

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

ALL4 - US Steel - TO-13A

JOB NUMBER

140-29855-1

Eurofins Knoxville

Job Notes

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Authorization



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Definitions/Glossary

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Qualifiers

Air - GC/MS Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

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

Method Summary

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Method	Method Description	Protocol	Laboratory
TO-13A	PAHs/ Semivolatile Organics in Ambient Air	EPA	EET KNX
Split	Split Factor Determination	None	EET KNX
TO-13A	Extraction of PAH/Semivolatile Compounds (Ambient Air)	EPA	EET KNX

Protocol References:

EPA = US Environmental Protection Agency

None = None

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-29855-1	TO13KNOX-221206-1	Air	12/07/22 00:00	12/08/22 10:45
140-29855-2	TO13KNOX-221206-2	Air	12/07/22 00:00	12/08/22 10:45
140-29855-3	TO13KNOX-221206-3	Air	12/07/22 00:00	12/08/22 10:45
140-29855-4	TO13KNOX-221206-4	Air	12/07/22 00:00	12/08/22 10:45

Case Narrative

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Job ID: 140-29855-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative 140-29855-1

Sample Receipt

The samples were received on 12/8/2022 at 10:45 in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.5° C. A Chain-of-Custody (COC) was not received with these samples: TO13KNOX-221206-1 (140-29855-1), TO13KNOX-221206-2 (140-29855-2), TO13KNOX-221206-3 (140-29855-3), and TO13KNOX-221206-4 (140-29855-4). Using an email copy from the client.

GC/MS Semi-volatiles

Method TO-13A: Surrogate recovery for the following samples were outside of acceptance limits: TO13KNOX-221206-1 (140-29855-1), TO13KNOX-221206-2 (140-29855-2) and TO13KNOX-221206-4 (140-29855-4). The entire sample was consumed during extraction, therefore, the data have been reported.

Method TO-13A: The following samples were diluted to bring the concentration of target analytes within the calibration range: TO13KNOX-221206-2 (140-29855-2), TO13KNOX-221206-3 (140-29855-3) and TO13KNOX-221206-4 (140-29855-4). Elevated reporting limits (RLs) are provided.

Method TO-13A: Surrogate recovery for the following sample was outside of acceptance limits: TO13KNOX-221206-1 (140-29855-1). The entire sample was consumed during extraction, 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.

Organic Preparation

Method Split: Approximately half of the sample volume was lost in concentration due to a leaking thimble.

TO13KNOX-221206-2 (140-29855-2)

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

Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Client Sample ID: TO13KNOX-221206-1

Lab Sample ID: 140-29855-1

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Sample Container: PUF/XAD

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	16.8		5.00	1.50	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Acenaphthylene	12.6		5.00	1.70	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Anthracene	2.41	J	5.00	1.40	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Benzo(a)anthracene	1.37	J	5.00	1.10	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Benzo[a]pyrene	ND		5.00	2.20	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Benzo[b]fluoranthene	ND		5.00	2.20	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Benzo[g,h,i]perylene	ND		5.00	1.70	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Benzo[k]fluoranthene	ND		5.00	1.30	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Chrysene	ND		5.00	1.30	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Dibenz(a,h)anthracene	ND		5.00	1.70	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Fluoranthene	4.18	J	5.00	1.50	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Fluorene	12.0		5.00	1.50	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Indeno[1,2,3-cd]pyrene	ND		5.00	2.20	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Phenanthrene	17.5		5.00	1.40	ug/Sample		12/09/22 03:25	12/15/22 17:58	1
Pyrene	2.48	J	5.00	1.50	ug/Sample		12/09/22 03:25	12/15/22 17:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	59		51 - 109	12/09/22 03:25	12/15/22 17:58	1
Nitrobenzene-d5 (Surr)	63		32 - 137	12/09/22 03:25	12/15/22 17:58	1
Terphenyl-d14 (Surr)	57	S1-	65 - 124	12/09/22 03:25	12/15/22 17:58	1
13C6-Naphthalene	48	S1-	50 - 150	12/09/22 03:25	12/15/22 17:58	1

