



ANALYTICAL REPORT

PREPARED FOR

Attn: David Myers
Enthalpy Analytical LLC
800 Capitola Drive Suite 1
Durham, North Carolina 27713

Generated 11/29/2022 2:40:15 PM

JOB DESCRIPTION

ALL4 - US Steel - TO-13A

JOB NUMBER

140-29557-1

Eurofins Knoxville

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 TestAmerica Project Manager.

Authorization



Generated
11/29/2022 2:40:15 PM

Authorized for release by
Kevin Woodcock, Senior Project Manager
Kevin.Woodcock@et.eurofinsus.com
(865)291-3082



Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Method Summary	5
Sample Summary	6
Case Narrative	7
Client Sample Results	8
Default Detection Limits	12
Surrogate Summary	13
QC Sample Results	14
QC Association Summary	15
Lab Chronicle	16
Certification Summary	18
Chain of Custody	19

Definitions/Glossary

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

Job ID: 140-29557-1

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.

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: 140-29557-1

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: 140-29557-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-29557-1	PAH01_221108_S	Air	11/08/22 16:24	11/10/22 09:00
140-29557-2	PAH02_221108_S	Air	11/08/22 16:37	11/10/22 09:00
140-29557-3	PAH03_221108_S	Air	11/08/22 16:54	11/10/22 09:00
140-29557-4	PAH04_221108_S	Air	11/08/22 16:02	11/10/22 09:00

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

Case Narrative

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

Job ID: 140-29557-1

Job ID: 140-29557-1

Laboratory: Eurofins Knoxville

Narrative

Job Narrative 140-29557-1

Sample Receipt

The samples were received on 11/10/2022 at 09:00 in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5° C.

Receipt Exceptions

A Chain-of-Custody (COC) was not received with these samples: PAH01_221108_S (140-29557-1), PAH02_221108_S (140-29557-2), PAH03_221108_S (140-29557-3) and PAH04_221108_S (140-29557-4). Using email copy from client.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): PAH01_221108_S (140-29557-1), PAH02_221108_S (140-29557-2), PAH03_221108_S (140-29557-3) and PAH04_221108_S (140-29557-4). Client ID's not listed on containers, matched by TO-13 PUF Cartridge asset numbers.

GC/MS Semi-volatiles

Method TO-13A: The following samples were diluted to bring the concentration of target analytes within the calibration range: PAH01_221108_S (140-29557-1), PAH02_221108_S (140-29557-2), PAH03_221108_S (140-29557-3) and PAH04_221108_S (140-29557-4). 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.

Organic Preparation

Method TO-13A: All samples contained a dark gray layer on the top 1" PUF while a light gray color continued throughout the rest of the PUF/XAD in the cartridge. No filters were associated with samples.

Sample 140-29557-A-4 zip top bag contained a transparent, colorless liquid that saturated the PUF/XAD in the cartridge.

PAH01_221108_S (140-29557-1), PAH02_221108_S (140-29557-2), PAH03_221108_S (140-29557-3) and PAH04_221108_S (140-29557-4)

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: 140-29557-1

Client Sample ID: PAH01_221108_S

Lab Sample ID: 140-29557-1

Date Collected: 11/08/22 16:24

Matrix: Air

Date Received: 11/10/22 09:00

Sample Container: PUF

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Acenaphthylene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Anthracene	ND		50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Benzo(a)anthracene	ND		50.0	11.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Benzo[a]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Benzo[b]fluoranthene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Benzo[g,h,i]perylene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Benzo[k]fluoranthene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Chrysene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Dibenz(a,h)anthracene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Fluoranthene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Fluorene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Indeno[1,2,3-cd]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Naphthalene	430		50.0	16.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Phenanthrene	17.2 J		50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10
Pyrene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 11:52	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	81		51 - 109	11/15/22 01:34	11/28/22 11:52	10
Nitrobenzene-d5 (Surr)	79		32 - 137	11/15/22 01:34	11/28/22 11:52	10
Terphenyl-d14 (Surr)	94		65 - 124	11/15/22 01:34	11/28/22 11:52	10
13C6-Naphthalene	76		50 - 150	11/15/22 01:34	11/28/22 11:52	10

