, regulations or otherwise present an risk or hazard to persons, property, the environment or ecosystem. The provision of this representation and warranty shall survive, for all purposes, the acceptance of or the failure to reject the Waste Material by TMDP.

10. Indemnification Provisions

10.1 Each Party agrees to defend, indemnify and hold the other Party and their respective affiliates and subsidiaries, and the respective affiliates, directors, officers, partners, members, employees and agents, harmless from and against any and all claims, liabilities, suits, proceedings, judgments, orders, fines, penalties, damages, losses, costs and expenses (including, without limitation, costs of defense, settlement and reasonable attorneys' fees and expenses) (all of the foregoing herein collectively called "Liabilities, Proceedings and Damages"), arising out of (i) the indemnifying Party's active or passive negligence, gross negligence or willful misconduct; and/or, (ii) failure of the indemnifying Party or any of its employees or agents to observe or comply with any of the indemnifying Party's duties or obligations under these Terms and Conditions, including, without limiting the generality of the foregoing, any failure to observe or comply with any applicable federal, state or local laws, ordinances, codes, orders, rules or regulations; violation

or breach of the warranty provisions in these Terms and Conditions. The foregoing obligations of indemnity will include, but not be limited to, any and all Liabilities, Proceedings and Damages for or relating to (i) injury to or death of any person (including, without limitation, employees or agents of the Parties), (ii) damage to or loss or destruction of any property (including, without limitation, property of the Parties, or their respective employees or agents), and (iii) any spill, release or leak of any hazardous substance or waste or any contamination of, injury or damage to, environmental impairment of or adverse effect on persons, animals, aquatic and wild life, biota, vegetation, waters, other natural resources, or the environment. Provided, however, the indemnifying Party shall be liable only for that percentage of total Liabilities, Proceedings and Damages that corresponds to the indemnifying Party's percentage of total active or passive negligence, gross negligence, willful misconduct or other fault as herein described above as it is compared to that of the indemnified Party. TMDP shall be liable hereunder to the extent any Waste Services are performed by TDMP's affiliates, subcontractors, or contractors.

10.2 Neither Party shall have any liability to the other Party for any indirect, incidental, aggravated, exemplary, punitive, or consequential damages incurred by the other Party, whether brought on an action for breach of contract, breach of warranty, tort, strict liability, or otherwise and irrespective of whether caused or allegedly caused by either Party's negligence and none shall be awarded by any tribunal against a Party hereto in favor of a Party hereto; provided, however, that the limitations on liability contained in this Section 10.2 shall not apply to damages caused by gross negligence or willful misconduct or to damages which are part of a third Party claim for which a Party hereunder is claiming an indemnity obligation under these Terms and Conditions from the other Party and the Party entitled to indemnity protection under these Terms and Conditions is seeking an indemnity or other relief against the payment of such damages from the Party required to provide such indemnity or other relief.

10.3 Those provisions of these Terms and Conditions which by their nature are intended to survive the termination, cancellation, completion or expiration of these Terms and Conditions shall continue as valid and enforceable obligations of the Parties, notwithstanding any such termination, cancellation, completion or expiration. Such provisions include, but are not limited to, provisions concerning warranties and indemnifications.

11. Whenever entering onto a TMDP facility, any employee, common carrier or other agent or representative of Generator shall comply with all reasonable requirements of TMDP imposed for purposes of safety, indemnity and/or insurance protection. Generator shall be responsible for any and all demurrage charges arising from the transportation of Waste Material.

12. PAYMENT TERMS: Effective as of February 15, 2023, TMDP will not extend credit terms in any amount for Waste Services provided to Generator. Waste Materials shall only be received by TMDP and Waste Services shall only be provided by TMDP if the mutually agreeable estimated fees and other charges have been deposited in advance via Electronic Funds Transfer through the Automated Clearing House (EFT/ACH) or similar electronic transfer protocol to the following TMDP bank account or any other bank account TMDP establishes:

Bank Name: Investar Bank
Bank Telephone: 225/227-2332
Account Name: TM Deer Park Services Limited Partnership
Routing #: 065405459
Account #: 4004080909
Fedwire: 065405459
SWIFT Code: tibbus44 TIB Dallas

