ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ExxonMobil
PO Box 4592
Houston TX 77210-4592

December 04, 2014

Project: Mayflower, AR Pipeline Incident

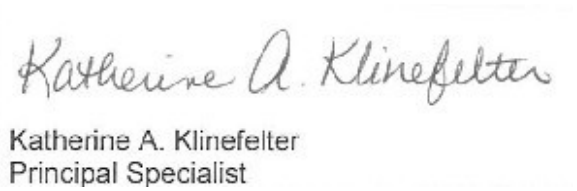
Submittal Date: 11/22/2014
Group Number: 1520709
SDG: PEO42
PO Number: 4410263810
Release Number: SIXSMITH
State of Sample Origin: AR

Client Sample Description	Lancaster Labs (LL) #
WS-007(0.5-1.0)112114 Grab Surface Water	7686551
WS-009(Surface)112114 Grab Surface Water	7686552
WS-001(0.5-1.0)112114 Grab Surface Water	7686553
WS-021(Surface)112114 Grab Surface Water	7686554
WS-004(0.5-1.0)112114 Grab Surface Water	7686555

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	ARCADIS	Attn: Stephen Barrick
ELECTRONIC COPY TO	ARCADIS	Attn: Lyndi Mott
ELECTRONIC COPY TO	ExxonMobil	Attn: Michael J. Firth
ELECTRONIC COPY TO	ARCADIS	Attn: Emily Leamer
ELECTRONIC COPY TO	ARCADIS	Attn: Rhiannon Parmelee
ELECTRONIC COPY TO	ExxonMobil	Attn: Michael L Sixsmith
ELECTRONIC COPY TO	ExxonMobil	Attn: Julie Foster
ELECTRONIC COPY TO	ARCADIS	Attn: Sonal Patil
ELECTRONIC COPY TO	ARCADIS	Attn: Kim Abbott

Respectfully Submitted,



Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Mayflower, AR Pipeline Incident
LL Group #: 1520709

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8270C SIM, GC/MS Semivolatiles

Sample #s: 7686551, 7686552, 7686553, 7686554, 7686555

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

Sample Description: WS-007(0.5-1.0)112114 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7686551
LL Group # 1520709
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 11/21/2014 09:20 by ZP

Submitted: 11/22/2014 08:45
Reported: 12/04/2014 21:10

ExxonMobil
PO Box 4592
Houston TX 77210-4592

P4201 SDG#: PEO42-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.051	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.051	1
08357	Anthracene	120-12-7	N.D.	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.051	1
08357	Chrysene	218-01-9	N.D.	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.051	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.051	1
08357	Fluorene	86-73-7	N.D.	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.051	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.061	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.061	1
08357	Pyrene	129-00-0	N.D.	0.010	0.051	1

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	14329WAL026	12/02/2014 23:06	Holly Berry	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14329WAL026	11/26/2014 09:00	Jessica M Velez	1

*=This limit was used in the evaluation of the final result

Sample Description: WS-009(Surface)112114 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7686552
LL Group # 1520709
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 11/21/2014 09:25 by ZP

Submitted: 11/22/2014 08:45
Reported: 12/04/2014 21:10

ExxonMobil
PO Box 4592
Houston TX 77210-4592

P4202 SDG#: PEO42-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	0.012 J	0.010	0.050	1

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	14329WAL026	12/02/2014 23:34	Holly Berry	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14329WAL026	11/26/2014 09:00	Jessica M Velez	1

*=This limit was used in the evaluation of the final result

Sample Description: WS-001(0.5-1.0)112114 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7686553
LL Group # 1520709
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 11/21/2014 09:35 by ZP

Submitted: 11/22/2014 08:45
Reported: 12/04/2014 21:10

ExxonMobil
PO Box 4592
Houston TX 77210-4592

P4203 SDG#: PEO42-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	14329WAL026	12/03/2014 00:01	Holly Berry	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14329WAL026	11/26/2014 09:00	Jessica M Velez	1

*=This limit was used in the evaluation of the final result

Sample Description: WS-021(Surface)112114 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7686554
LL Group # 1520709
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 11/21/2014 09:40 by ZP

Submitted: 11/22/2014 08:45
Reported: 12/04/2014 21:10

ExxonMobil
PO Box 4592
Houston TX 77210-4592

P4204 SDG#: PEO42-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	14329WAL026	12/03/2014 00:29	Holly Berry	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14329WAL026	11/26/2014 09:00	Jessica M Velez	1

*=This limit was used in the evaluation of the final result

Sample Description: WS-004(0.5-1.0)112114 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7686555
LL Group # 1520709
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 11/21/2014 09:45 by ZP