Client Sample Results

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

Job ID: 140-29557-1

Client Sample ID: PAH02_221108_S

Lab Sample ID: 140-29557-2

Date Collected: 11/08/22 16:37

Matrix: Air

Date Received: 11/10/22 09:00

Sample Container: PUF

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	33.4	J	50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Acenaphthylene	104		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Anthracene	15.9	J	50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Benzo(a)anthracene	ND		50.0	11.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Benzo(a)pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Benzo(b)fluoranthene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Benzo(g,h,i)perylene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Benzo(k)fluoranthene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Chrysene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Dibenz(a,h)anthracene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Fluoranthene	18.7	J	50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Fluorene	114		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Indeno[1,2,3-cd]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Phenanthrene	115		50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10
Pyrene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:16	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	76		51 - 109	11/15/22 01:34	11/28/22 12:16	10
Nitrobenzene-d5 (Surr)	83		32 - 137	11/15/22 01:34	11/28/22 12:16	10
Terphenyl-d14 (Surr)	85		65 - 124	11/15/22 01:34	11/28/22 12:16	10
13C6-Naphthalene	66		50 - 150	11/15/22 01:34	11/28/22 12:16	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	12600		1000	320	ug/Sample		11/15/22 01:34	11/28/22 16:39	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	0	S1- D	51 - 109	11/15/22 01:34	11/28/22 16:39	200
Nitrobenzene-d5 (Surr)	0	S1- D	32 - 137	11/15/22 01:34	11/28/22 16:39	200
Terphenyl-d14 (Surr)	0	S1- D	65 - 124	11/15/22 01:34	11/28/22 16:39	200
13C6-Naphthalene	0	S1- D	50 - 150	11/15/22 01:34	11/28/22 16:39	200

Client Sample Results

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

Job ID: 140-29557-1

Client Sample ID: PAH03_221108_S

Lab Sample ID: 140-29557-3

Date Collected: 11/08/22 16:54

Matrix: Air

Date Received: 11/10/22 09:00

Sample Container: PUF

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Acenaphthylene	27.9	J	50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Anthracene	ND		50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Benzo(a)anthracene	ND		50.0	11.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Benzo[a]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Benzo[b]fluoranthene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Benzo[g,h,i]perylene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Benzo[k]fluoranthene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Chrysene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Dibenz(a,h)anthracene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Fluoranthene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Fluorene	18.9	J	50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Indeno[1,2,3-cd]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Phenanthrene	26.6	J	50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10
Pyrene	ND		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 12:39	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	74		51 - 109	11/15/22 01:34	11/28/22 12:39	10
Nitrobenzene-d5 (Surr)	71		32 - 137	11/15/22 01:34	11/28/22 12:39	10
Terphenyl-d14 (Surr)	85		65 - 124	11/15/22 01:34	11/28/22 12:39	10
13C6-Naphthalene	70		50 - 150	11/15/22 01:34	11/28/22 12:39	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	1500		125	40.0	ug/Sample		11/15/22 01:34	11/28/22 15:01	25

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	0	S1- D	51 - 109	11/15/22 01:34	11/28/22 15:01	25
Nitrobenzene-d5 (Surr)	0	S1- D	32 - 137	11/15/22 01:34	11/28/22 15:01	25
Terphenyl-d14 (Surr)	0	S1- D	65 - 124	11/15/22 01:34	11/28/22 15:01	25
13C6-Naphthalene	0	S1- D	50 - 150	11/15/22 01:34	11/28/22 15:01	25

Client Sample Results

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

Job ID: 140-29557-1

Client Sample ID: PAH04_221108_S

Lab Sample ID: 140-29557-4

Date Collected: 11/08/22 16:02

Matrix: Air

Date Received: 11/10/22 09:00

Sample Container: PUF

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	35.0	J	50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Anthracene	39.7	J	50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Benzo(a)anthracene	ND		50.0	11.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Benzo[a]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Benzo[b]fluoranthene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Benzo[g,h,i]perylene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Benzo[k]fluoranthene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Chrysene	ND		50.0	13.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Dibenz(a,h)anthracene	ND		50.0	17.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Fluoranthene	49.2	J	50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Fluorene	213		50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Indeno[1,2,3-cd]pyrene	ND		50.0	22.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Phenanthrene	224		50.0	14.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Pyrene	29.5	J	50.0	15.0	ug/Sample		11/15/22 01:34	11/28/22 13:03	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	80		51 - 109				11/15/22 01:34	11/28/22 13:03	10
Nitrobenzene-d5 (Surr)	83		32 - 137				11/15/22 01:34	11/28/22 13:03	10
Terphenyl-d14 (Surr)	92		65 - 124				11/15/22 01:34	11/28/22 13:03	10
13C6-Naphthalene	69		50 - 150				11/15/22 01:34	11/28/22 13:03	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	626	J	1000	340	ug/Sample		11/15/22 01:34	11/28/22 15:24	200
Naphthalene	15700		1000	320	ug/Sample		11/15/22 01:34	11/28/22 15:24	200
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	0	D S1-	51 - 109				11/15/22 01:34	11/28/22 15:24	200
Nitrobenzene-d5 (Surr)	0	D S1-	32 - 137				11/15/22 01:34	11/28/22 15:24	200
Terphenyl-d14 (Surr)	0	D S1-	65 - 124				11/15/22 01:34	11/28/22 15:24	200
13C6-Naphthalene	0	D S1-	50 - 150				11/15/22 01:34	11/28/22 15:24	200