Subject to the first and last paragraphs of this Section 12, this deposit amount will be an estimate for the subsequent week of expected waste deliveries and reconciled on a weekly basis in order to determine the next deposit amount. The reconciliation will be based on actual trucks and volumes delivered and Waste material disposed of according to the appropriate rates listed on the Service and Pricing Agreement. These payment terms shall remain in effect until mutual agreement is reached as to alternative payment terms. Funds deposited in the above described account shall bear no interest and none shall be credited to Generator's account nor paid to Generator. Upon Notice from Generator to TMDP that Waste Services will no longer be required, the balance of Generator's deposit(s), if any, in the above described account shall be returned to Generator by TMDP within seven (7) business days.

The Parties acknowledge that (i) absent the deposits described above, Waste Material will not be received by TMDP nor will Waste Services be provided by TMDP and (ii) the transfer of monies by customer to the above described bank account is intended by the Parties to be a contemporaneous exchange for new value given to customer by TMDP's Waste Service. Nothing in this Section 12 shall be construed as a requirement that TMDP will either receive Waste Material from Generator or provide Waste Services to Generator even though Generator may have a positive balance in any amount in the deposit account.

13. All fees and charges for Waste Services as may be set forth in any quotation, bid, service and pricing agreement, work order or purchase order are exclusive of any and all federal, state or local sales, excise, value added, environmental and/or use taxes (or other similar taxes). Payment (or reimbursement) of any such tax shall be the responsibility of Generator.

14. Except with respect to payments that are due and payable, neither Party shall be considered in default in the performance of its obligations or be subject to any liability if such performance is prevented or delayed on account of causes beyond the reasonable control of the affected party, including without limitation, war, hostilities, revolution, civil commotion, strike, epidemic, rain, fire, wind,

earthquake, flood, major equipment failure, labor dispute or because of any law, order, regulation or ordinance of any government, or of any subdivision thereof, or because of an Act of God.

15. TMDP shall consider all information received from Generator to be confidential and shall not disclose any such information to any third party except as required by law or as Generator may request or otherwise permit.

16. If any section or clause of these Terms and Conditions shall be adjudged illegal, invalid or unenforceable, such illegality, invalidity or unenforceability shall not affect the legality, validity or enforceability of these Terms and Conditions as a whole or of any section, subsection, sentence or clause hereof not so adjudged. In the event of a conflict between these general terms and conditions and the Service and Pricing Agreement to which these terms are attached and incorporated, the provisions of the Service and Pricing Agreement shall control.

17. These Terms and Conditions may be changed, modified or terminated only by a writing signed by both Parties. Any prior verbal agreements or understandings between the Parties pertaining to the Waste Services covered hereby are hereby terminated and/or superseded by these Terms and Conditions. The waiver of a breach of any term or condition shall not be deemed to constitute the waiver of any other breach of the same or any other term or condition hereof.

18. These Terms and Conditions shall be governed by and construed in accordance with the laws of the State of Texas without reference to the choice of law doctrine of such state. Any suit brought by either Party against the other Party for claims arising out of these Terms and Conditions and/or the Waste Services shall be brought in the federal courts of Harris County, Texas (or the state courts of Harris County in the event that such court does not have or declines jurisdiction), and the Parties hereto consent to the exclusive jurisdiction of such courts in respect of such action or proceeding. In the event of any litigation between the Parties arising from the Waste Services or these Terms and Conditions, the prevailing Party shall be awarded its costs of suit, including reasonable attorney's fees, as determined by such courts.

19. The relationship of TMDP to Generator is that of an independent contractor.

20. The Service and Pricing Agreement may be executed in any number of counterparts, each of which will be deemed to be an original copy of such agreement, and all of which, when taken together, shall be deemed to constitute one and the same agreement. Signatures transmitted by facsimile or other electronic means shall be accepted as originals for all purposes.