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	411		25.0	8.00	ug/Sample		12/09/22 03:25	12/16/22 15:34	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	59		51 - 109	12/09/22 03:25	12/16/22 15:34	5
Nitrobenzene-d5 (Surr)	63		32 - 137	12/09/22 03:25	12/16/22 15:34	5
Terphenyl-d14 (Surr)	62	S1-	65 - 124	12/09/22 03:25	12/16/22 15:34	5
13C6-Naphthalene	54		50 - 150	12/09/22 03:25	12/16/22 15:34	5

Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Client Sample ID: TO13KNOX-221206-2

Lab Sample ID: 140-29855-2

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Sample Container: PUF/XAD

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	13.6		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Acenaphthylene	71.4		10.0	3.40	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Anthracene	7.65	J	10.0	2.80	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Benzo(a)anthracene	3.41	J	10.0	2.20	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Benzo[a]pyrene	ND		10.0	4.40	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Benzo[b]fluoranthene	ND		10.0	4.40	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Benzo[g,h,i]perylene	ND		10.0	3.40	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Benzo[k]fluoranthene	ND		10.0	2.60	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Chrysene	ND		10.0	2.60	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Dibenz(a,h)anthracene	ND		10.0	3.40	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Fluoranthene	18.7		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Fluorene	32.0		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Indeno[1,2,3-cd]pyrene	ND		10.0	4.40	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Phenanthrene	44.5		10.0	2.80	ug/Sample		12/09/22 03:25	12/15/22 18:21	2
Pyrene	10.7		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 18:21	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	63		51 - 109	12/09/22 03:25	12/15/22 18:21	2
Nitrobenzene-d5 (Surr)	72		32 - 137	12/09/22 03:25	12/15/22 18:21	2
Terphenyl-d14 (Surr)	65		65 - 124	12/09/22 03:25	12/15/22 18:21	2
13C6-Naphthalene	46	S1-	50 - 150	12/09/22 03:25	12/15/22 18:21	2

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	2880		125	40.0	ug/Sample		12/09/22 03:25	12/16/22 15:57	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	0	D S1-	51 - 109	12/09/22 03:25	12/16/22 15:57	25
Nitrobenzene-d5 (Surr)	0	D S1-	32 - 137	12/09/22 03:25	12/16/22 15:57	25
Terphenyl-d14 (Surr)	0	D S1-	65 - 124	12/09/22 03:25	12/16/22 15:57	25
13C6-Naphthalene	0	D S1-	50 - 150	12/09/22 03:25	12/16/22 15:57	25

Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Client Sample ID: TO13KNOX-221206-3

Lab Sample ID: 140-29855-3

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Sample Container: PUF/XAD

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	17.2	J	50.0	15.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Acenaphthylene	39.2	J	50.0	17.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Anthracene	ND		50.0	14.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Benzo(a)anthracene	13.1	J	50.0	11.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Benzo[a]pyrene	ND		50.0	22.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Benzo[b]fluoranthene	ND		50.0	22.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Benzo[g,h,i]perylene	ND		50.0	17.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Benzo[k]fluoranthene	ND		50.0	13.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Chrysene	ND		50.0	13.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Dibenz(a,h)anthracene	ND		50.0	17.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Fluoranthene	17.2	J	50.0	15.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Fluorene	20.3	J	50.0	15.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Indeno[1,2,3-cd]pyrene	ND		50.0	22.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Naphthalene	912		50.0	16.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Phenanthrene	37.3	J	50.0	14.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Pyrene	ND		50.0	15.0	ug/Sample		12/09/22 03:25	12/15/22 18:46	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	98		51 - 109				12/09/22 03:25	12/15/22 18:46	10
Nitrobenzene-d5 (Surr)	106		32 - 137				12/09/22 03:25	12/15/22 18:46	10
Terphenyl-d14 (Surr)	105		65 - 124				12/09/22 03:25	12/15/22 18:46	10
13C6-Naphthalene	90		50 - 150				12/09/22 03:25	12/15/22 18:46	10

Client Sample Results

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Client Sample ID: TO13KNOX-221206-4