Default Detection Limits

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

Job ID: 140-29557-1

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: 140-29557-1

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

Matrix: Air

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	FBP	NBZ	TPHL	C6N
		(51-109)	(32-137)	(65-124)	(50-150)
140-29557-1	PAH01_221108_S	81	79	94	76
140-29557-2 - DL	PAH02_221108_S	0 S1- D	0 S1- D	0 S1- D	0 S1- D
140-29557-2	PAH02_221108_S	76	83	85	66
140-29557-3 - DL	PAH03_221108_S	0 S1- D	0 S1- D	0 S1- D	0 S1- D
140-29557-3	PAH03_221108_S	74	71	85	70
140-29557-4 - DL	PAH04_221108_S	0 D S1-	0 D S1-	0 D S1-	0 D S1-
140-29557-4	PAH04_221108_S	80	83	92	69
LCS 140-67469/2-B	Lab Control Sample	84	85	86	
MB 140-67469/1-B	Method Blank	70	69	72	

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: 140-29557-1

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

Lab Sample ID: MB 140-67469/1-B

Matrix: Air

Analysis Batch: 67845

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67469

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		5.00	1.50	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Acenaphthylene	ND		5.00	1.70	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Anthracene	ND		5.00	1.40	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Benzo(a)anthracene	ND		5.00	1.10	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Benzo[a]pyrene	ND		5.00	2.20	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Benzo[b]fluoranthene	ND		5.00	2.20	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Benzo[g,h,i]perylene	ND		5.00	1.70	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Benzo[k]fluoranthene	ND		5.00	1.30	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Chrysene	ND		5.00	1.30	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Dibenz(a,h)anthracene	ND		5.00	1.70	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Fluoranthene	ND		5.00	1.50	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Fluorene	ND		5.00	1.50	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Indeno[1,2,3-cd]pyrene	ND		5.00	2.20	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Naphthalene	ND		5.00	1.60	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Phenanthrene	ND		5.00	1.40	ug/Sample		11/15/22 01:34	11/28/22 11:05	1
Pyrene	ND		5.00	1.50	ug/Sample		11/15/22 01:34	11/28/22 11:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		51 - 109	11/15/22 01:34	11/28/22 11:05	1
Nitrobenzene-d5 (Surr)	69		32 - 137	11/15/22 01:34	11/28/22 11:05	1
Terphenyl-d14 (Surr)	72		65 - 124	11/15/22 01:34	11/28/22 11:05	1

Lab Sample ID: LCS 140-67469/2-B

Matrix: Air

Analysis Batch: 67845

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67469

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	100	77.06		ug/Sample		77	57 - 117
Acenaphthylene	100	80.47		ug/Sample		80	62 - 122
Anthracene	100	78.02		ug/Sample		78	62 - 122
Benzo(a)anthracene	100	81.81		ug/Sample		82	68 - 128
Benzo[a]pyrene	100	80.71		ug/Sample		81	58 - 118
Benzo[b]fluoranthene	100	84.35		ug/Sample		84	59 - 122
Benzo[g,h,i]perylene	100	86.74		ug/Sample		87	64 - 124
Benzo[k]fluoranthene	100	79.05		ug/Sample		79	59 - 119
Chrysene	100	83.01		ug/Sample		83	57 - 117
Dibenz(a,h)anthracene	100	88.17		ug/Sample		88	63 - 123
Fluoranthene	100	86.17		ug/Sample		86	62 - 122
Fluorene	100	84.60		ug/Sample		85	61 - 121
Indeno[1,2,3-cd]pyrene	100	78.51		ug/Sample		79	65 - 125
Naphthalene	100	83.69		ug/Sample		84	54 - 114
Phenanthrene	100	83.41		ug/Sample		83	60 - 120
Pyrene	100	72.87		ug/Sample		73	60 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	84		51 - 109
Nitrobenzene-d5 (Surr)	85		32 - 137
Terphenyl-d14 (Surr)	86		65 - 124