21. PROVISIONS REGARDING PIPELINE FOR DELIVERY OF WASTE MATERIAL

21.1 The Parties shall jointly develop a pipeline between the adjoining properties for the purpose of delivering Waste Material from Generator to TMDP (the "Pipeline"). Generator shall be fully responsible for the design, engineering, procurement, construction, operation, maintenance and repair of that portion of the Pipeline located on Generator's side of the fenceline. TMDP shall be fully responsible for the design, engineering, procurement, construction, maintenance and repair of that portion of the Pipeline located on TMDP's side of the fenceline. Generator shall be fully responsible to engineer and complete the tie-in of the two separate pipelines notwithstanding the point of connection vis a vis the fenceline and/or property line.

21.2 Anything in these General Terms and Conditions to contrary notwithstanding, in the event that any portion of the pipeline is inoperable for any period of time for any cause whatsoever, including, without limitation, negligence, recklessness or willful neglect, thus requiring the Waste Material to be shipped by Generator to TMDP (or other waste disposal site) via tanker trucks or other alternative means of conveyance, both Parties waive recovery of any damages resulting from the Pipeline outage and hold the other Party harmless from any such damage(s).

21.3 Generator, or its representative, is required to inspect that portion of the waste pipeline, which starts within Generator's plant from the source tank(s) to the point that the pipeline crosses into TMDP's property. Such inspections shall be performed in accordance with Generator's ordinary pipeline leak and damage inspection practices. TMDP will be responsible for that portion of the Pipeline from its fenceline to the terminating tank(s) and will perform similar leak and damage inspections in accordance with its customary practices and policies and procedures. To the extent a Party has an inspection form (but, for the avoidance of doubt, such form is not required), it shall contain the following general language "For each unit, indicate pass or fail for the associated inspection criteria. Any failure noted during the inspection requires corrective action. If corrective action is required and can be immediately resolved, note the deficiency and the corrective action taken. If the corrective action cannot be immediately resolved, a remedial work order will be generated and noted." A Party's Pipeline inspection records shall be provided to the other Party as such Party may reasonably request. In addition, any deficiency or other work performed on the Pipeline, will require the Party identifying the failure to notify the other Party promptly. In the unlikely event of Pipeline failure resulting in a release of waste to the environment, the Party responsible for clean-up and any other corrective action shall be determined by the point of failure and where that point of failure is located (unless such point of failure is the result, in whole or in part by, the grossly negligence acts or omissions of the other Party) provided, however, in the event that the released Waste Material does not meet the waste profile and such excursion results in additional costs of remediation, such additional costs shall be the responsibility of Generator. Leak Detection and Response (LDAR) monitoring on the Pipeline is required in accordance with 40 CFR Subpart BB and shall be performed by each Party as to that portion of the Pipeline located on that Party's property. A Party's LDAR records shall be provided to the other Party as reasonably requested.

21.4 Prior to each transfer of Waste Materials from the source Generator tank to TMDP, Generator shall submit a completed and signed LDRN and sample of the source tank to TMDP. TMDP upon receipt of the Land Disposal Restrictions Notification (LDRN), will issue a workorder to record the characteristics of the sample and acknowledge that the sample conforms to the profile as required by TMDP's Waste Analysis Plan (WAP). Only upon receipt of the aforementioned workorder, Generator may begin to transfer the Waste

Material to TMDP's receiving tank. The transfer may be halted for any reason by either Party, including, but not limited to, a pipeline failure TMDP's receiving tank is reaching capacity; or, TMDP's sampling of the receiving tank indicates that the material is no longer conforming to the approved profile. Reasonable surcharges may apply or a rejection of the material may occur if the Waste Material received is found to be no longer conforming to the profile.

VI. COMPONENTS: Account for 100% of the waste components. Include metals, UHCs, TRI-reportable chemicals, etc.

CAS # (Optional)	Constituent	Range	Unit	CAS # (Optional)	Constituent	Range	Unit
	water	95 - 99	%		Ethylbenzene	0 - .009	ppm
	Vinyl chloride	0.022 - 0.290	ppm		Methylcyclohexane	0 - .002	ppm
	2-ethylhexyl Acrylate	0 - 0.1	%		Toluene	0 - .02	ppm
	butyl Acrylates	0 - 0.1	%		Xylene	.003 - .045	ppm
	Diethylene Glycol	0 - 0.1	%		2-Methylnaphthalene	0 - .024	ppm
	Lube oil	0 - 0.1	%		Acenaphthene	0 - .020	ppm
	MEK	0 - .052	ppm		Acenaphthylene	0 - .019	ppm
	MIBK	0 - .015	ppm		Anthracene	0 - .025	ppm
	Acetone	0 - 0.85	ppm		Benzo[a]anthracene	0 - .023	ppm
	Benzene	.0014 - .005	ppm		Chrysene	0 - .023	ppm