Lab Sample ID: 140-29855-4

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Sample Container: PUF/XAD

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	57.9		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Anthracene	76.7		10.0	2.80	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Benzo(a)anthracene	11.9		10.0	2.20	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Benzo[a]pyrene	6.27	J	10.0	4.40	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Benzo[b]fluoranthene	6.81	J	10.0	4.40	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Benzo[g,h,i]perylene	3.51	J	10.0	3.40	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Benzo[k]fluoranthene	5.47	J	10.0	2.60	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Chrysene	10.5		10.0	2.60	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Dibenz(a,h)anthracene	ND		10.0	3.40	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Fluoranthene	102		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Fluorene	280		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Indeno[1,2,3-cd]pyrene	4.84	J	10.0	4.40	ug/Sample		12/09/22 03:25	12/15/22 19:09	2
Pyrene	62.6		10.0	3.00	ug/Sample		12/09/22 03:25	12/15/22 19:09	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	90		51 - 109	12/09/22 03:25	12/15/22 19:09	2
Nitrobenzene-d5 (Surr)	171	S1+	32 - 137	12/09/22 03:25	12/15/22 19:09	2
Terphenyl-d14 (Surr)	93		65 - 124	12/09/22 03:25	12/15/22 19:09	2
13C6-Naphthalene	68		50 - 150	12/09/22 03:25	12/15/22 19:09	2

Method: EPA TO-13A - PAHs/ Semivolatile Organics in Ambient Air - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	1460		500	170	ug/Sample		12/09/22 03:25	12/16/22 16:20	100
Naphthalene	18900		500	160	ug/Sample		12/09/22 03:25	12/16/22 16:20	100
Phenanthrene	417	J	500	140	ug/Sample		12/09/22 03:25	12/16/22 16:20	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	0	D S1-	51 - 109	12/09/22 03:25	12/16/22 16:20	100
Nitrobenzene-d5 (Surr)	0	D S1-	32 - 137	12/09/22 03:25	12/16/22 16:20	100
Terphenyl-d14 (Surr)	0	D S1-	65 - 124	12/09/22 03:25	12/16/22 16:20	100
13C6-Naphthalene	0	D S1-	50 - 150	12/09/22 03:25	12/16/22 16:20	100

Default Detection Limits

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Method: TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Prep: TO-13A

Analyte	RL	MDL	Units
Acenaphthene	5.00	1.50	ug/Sample
Acenaphthylene	5.00	1.70	ug/Sample
Anthracene	5.00	1.40	ug/Sample
Benzo(a)anthracene	5.00	1.10	ug/Sample
Benzo[a]pyrene	5.00	2.20	ug/Sample
Benzo[b]fluoranthene	5.00	2.20	ug/Sample
Benzo[g,h,i]perylene	5.00	1.70	ug/Sample
Benzo[k]fluoranthene	5.00	1.30	ug/Sample
Chrysene	5.00	1.30	ug/Sample
Dibenz(a,h)anthracene	5.00	1.70	ug/Sample
Fluoranthene	5.00	1.50	ug/Sample
Fluorene	5.00	1.50	ug/Sample
Indeno[1,2,3-cd]pyrene	5.00	2.20	ug/Sample
Naphthalene	5.00	1.60	ug/Sample
Phenanthrene	5.00	1.40	ug/Sample
Pyrene	5.00	1.50	ug/Sample

Surrogate Summary

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Method: TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Matrix: Air

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		FBP (51-109)	NBZ (32-137)	TPHL (65-124)	C6N (50-150)
140-29855-1	TO13KNOX-221206-1	59	63	57 S1-	48 S1-
140-29855-1 - DL	TO13KNOX-221206-1	59	63	62 S1-	54
140-29855-2	TO13KNOX-221206-2	63	72	65	46 S1-
140-29855-2 - DL	TO13KNOX-221206-2	0 D S1-	0 D S1-	0 D S1-	0 D S1-
140-29855-3	TO13KNOX-221206-3	98	106	105	90
140-29855-4	TO13KNOX-221206-4	90	171 S1+	93	68
140-29855-4 - DL	TO13KNOX-221206-4	0 D S1-	0 D S1-	0 D S1-	0 D S1-
LCS 140-68308/2-C	Lab Control Sample	91	95	88	
MB 140-68308/1-C	Method Blank	89	98	92	

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPHL = Terphenyl-d14 (Surr)

C6N = 13C6-Naphthalene

QC Sample Results

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Method: TO-13A - PAHs/ Semivolatile Organics in Ambient Air