Eurofins Knoxville

QC Association Summary

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

Job ID: 140-29557-1

Air - GC/MS Semi VOA

Prep Batch: 67469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29557-1	PAH01_221108_S	Total/NA	Air	TO-13A	
140-29557-2	PAH02_221108_S	Total/NA	Air	TO-13A	
140-29557-2 - DL	PAH02_221108_S	Total/NA	Air	TO-13A	
140-29557-3 - DL	PAH03_221108_S	Total/NA	Air	TO-13A	
140-29557-3	PAH03_221108_S	Total/NA	Air	TO-13A	
140-29557-4	PAH04_221108_S	Total/NA	Air	TO-13A	
140-29557-4 - DL	PAH04_221108_S	Total/NA	Air	TO-13A	
MB 140-67469/1-B	Method Blank	Total/NA	Air	TO-13A	
LCS 140-67469/2-B	Lab Control Sample	Total/NA	Air	TO-13A	

Cleanup Batch: 67673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29557-1	PAH01_221108_S	Total/NA	Air	Split	67469
140-29557-2	PAH02_221108_S	Total/NA	Air	Split	67469
140-29557-2 - DL	PAH02_221108_S	Total/NA	Air	Split	67469
140-29557-3	PAH03_221108_S	Total/NA	Air	Split	67469
140-29557-3 - DL	PAH03_221108_S	Total/NA	Air	Split	67469
140-29557-4	PAH04_221108_S	Total/NA	Air	Split	67469
140-29557-4 - DL	PAH04_221108_S	Total/NA	Air	Split	67469
MB 140-67469/1-B	Method Blank	Total/NA	Air	Split	67469
LCS 140-67469/2-B	Lab Control Sample	Total/NA	Air	Split	67469

Analysis Batch: 67845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-29557-1	PAH01_221108_S	Total/NA	Air	TO-13A	67673
140-29557-2	PAH02_221108_S	Total/NA	Air	TO-13A	67673
140-29557-2 - DL	PAH02_221108_S	Total/NA	Air	TO-13A	67673
140-29557-3	PAH03_221108_S	Total/NA	Air	TO-13A	67673
140-29557-3 - DL	PAH03_221108_S	Total/NA	Air	TO-13A	67673
140-29557-4	PAH04_221108_S	Total/NA	Air	TO-13A	67673
140-29557-4 - DL	PAH04_221108_S	Total/NA	Air	TO-13A	67673
MB 140-67469/1-B	Method Blank	Total/NA	Air	TO-13A	67673
LCS 140-67469/2-B	Lab Control Sample	Total/NA	Air	TO-13A	67673

Lab Chronicle

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

Job ID: 140-29557-1

Client Sample ID: PAH01_221108_S

Lab Sample ID: 140-29557-1

Date Collected: 11/08/22 16:24

Matrix: Air

Date Received: 11/10/22 09:00

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	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A		10	1 mL	1 mL	67845	11/28/22 11:52	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: PAH02_221108_S

Lab Sample ID: 140-29557-2

Date Collected: 11/08/22 16:37

Matrix: Air

Date Received: 11/10/22 09:00

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	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A		10	1 mL	1 mL	67845	11/28/22 12:16	DWS	EET KNX
Instrument ID: MY										
Total/NA	Prep	TO-13A	DL		1 PUF	1 mL	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split	DL		1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A	DL	200	1 mL	1 mL	67845	11/28/22 16:39	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: PAH03_221108_S

Lab Sample ID: 140-29557-3

Date Collected: 11/08/22 16:54

Matrix: Air

Date Received: 11/10/22 09:00

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	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A		10	1 mL	1 mL	67845	11/28/22 12:39	DWS	EET KNX
Instrument ID: MY										
Total/NA	Prep	TO-13A	DL		1 PUF	1 mL	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split	DL		1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A	DL	25	1 mL	1 mL	67845	11/28/22 15:01	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: PAH04_221108_S

Lab Sample ID: 140-29557-4

Date Collected: 11/08/22 16:02

Matrix: Air

Date Received: 11/10/22 09:00

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	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A		10	1 mL	1 mL	67845	11/28/22 13:03	DWS	EET KNX
Instrument ID: MY										
Total/NA	Prep	TO-13A	DL		1 PUF	1 mL	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split	DL		1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A	DL	200	1 mL	1 mL	67845	11/28/22 15:24	DWS	EET KNX
Instrument ID: MY										