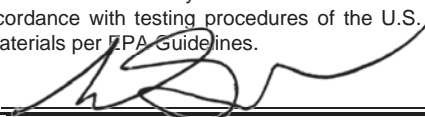
Specific constituents of concern: Check here if the following constituents do not apply to the waste described in this document.

79-06-1	Acrylamide	N/A		7446-27-7	Lead phosphate	N/A	
309-00-02	Aldrin	N/A		628-86-4	Mercury fulminate	N/A	
20859-73-8	Aluminum phosphide	N/A		56-49-5	3-Methylcholanthrene	N/A	
7778-39-4	Arsenic acid	N/A		79-46-9	2-Nitropropane	N/A	
1303-28-2	Arsenic pentoxide	N/A		924-16-3	N-Nitrosodi-n-butylamine	N/A	
1327-53-3	Arsenic trioxide	N/A		1116-54-7	N-Nitrosodiethanolamine	N/A	
92-87-5	Benzidine	N/A		55-18-5	N-Nitrosodiethylamine	N/A	
98-07-7	Benzotrichloride	N/A		62-75-9	N-Nitrosodimethylamine	N/A	
31984-6	alpha-BHC	N/A		10595-95-6	N-Nitrosomethylethylamine	N/A	
319-85-7	beta-BHC	N/A		684-93-5	N-Nitroso-N-methylurea	N/A	
107-30-2	Chloromethylmethyl ether	N/A		930-55-2	N-Nitrosopyrrolidine	N/A	
111-44-4	sym-Dichloroethyl ether	N/A		7803-51-2	Phosphine	N/A	
542-88-1	sym-Dichloromethyl ether	N/A		50-55-2	Reserpine	N/A	
60-57-1	Dieldrin	N/A		1314-80-3	Sulphur phosphide	N/A	
56-53-1	Diethylstilbesterol	N/A		78-00-2	Tetraethyl lead	N/A	
122-66-7	1,2-Diphenylhydrazine	N/A		1314-32-5	Thallic oxide	N/A	
621-64-7	Di-n-propylnitrosamine	N/A		6533-73-9	Thallium carbonate	N/A	
	Dioxins	N/A		7791-12-0	Thallium chloride	N/A	
298-04-4	Disulfoton	N/A		10102-45-1	Thallium nitrate	N/A	
115-29-7	Endosulfan	N/A		12039-52-0	Thallium selenite	N/A	
33213-6-5	Endosulfan II	N/A		7446-18-6	Thallium sulfate	N/A	
	Endrin metabolites	N/A		62-56-6	Thiourea	N/A	
106-93-4	Ethylene dibromide	N/A		137-26-8	Thiram	N/A	
76-44-8	Heptachlor	N/A		99-35-4	1,3,5-Trinitrobenzene	N/A	
302-01-2	Hydrazine	N/A		1314-84-7	Zinc phosphide	N/A	
7439-92-1	Lead	0 - 0.0031	ppm				

Waste characterization determined by: Process Knowledge Waste Analysis (Provide copy) MSDS/SDS(s) (Provide copy)

VII. Certification

I hereby certify and warrant that the information supplied on this form, and any attachments, represents a complete and accurate identification and description of this waste material, its constituents and its known or suspected hazards. I further certify and warrant that this information is the result of an analysis of a representative sample of the waste obtained and analyzed in accordance with testing procedures of the U.S. Environmental Protection Agency or by the application of knowledge of the process generating the waste materials per EPA Guidelines.