Submitted: 11/22/2014 08:45
Reported: 12/04/2014 21:10

ExxonMobil
PO Box 4592
Houston TX 77210-4592

P4205 SDG#: PEO42-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050	1
08357	Anthracene	120-12-7	N.D.	0.010	0.050	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050	1
08357	Chrysene	218-01-9	N.D.	0.010	0.050	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050	1
08357	Fluorene	86-73-7	N.D.	0.010	0.050	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.060	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.060	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	14329WAL026	12/03/2014 00:56	Holly Berry	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14329WAL026	11/26/2014 09:00	Jessica M Velez	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: ExxonMobil Group Number: 1520709
Reported: 12/04/14 at 09:10 PM

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 was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 14329WAL026	Sample number(s): 7686551-7686555								
Acenaphthene	N.D.	0.010	0.050	ug/l	119	115	82-126	3	30
Acenaphthylene	N.D.	0.010	0.050	ug/l	92	91	72-124	1	30
Anthracene	N.D.	0.010	0.050	ug/l	104	101	83-125	3	30
Benzo(a)anthracene	N.D.	0.010	0.050	ug/l	105	104	79-122	1	30
Benzo(a)pyrene	N.D.	0.010	0.050	ug/l	96	95	72-126	1	30
Benzo(b)fluoranthene	N.D.	0.010	0.050	ug/l	99	97	79-136	2	30
Benzo(g,h,i)perylene	N.D.	0.010	0.050	ug/l	91	97	59-137	6	30
Benzo(k)fluoranthene	N.D.	0.010	0.050	ug/l	93	100	72-129	8	30
Chrysene	N.D.	0.010	0.050	ug/l	104	104	77-122	0	30
Dibenz(a,h)anthracene	N.D.	0.010	0.050	ug/l	86	92	42-143	7	30
Fluoranthene	N.D.	0.010	0.050	ug/l	107	102	76-121	5	30
Fluorene	N.D.	0.010	0.050	ug/l	92	90	82-119	2	30
Indeno(1,2,3-cd)pyrene	N.D.	0.010	0.050	ug/l	86	92	53-136	7	30
1-Methylnaphthalene	N.D.	0.010	0.050	ug/l	103	97	75-117	6	30
2-Methylnaphthalene	N.D.	0.010	0.050	ug/l	105	98	68-124	7	30
Naphthalene	N.D.	0.030	0.060	ug/l	100	93	78-117	7	30
Phenanthrene	N.D.	0.030	0.060	ug/l	102	97	83-116	6	30
Pyrene	N.D.	0.010	0.050	ug/l	106	103	70-124	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: PAHs in waters by SIM
Batch number: 14329WAL026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7686551	76	65	79
7686552	95	86	88
7686553	91	60	85
7686554	86	50	82
7686555	77	41	77
Blank	99	95	90
LCS	108	99	101
LCSD	106	107	95
Limits:	56-134	36-156	59-132

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ExxonMobil Group Number: 1520709
Reported: 12/04/14 at 09:10 PM

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

ExxonMobil Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 14739 | For Eurofins Lancaster Laboratories Environmental use only | Group # 1520709 | Sample # 768655 1-55

Instructions on reverse side correspond with circled numbers.

SCR#: 159748

1 Client Information

Facility #/SID: Mayflower Pipeline Incident

Site Address: Mayflower, AR

ExxonMobil PM: Mike Sixsmith | Cost Center/AFE:

Consultant/Office: Arcadis

Consultant PM: Steve Barrick | Consultant Phone #:

Sampler: Zac Powers

4 Matrix

Soil ☐ | Sediment ☐ | Water: Ground ☐ Potable ☐ NPDES ☐ Surface ☒ | Oil ☐ | Air ☐

5 Analyses Requested

Preservation Code

Preservation Codes

H = HCl | T = Thiosulfate
N = HNO_3 | B = NaOH
S = H_2SO_4 | O = Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	PAH 8270 S/M
WS-007(0.5-1.0)112114	11.21.14	0920	X		2	X
WS-009(Surface)112114	11.21.14	0925	X		2	X
WS-001(0.5-1.0)112114	11.21.14	0935	X		2	X
WS-021(Surface)112114	11.21.14	0940	X		2	X
WS-004(0.5-1.0)112114	11.21.14	0945	X		2	X

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)

Type I - Full
Type VI (Raw Data)
NJ Reduced
Other _____

EDD (circle if required)
Locus EIM (default)
Other _____

Relinquished by	Date	Time	Received by	Date	Time
L Megahee	10/27/14	11:52	Zac Powers	11/21/14	0800
Zac Powers	11/21/14	1600	UPS		

Relinquished by Commercial Carrier: UPS X | FedEx ____ | Other ____

Received by: Date 11.22.14 | Time 845

Temperature Upon Receipt 0.6 °C

Custody Seals Intact? Yes | No

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 42196

Group Number(s): 1520709

Client: ExxonMobil

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	11/22/2014 8:45
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 13:15 on 11/22/2014

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	0.6	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

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

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

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.