Lab Sample ID: MB 140-68308/1-C

Matrix: Air

Analysis Batch: 68520

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 68309

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		5.00	1.50	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Acenaphthylene	ND		5.00	1.70	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Anthracene	ND		5.00	1.40	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Benzo(a)anthracene	ND		5.00	1.10	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Benzo[a]pyrene	ND		5.00	2.20	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Benzo[b]fluoranthene	ND		5.00	2.20	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Benzo[g,h,i]perylene	ND		5.00	1.70	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Benzo[k]fluoranthene	ND		5.00	1.30	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Chrysene	ND		5.00	1.30	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Dibenz(a,h)anthracene	ND		5.00	1.70	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Fluoranthene	ND		5.00	1.50	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Fluorene	ND		5.00	1.50	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Indeno[1,2,3-cd]pyrene	ND		5.00	2.20	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Naphthalene	ND		5.00	1.60	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Phenanthrene	ND		5.00	1.40	ug/Sample		12/09/22 03:11	12/15/22 15:13	1
Pyrene	ND		5.00	1.50	ug/Sample		12/09/22 03:11	12/15/22 15:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	89		51 - 109	12/09/22 03:11	12/15/22 15:13	1
Nitrobenzene-d5 (Surr)	98		32 - 137	12/09/22 03:11	12/15/22 15:13	1
Terphenyl-d14 (Surr)	92		65 - 124	12/09/22 03:11	12/15/22 15:13	1

Lab Sample ID: LCS 140-68308/2-C

Matrix: Air

Analysis Batch: 68520

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 68309

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	100	82.93		ug/Sample		83	57 - 117
Acenaphthylene	100	81.00		ug/Sample		81	62 - 122
Anthracene	100	73.13		ug/Sample		73	62 - 122
Benzo(a)anthracene	100	78.47		ug/Sample		78	68 - 128
Benzo[a]pyrene	100	84.10		ug/Sample		84	58 - 118
Benzo[b]fluoranthene	100	84.71		ug/Sample		85	59 - 122
Benzo[g,h,i]perylene	100	77.93		ug/Sample		78	64 - 124
Benzo[k]fluoranthene	100	84.94		ug/Sample		85	59 - 119
Chrysene	100	75.88		ug/Sample		76	57 - 117
Dibenz(a,h)anthracene	100	79.41		ug/Sample		79	63 - 123
Fluoranthene	100	72.92		ug/Sample		73	62 - 122
Fluorene	100	79.80		ug/Sample		80	61 - 121
Indeno[1,2,3-cd]pyrene	100	87.23		ug/Sample		87	65 - 125
Naphthalene	100	83.21		ug/Sample		83	54 - 114
Phenanthrene	100	74.28		ug/Sample		74	60 - 120
Pyrene	100	68.61		ug/Sample		69	60 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	91		51 - 109
Nitrobenzene-d5 (Surr)	95		32 - 137
Terphenyl-d14 (Surr)	88		65 - 124

Eurofins Knoxville

QC Association Summary

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Air - GC/MS Semi VOA

Pre Prep Batch: 68308

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 140-68308/1-C	Method Blank	Total/NA	Air	PUF to Air	
LCS 140-68308/2-C	Lab Control Sample	Total/NA	Air	PUF to Air	

Prep Batch: 68309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29855-1	TO13KNOX-221206-1	Total/NA	Air	TO-13A	
140-29855-1 - DL	TO13KNOX-221206-1	Total/NA	Air	TO-13A	
140-29855-2 - DL	TO13KNOX-221206-2	Total/NA	Air	TO-13A	
140-29855-2	TO13KNOX-221206-2	Total/NA	Air	TO-13A	
140-29855-3	TO13KNOX-221206-3	Total/NA	Air	TO-13A	
140-29855-4	TO13KNOX-221206-4	Total/NA	Air	TO-13A	
140-29855-4 - DL	TO13KNOX-221206-4	Total/NA	Air	TO-13A	
MB 140-68308/1-C	Method Blank	Total/NA	Air	TO-13A	68308
LCS 140-68308/2-C	Lab Control Sample	Total/NA	Air	TO-13A	68308