PRINTED NAME: Robert J. Scoble, Mgr Env Ops SIGNATURE:  DATE: 2/14/23

 **TM Deer Park Services Limited Partnership**

TMDP Profile/WS# :

P.O. Box 1914 • 2525 Independence Parkway South • Deer Park, TX 77536-1914 • Phone: 281/930-2525 • Fax: 281/930-2535

VI. CONTINUED COMPONENTS: Account for 100% of the waste components. Include metals, UHCs, TRI-reportable chemicals, etc.

CAS # (Optional)	Constituent	Range	Unit	CAS # (Optional)	Constituent	Range	Unit
	Total Suspended Sediment	28	11,000 ppm				
	Diesel Range Organics	5.6	2300 ppm				
	Sediment (settled)	0	2 %				
	Total Organic Carbon	0	7000 ppm				
	LNAPL (oil, glycol, acrylate)	0	0.1 %				
	Arsenic	0	.024 ppm				
	Barium	0.022	0.078 ppm				
	Chromium	0	0.058 ppm				
	Selenium	0	0.018 ppm				
	Isopropylbenzene	0	.003 ppm				
	Cadmium	0	0.0003 ppm				
	Styrene	0	.005 ppm				
	AFFF Thunderstorm	0	.02 % <input type="text"/>				
	Naphthalene	0	0.04 ppm				
	Fluoranthene	0	0.082 ppm				
	Fluorene	0	0.023 ppm				
	Phenanthrene	0	0.1 ppm				
	Pyrene	0	.084 ppm				

SEE Attached Analytical Report: 240-180173, Sample IDs: WC-02/2023-02-09, WC-04/2023-02-09, WC-05/2023-02-09
 NOTE: WC-02 = Tank 505E, WC-04= Tank 514E, WC-05= Tank 566E

PROCESS OF GENERATION: Derailment involving 5 railcars of unused commercial grade vinyl chloride (VC). Derailment also involved releases of butyl acrylate, ethyl hexyl acrylate, 2-butoxyethyl acetate, ethylene glycol monobutyl ether acetate, lube oil, and isobutylene. Waste stream is water generated from interceptor trenches, dams & surface puddles and may contain any/all of the released products (SDS attached). Based on gauging data waste stream contains < 0.02% of LNAPL. Waste determination based on generator knowledge of chemicals released, concentrations of VC & Flashpoint in other frac tanks. During response ~ 40 gal PFAS containing AFFF was used. During first week of response activities 200K gallons of water was generated (40 gal AFFF/200K gal water = 0.02% AFFF)



Vickery Environmental, Inc.
3956 State Route 412
Vickery, Ohio 43464



Confirmation Letter

Tuesday, February 14, 2023

Page 1 of 2

We are pleased to confirm Vickery Environmental, Inc's approval of your waste material as described below. The attached profile for the waste materials was prepared by VEI based upon information provided by you. It is important that no changes be made to the profile without VEI's consent. If the profile meets with your approval, please email Vickeryscheduling@wm.com or call 419/547-7791 to schedule shipment of your waste materials.

Contact Person:	JOSH LINDLEY
Customer Name:	SPECIALIZED PROFESSIONAL SVCS
Profile Number:	OH895850
Waste Name:	WATER IMPACTED WITH VINYL CHLORIDE
Expiration Date:	12/31/2023
Quote Number:	4904
Quote Date:	2/14/2023

ALL PRICING BELOW IS GOOD THROUGH 12/31/22 OR WITH 30 DAYS WRITTEN NOTICE

Approved Mgmt. Facility: Vickery Environmental, Inc.

Additional Information: All loads must be pre-scheduled at least 24 hours in advance, through Vickery Environmental scheduling at Vickeryscheduling@wm.com or call (419) 547-7791.

Vickery receiving hours are as follows:

Monday through Friday, 7:00 am. to 4:00 pm.
Closed Saturday, Sunday and Holidays except in cases of emergency.

Material must conform to site acceptance criteria:

Oil <5%

VOC's <5%

Flashpoint >212 F

PCB's <25 ppm non-TSCA

Cyanide <250 ppm reactive

Sulfide <500 ppm reactive

Non-Infectious and Non-Radioactive , no TENORM

No fuming material

Liquid/pumpable and compatible with process

Tuesday, February 14, 2023

Page 2 of 2

A Land Disposal Notification and Certification Form must accompany each shipment for all EPA regulated hazardous waste.