Eurofins Knoxville

Lab Chronicle

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

Job ID: 140-29557-1

Client Sample ID: Method Blank

Lab Sample ID: MB 140-67469/1-B

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	Prep	TO-13A			1 PUF	1 mL	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A		1	1 mL	1 mL	67845	11/28/22 11:05	DWS	EET KNX
Instrument ID: MY										

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 140-67469/2-B

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	Prep	TO-13A			1 PUF	1 mL	67469	11/15/22 01:34	CLI	EET KNX
Total/NA	Cleanup	Split			1 mL	1 mL	67673	11/18/22 16:28	MCC	EET KNX
Total/NA	Analysis	TO-13A		2	1 mL	1 mL	67845	11/28/22 14:14	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: 140-29557-1

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	12-11-22
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	12-11-22
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

Knoxville, TN 37921-5947
phone 865.291.3000 fax 865.584.4315

Regulatory Program: ☐ D ☐ NPDES☐ RCRA ☐ Other:Regulatory Program: ☐ D ☐ NPDES

Regulatory Program:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Project Manager: Dustin Snare Email: dsnare@all4llc.com Tel/Fax: 610-422-1126						Site Contact: Brett Tunno Lab Contact: David Myers Carrier:						COC No: ____ of ____ COCs TALS Project #: Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:											
Analysis Turnaround Time <input type="checkbox"/> CALENDAR <input type="checkbox"/> WORKING 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						Filtered Sample (Y / N)						Perform MS / MSD (Y / N)						TO-13A					
Sample Identification						Sample Date		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Sample Specific Notes:									
PAH01_221108_S						2022-11-08		Filter		A		1		End: 2022-11-9 4:24 PM ID: T013KNOX1026223									
PAH02_221108_S						2022-11-08		Filter		A		1		End: 2022-11-9 4:37 PM ID: T013KNOX1026224									
PAH03_221108_S						2022-11-08		Filter		A		1		End: 2022-11-9 4:54 PM ID: T013KNOX1026221									
PAH04_221108_S						2022-11-08		Filter		A		1		End: 2022-11-9 4:02 PM ID: T013KNOX1026222									
CUSTOMER SEALS INTACT RECEIVED AT RT 23/CTASL bbs 11-10-22 140044 FAX# 3804 4060 3989 PD														 140-29557 Chain of Custody									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other												1											
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 checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown														Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months									
Special Instructions/QC Requirements & Comments:																							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No						al No.:		Company: ALL4 LLC		Date/Time: 2022-11-9 5:50 PM		Received by: 		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.: 14004806					
Relinquished by: Evan Mia								Company:		Date/Time:		Received by: 		Company: EFA KWT		Date/Time: 11-10-22 09:00							
Relinquished by:								Company:		Date/Time:		Received by:		Company:		Date/Time:							
Relinquished by:								Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:							

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	7, CLIENT INFO NOT LISTED ON SAMPLE CONTAINERS, MATCHED BY PUF ASSET NUMBERS
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	7, USING EMAIL COPY
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	10
5. Were all of the sample containers received intact?	/			<input type="checkbox"/> Containers, Broken	
6. Were samples received in appropriate containers?	/			<input type="checkbox"/> Containers, Improper; Client Contacted; Proceed/Cancel	
7. Do sample container labels match COC? (IDs, Dates, Times)	/			<input checked="" 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 <input type="checkbox"/> COC; No Date/Time; Client Contacted	
9. Is the date/time of sample collection noted?	/			<input checked="" type="checkbox"/> Sampler Not Listed on COC <input type="checkbox"/> COC Incorrect/Incomplete <input type="checkbox"/> COC No tests on COC <input type="checkbox"/> COC Incorrect/Incomplete	
10. Was the sampler identified on the COC?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
11. Is the client and project name/# identified?	/			<input type="checkbox"/> COC No tests on COC	
12. Are tests/parameters listed for each sample?	/			<input type="checkbox"/> COC Incorrect/Incomplete	
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	
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	
17. Were VOA samples received without headspace?	/			<input type="checkbox"/> Headspace (VOA only) <input type="checkbox"/> Residual Chlorine	
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 #: _____ PM Instructions: _____					
Sample Receiving Associate: <u>[Signature]</u> Date: <u>11-10-22</u>					

QA026R32.doc, 062719