Cleanup Batch: 68404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29855-1	TO13KNOX-221206-1	Total/NA	Air	Split	68309
140-29855-1 - DL	TO13KNOX-221206-1	Total/NA	Air	Split	68309
140-29855-2 - DL	TO13KNOX-221206-2	Total/NA	Air	Split	68309
140-29855-2	TO13KNOX-221206-2	Total/NA	Air	Split	68309
140-29855-3	TO13KNOX-221206-3	Total/NA	Air	Split	68309
140-29855-4	TO13KNOX-221206-4	Total/NA	Air	Split	68309
140-29855-4 - DL	TO13KNOX-221206-4	Total/NA	Air	Split	68309
MB 140-68308/1-C	Method Blank	Total/NA	Air	Split	68309
LCS 140-68308/2-C	Lab Control Sample	Total/NA	Air	Split	68309

Analysis Batch: 68520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29855-1	TO13KNOX-221206-1	Total/NA	Air	TO-13A	68404
140-29855-2	TO13KNOX-221206-2	Total/NA	Air	TO-13A	68404
140-29855-3	TO13KNOX-221206-3	Total/NA	Air	TO-13A	68404
140-29855-4	TO13KNOX-221206-4	Total/NA	Air	TO-13A	68404
MB 140-68308/1-C	Method Blank	Total/NA	Air	TO-13A	68404
LCS 140-68308/2-C	Lab Control Sample	Total/NA	Air	TO-13A	68404

Analysis Batch: 68578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29855-1 - DL	TO13KNOX-221206-1	Total/NA	Air	TO-13A	68404
140-29855-2 - DL	TO13KNOX-221206-2	Total/NA	Air	TO-13A	68404
140-29855-4 - DL	TO13KNOX-221206-4	Total/NA	Air	TO-13A	68404

Lab Chronicle

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Client Sample ID: TO13KNOX-221206-1

Lab Sample ID: 140-29855-1

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	TO-13A			1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A		1	1 mL	1 mL	68520	12/15/22 17:58	DWS	EET KNX
Instrument ID: MY										
Total/NA	Prep	TO-13A	DL		1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split	DL		1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A	DL	5	1 mL	1 mL	68578	12/16/22 15:34	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: TO13KNOX-221206-2

Lab Sample ID: 140-29855-2

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	TO-13A			1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A		2	1 mL	1 mL	68520	12/15/22 18:21	DWS	EET KNX
Instrument ID: MY										
Total/NA	Prep	TO-13A	DL		1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split	DL		1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A	DL	25	1 mL	1 mL	68578	12/16/22 15:57	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: TO13KNOX-221206-3

Lab Sample ID: 140-29855-3

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	TO-13A			1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A		10	1 mL	1 mL	68520	12/15/22 18:46	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: TO13KNOX-221206-4

Lab Sample ID: 140-29855-4

Date Collected: 12/07/22 00:00

Matrix: Air

Date Received: 12/08/22 10:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	TO-13A			1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A		2	1 mL	1 mL	68520	12/15/22 19:09	DWS	EET KNX
Instrument ID: MY										
Total/NA	Prep	TO-13A	DL		1 PUF	1 mL	68309	12/09/22 03:25	CLI	EET KNX
Total/NA	Cleanup	Split	DL		1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A	DL	100	1 mL	1 mL	68578	12/16/22 16:20	DWS	EET KNX
Instrument ID: MY										

Eurofins Knoxville

Lab Chronicle

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Client Sample ID: Method Blank

Lab Sample ID: MB 140-68308/1-C

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	PUF to Air					68308	12/09/22 03:08	CLI	EET KNX
Total/NA	Prep	TO-13A			1 PUF	1 mL	68309	12/09/22 03:11	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A		1	1 mL	1 mL	68520	12/15/22 15:13	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-68308/2-C

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	PUF to Air					68308	12/09/22 03:08	CLI	EET KNX
Total/NA	Prep	TO-13A			1 PUF	1 mL	68309	12/09/22 03:11	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	68404	12/12/22 15:24	MCC	EET KNX
Total/NA	Analysis	TO-13A		1	1 mL	1 mL	68520	12/15/22 15:37	DWS	EET KNX
Instrument ID: MY										

Laboratory References:

EET KNX = Eurofins Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Enthalpy Analytical LLC
Project/Site: ALL4 - US Steel - TO-13A