All unpaid invoices over 30 days old, may be assessed a finance charge at the rate of 1.5% per month or per Contract.

Applicable state and local taxes are not included in these disposal prices. All wastes are priced as profiled, invoiced as actually received. Invoices shall be paid no later than thirty (30) days from the date of receipt. All terms are governed by the Agreement previously executed between our companies. The prices quoted above are subject to change by VEI upon thirty (30) days' prior written notice to you unless otherwise specifically provided or per the terms of our Agreement.

If you have any questions or would like to make changes to the profile, please contact your representative. Thank you for this opportunity to be of service.

CAROLYN GOLAMB
Vickery Environmental, Inc.



Requested Facility: Vickery Deepwell (Hazardous Waste Facility) Unsure Profile Number: OH895850
 Multiple Generator Locations (Attach Locations) Request Certificate of Disposal Renewal? Original Profile Number: _____

A. GENERATOR INFORMATION (MATERIAL ORIGIN)

- 1. Generator Name: Norfolk Southern Railway Co
2. Generator Site Address: MP PC49 RAILROAD TRACKS NE OF N (City, State, ZIP) East Palestine OH 44413
3. County: Columbiana
4. Contact Name: Scott Deutsch
5. Email: scott.deutsch@nscorp.com
6. Phone: (412) 893-5640 7. Fax:
8. Generator EPA ID: OHR000221457 N/A
9. State ID: N/A

B. BILLING INFORMATION

SAME AS GENERATOR

- 1. Billing Name: Specialized Professional Services Inc
2. Billing Address: 300 Commercial Drive (City, State, ZIP) Washington PA 15301
3. Contact Name: Josh Lindley
4. Email: lindley@callspsi.com
5. Phone: (724) 579-8700 6. Fax:
7. WM Hauled? Yes No
8. P.O. Number:
9. Payment Method: Credit Account Cash Credit Card

C. MATERIAL INFORMATION

- 1. Common Name: Water Impacted with Vinyl Chloride
Describe Process(es) Generating Material: See Attached
Train derailment involving 5 railcars of unused commercial grade Vinyl Chloride (VC). Derailment also involved releases of Butyl Acrylate, Ethylhexyl Acrylate, 2-Butoxyethyl Acetate, Ethylene Glycol Monobutyl Ether Acetate, Lube Oil, and
2. Material Composition and Contaminants: See Attached
Table with 2 columns: Contaminant, Concentration
3. State Waste Codes: N/A
4. Color: clear to brown
5. Physical State at 70°F: Solid Liquid Other:
6. Free Liquid Range Percentage: 95 to 100 N/A
7. pH: 3 to 10 N/A
8. Strong Odor: Yes No Describe:
9. Flash Point: <140°F 140°-199°F ≥200° N/A

D. REGULATORY INFORMATION

- 1. EPA Hazardous Waste? Yes* No Code: U043
2. State Hazardous Waste? Yes No Code:
3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? Yes* No
4. Contains Underlying Hazardous Constituents? Yes* No
5. From an industry regulated under Benzene NESHAP? Yes* No
6. Facility remediation subject to 40 CFR 63 GGGGG? Yes* No
7. CERCLA or State-mandated clean-up? Yes* No
8. NRC or State-regulated radioactive or NORM waste? Yes* No
*If Yes, see Addendum (page 2) for additional questions and space.
9. Contains PCBs? → If Yes, answer a, b and c. Yes No
a. Regulated by 40 CFR 761? Yes No
b. Remediation under 40 CFR 761.61 (a)? Yes No
c. Were PCB imported into the US? Yes No
10. Regulated and/or Untreated Medical/Infectious Waste? Yes No
11. Contains Asbestos? Yes No
→ If Yes: Non-Friable Non-Friable - Regulated Friable

E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION

- 1. Analytical attached Yes
Please identify applicable samples and/or lab reports:
Report 240-180173, Sample IDs WC-02/2023-02-09, WC-04/2023-02-09, WV-052023-02-09 NOTE WC-02=Tank 505E, WV-04=Tank 514E, WC-05=Tank 566E
2. Other information attached (such as MSDS)? Yes

F. SHIPPING AND DOT INFORMATION

- 1. One-Time Event Repeat Event/Ongoing Business
2. Estimated Quantity/Unit of Measure: 2,800,000
 Tons Yards Drums Gallons Other:
3. Container Type and Size: highway trailer
4. USDOT Proper Shipping Name: N/A
RQ, NA3082, HAZARDOUS WASTE LIQUID, N.O.S., 9, PG III, Vinyl Chloride

G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)

By signing this EZ Profile™ form, I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material, and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided. Any analytical data attached was derived from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using an equivalent method. All changes occurring in the character of the material (i.e., changes in the process or new analytical) will be identified by the Generator and be disclosed to Waste Management prior to providing the material to Waste Management.

I am an Authorized Agent signing on behalf of the Generator, and I have confirmed with the Generator that information contained in this profile, as well as supporting documents provided, are accurate and complete.

Name (Print): Robert Scoble Date: 02/13/2023
Title: Environmental Manager
Company: Norfolk Southern Railway Company

Certification Signature
Robert Scoble



Only complete this Addendum if prompted by responses on EZ Profile™ (page 1) or to provide additional information. Sections and question numbers correspond to EZ Profile™.

Profile Number: OH895850

C. MATERIAL INFORMATION

Describe Process Generating Material (Continued from page 1): _____ If more space is needed, please attach additional pages.

Isobutylene. Waste stream is water generated from interceptor trenches, dams, & surface puddles and may contain any/all of the released products. Waste determination based on generator knowledge of chemicals released, concentrations of VC&Flashpoint in other frank tanks. During response, approximately 40 gallons of PFAS containing AFFF was used (Approximately 0.02 % AFFF)

Material Composition and Contaminants (Continued from page 1): _____ If more space is needed, please attach additional pages.

5.	
6.	
7.	
8.	
9.	
Total composition must be equal to or greater than 100%	
	≥100%

D. REGULATORY INFORMATION

Only questions with a "Yes" response in Section D on the EZ Profile™ form (page 1) need to be answered here.

1. EPA Hazardous Waste

a. Please list all USEPA listed and characteristic waste code numbers:

- b. Is the material subject to the Alternative Debris standards (40 CFR 268.45)? Yes No
 - c. Is the material subject to the Alternative Soil standards (40 CFR 268.49)? → If Yes, complete question 4. Yes No
 - d. Is the material exempt from Subpart CC Controls (40 CFR 264.1083)? Yes No
- If Yes, please check **one** of the following:
- Waste meets LDR or treatment exemptions for organics (40 CFR 264.1082(c)(2) or (c)(4))
 - Waste contains VOCs that average <500 ppmw (CFR 264.1082(c)(1)) – will require annual update.

2. State Hazardous Waste → Please list all state waste codes: _____

3. For material that is Treated, Delisted, or Excluded → Please indicate the category, below:

- Delisted Hazardous Waste Excluded Waste under 40 CFR 261.4 → Specify Exclusion: _____
- Treated Hazardous Waste Debris Treated Characteristic Hazardous Waste → If checked, complete question 4.

4. Underlying Hazardous Constituents → Please list all Underlying Hazardous Constituents:

5. Industries regulated under Benzene NESHAP include petroleum refineries, chemical manufacturing plants, coke by-product recovery plants, and TSDFs.

- a. Are you a TSDF? → If yes, please complete Benzene NESHAP questionnaire. If not, continue. Yes No
 - b. Does this material contain benzene? Yes No
 - 1. If yes, what is the flow weighted average concentration? _____ ppmw
 - c. What is your facility's current total annual benzene quantity in Megagrams? <1 Mg 1–9.99 Mg ≥10 Mg
 - d. Is this waste soil from a remediation? Yes No
 - 1. If yes, what is the benzene concentration in remediation waste? _____ ppmw
 - e. Does the waste contain >10% water/moisture? Yes No
 - f. Has material been treated to remove 99% of the benzene or to achieve <10 ppmw? Yes No
 - g. Is material exempt from controls in accordance with 40 CFR 61.342? Yes No
- If yes, specify exemption: _____

h. Based on your knowledge of your waste and the BWON regulations, do you believe that this waste stream is subject to treatment and control requirements at an off-site TSDF? Yes No

6. 40 CFR 63 GGGGG → Does the material contain <500 ppmw VOHAPs at the point of determination? Yes No

7. CERCLA or State-Mandated clean up → Please submit the Record of Decision or other documentation with process information to assist others in the evaluation for proper disposal. A "Determination of Acceptability" may be needed for CERCLA wastes not going to a CERCLA approved facility.