Job ID: 140-29855-1

Laboratory: Eurofins Knoxville

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-25
ANAB	Dept. of Energy	L2311.01	02-13-25
ANAB	ISO/IEC 17025	L2311	02-13-25
Arkansas DEQ	State	88-0688	06-16-23
California	State	2423	06-30-23
Colorado	State	TN00009	02-28-23
Connecticut	State	PH-0223	09-30-23
Florida	NELAP	E87177	06-30-23
Georgia (DW)	State	906	12-11-22 *
Hawaii	State	NA	07-27-23
Kansas	NELAP	E-10349	10-31-23
Kentucky (DW)	State	90101	12-31-22
Louisiana	NELAP	83979	06-30-23
Louisiana (All)	NELAP	83979	06-30-23
Louisiana (DW)	State	LA019	12-31-22
Maryland	State	277	03-31-23
Michigan	State	9933	07-27-25
Nevada	State	TN00009	07-31-23
New Hampshire	NELAP	299919	01-17-23
New Jersey	NELAP	TN001	06-30-23
New York	NELAP	10781	03-31-23
North Carolina (DW)	State	21705	07-31-23
North Carolina (WW/SW)	State	64	12-31-22
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-23
Oregon	NELAP	TNI0189	12-31-22
Pennsylvania	NELAP	68-00576	12-01-23
Tennessee	State	02014	07-27-25
Texas	NELAP	T104704380-22-17	08-31-23
US Fish & Wildlife	US Federal Programs	058448	07-31-23
USDA	US Federal Programs	P330-19-00236	12-31-22
Utah	NELAP	TN00009	07-31-23
Virginia	NELAP	460176	09-14-23
Washington	State	C593	01-19-23
West Virginia (DW)	State	9955C	12-31-22
West Virginia DEP	State	345	04-30-23
Wisconsin	State	998044300	08-31-23

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

Eurofins Knoxville

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Log In Number:

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Are the shipping containers intact?	/			<input type="checkbox"/> Containers, Broken	RECEIVED BY <u>Ramona</u> 12-8-22 10:45
2. Were ambient air containers received intact?	/			<input type="checkbox"/> Checked in lab	
3. The coolers/containers custody seal if present, is it intact?	/			<input type="checkbox"/> Yes <input type="checkbox"/> NA	CUSTOMER SEALS INTACT RECEIVED AT RT 0.3/CTO 5°C DKD 12-8-22 COC# 1039 1039 1888 PD
4. Is the cooler temperature within limits? (> freezing temp. of water to 6°C, VOST: 10°C) Thermometer ID: <u>5674</u> Correction factor: <u>+0.2°C</u>	/			<input type="checkbox"/> Cooler Out of Temp, Client Contacted, Proceed/Cancel <input type="checkbox"/> Cooler Out of Temp, Same Day Receipt	703460X-22 12-06-21
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	1" " -2
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	1" " -3
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input type="checkbox"/> COC & Samples Do Not Match <input type="checkbox"/> COC Incorrect/Incomplete <input checked="" type="checkbox"/> COC Not Received	
8. Were all of the samples listed on the COC received?	/			<input type="checkbox"/> Sample Received, Not on COC <input type="checkbox"/> Sample on COC, Not Received	
9. Is the date/time of sample collection noted?	/			<input type="checkbox"/> COC; No Date/Time; Client Contacted	
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> Sampler Not Listed on COC	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC No tests on COC	
13. Is the matrix of the samples noted?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
14. Was COC relinquished? (Signed/Dated/Timed)	/			<input type="checkbox"/> COC Incorrect/Incomplete	
15. Were samples received within holding time?	/			<input type="checkbox"/> Holding Time - Receipt	Box 16A: pH Preservation
16. Were samples received with correct chemical preservative (excluding Encore)?	/			<input type="checkbox"/> pH Adjusted, pH Included (See box 16A) <input type="checkbox"/> Incorrect Preservative	Box 18A: Residual Chlorine
17. Were VOA samples received without headspace?	/			<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	Preservative: Lot Number: Exp Date: Analyst: Date: Time:
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:	/				
19. For 1613B water samples is pH<9?	/			<input type="checkbox"/> If no, notify lab to adjust	
20. For rad samples was sample activity info. Provided?	/			<input type="checkbox"/> Project missing info	
Project #: <u>14006806</u> PM Instructions: _____					
Sample Receiving Associate: <u>Ramona</u> Date: <u>12-8-22</u>					

QA026R32.doc, 062719