8. NRC or state regulated radioactive or NORM Waste → Please identify Isotopes and pCi/g: _____



Additional Profile Information

Profile Number: OH895850

C. MATERIAL INFORMATION

Material Composition and Contaminants (Continued from page 2):

If more space is needed, please attach additional pages.

10.	
11.	
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40.	
Total composition must be equal to or greater than 100%	
≥100%	

D. REGULATORY INFORMATION

1. EPA Hazardous Waste

a. Please list all USEPA listed and characteristic waste code numbers (Continued from page 2):

2. Form Code:

3. Source Code:



LAND DISPOSAL RESTRICTION (LDR) NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

Generator Name: Norfolk Southern Railway Co

Profile Number: OH895850

Manifest Number: _____

Ref. #	2. US EPA HAZARDOUS WASTE CODE(S)	3. SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION (If not applicable, simply check NONE)		4. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
		DESCRIPTION	NONE	
1.	U043	N/A	<input checked="" type="checkbox"/>	A
2.			<input type="checkbox"/>	
3.			<input type="checkbox"/>	
4.			<input type="checkbox"/>	

- Is this waste a non-wastewater or wastewater? (See 40 CFR 268.2) Check ONE: Non-Wastewater Wastewater
For hazardous debris meeting the definition of debris and subject to the alternate treatment standards in 268.45, check here:
- In **column 2**, identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261.
• To list additional waste code(s) use Land Disposal Notification/Certification Supplemental Form (CWM-2005-D) and check here:
- In **column 3**, for each waste code, identify the subcategory if one applies, or check NONE if the waste code has no subcategory.
- In **column 4**, enter the letter from the list below (A. - D.) that describes how the waste must be managed to comply with the land disposal restriction regulations in 40 CFR 268. Please note that if you enter B.1, B.3, B.6 or D, you are certifying that the waste meets all the Land Disposal Restrictions and may be landfilled without further treatment. If you enter B.4, you are certifying that the waste has been decharacterized, but still requires treatment for UHCs. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed on this form. Where these regulatory citations differ, your form will be deemed to refer to those state citations as well as 40 CFR.)
- Constituents of concern for waste codes F001-F005 and F039 and underlying hazardous constituents (UHCs) for D001-D043, must be identified unless the treatment facility will monitor for all constituents. **If any of these codes apply, check appropriate box below:**
• To identify constituents of concern for F001-F005, F039 and UHCs, use the Identification of Constituents of Concern Form (CWM-2007) and check here:
• If UHCs are applicable, but none are present at the point of generation, check here:
• If incineration facility will monitor for all constituents of concern (except dioxins), check here:

MANAGEMENT METHODS

A RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR 268.40.

B.1 RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I personally have examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process had been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR 268.40 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification including the possibility of fine and imprisonment."

B.3 GOOD FAITH ANALYTICAL CERTIFICATION FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the non-wastewater organic constituents have been treated by combustion units as specified in 268.42 Table 1. I have been unable to detect the non-wastewater organic constituents despite having used best faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.4 DECHARACTERIZED WASTE REQUIRES TREATMENT FOR UNDERLYING HAZARDOUS CONSTITUENTS

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 or 268.49, to remove the hazardous characteristic. This de-characterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

B.6 RESTRICTED DEBRIS TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that the debris has been treated in accordance with the requirements of 40CFR 268.45. I am aware that there are significant penalties for making a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column (4) above.

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I certify under penalty of law I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and LAC 33: V. 2223-2233. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate to the best of my knowledge and information.

Name: (Print) Robert Scoble

Title: Environmental Manager

Signature: Robert Scoble

Date: 02/13/2023