

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

June 20, 2014

Project: Mayflower, AR Pipeline Incident

Submittal Date: 06/13/2014

Group Number: 1481806

SDG: PEO04

PO Number: 4410181435

Release Number: SIXSMITH

State of Sample Origin: AR

Client Sample DescriptionLancaster Labs (LL) #

WS-007(0.5-1.0)061214 Grab Surface Water	7498566
WS-009(Surface)061214 Grab Surface Water	7498567
WS-001(0.5-1.0)061214 Grab Surface Water	7498568
WS-021(Surface)061214 Grab Surface Water	7498569
WS-004(0.5-1.0)061214 Grab Surface Water	7498570
WS-004(0.5-1.0)061214MS Grab Surface Water	7498571
WS-004(0.5-1.0)061214MSD Grab Surface Water	7498572
DUP-WS-132-061214 Grab Surface Water	7498573

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

ELECTRONIC ARCADIS

Attn: Stephen Barrick

COPY TO

ELECTRONIC ARCADIS

Attn: Lyndi Mott

COPY TO

ELECTRONIC ExxonMobil

Attn: Michael J. Firth

COPY TO

ELECTRONIC ARCADIS

Attn: Emily Leamer

COPY TO

ELECTRONIC ARCADIS

Attn: Rhiannon Parmalee

COPY TO

ELECTRONIC ExxonMobil

Attn: Michael L Sixsmith

COPY TO

ELECTRONIC ExxonMobil

Attn: Julie Foster

COPY TO

ELECTRONIC ARCADIS

Attn: Kim Abbott

COPY TO

Respectfully Submitted,



Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Mayflower, AR Pipeline Incident
LL Group #: 1481806

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 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: 7498566, 7498567, 7498568, 7498569, 7498570, 7498571, 7498572

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

Batch #: 14167WAH026 (Sample number(s): 7498566-7498573 UNSPK: 7498570)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: 1-Methylnaphthalene, Benzo(a)pyrene

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 7498566, 7498567, 7498568, 7498569, 7498570, 7498571, 7498572, MS, MSD

Sample Description: WS-007(0.5-1.0)061214 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498566
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 11:45 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61207 SDG#: PEO04-01

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	0.012 J	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	0.028 J	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.011 J	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.011 J	0.010	0.051	1
08357	Chrysene	218-01-9	0.025 J	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	0.058	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	0.051	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.051	1
08357	Pyrene	129-00-0	0.040 J	0.010	0.051	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 21:13	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: WS-009(Surface)061214 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498567
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 11:50 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61209 SDG#: PEO04-02

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	0.051	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	0.051	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.051	1
08357	Pyrene	129-00-0	N.D.	0.010	0.051	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 21:40	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: WS-001(0.5-1.0)061214 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498568
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 12:00 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61201 SDG#: PEO04-03

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	0.052	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.052	1
08357	Anthracene	120-12-7	N.D.	0.010	0.052	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.052	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.052	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.052	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.052	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.052	1
08357	Chrysene	218-01-9	N.D.	0.010	0.052	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.052	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.052	1
08357	Fluorene	86-73-7	N.D.	0.010	0.052	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.052	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.052	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.052	1
08357	Naphthalene	91-20-3	N.D.	0.031	0.052	1
08357	Phenanthrene	85-01-8	N.D.	0.031	0.052	1
08357	Pyrene	129-00-0	N.D.	0.010	0.052	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 22:07	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: WS-021(Surface)061214 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498569
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 12:05 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61221 SDG#: PEO04-04

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	0.051	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	0.051	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.051	1
08357	Pyrene	129-00-0	N.D.	0.010	0.051	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 22:34	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: WS-004(0.5-1.0)061214 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498570
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 12:10 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61204 SDG#: PEO04-05BKG

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	0.050	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.050	1
08357	Pyrene	129-00-0	N.D.	0.010	0.050	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 17:08	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: WS-004(0.5-1.0)061214MS Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498571
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 12:10 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61204 SDG#: PEO04-05MS

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	0.92	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.85	0.010	0.051	1
08357	Anthracene	120-12-7	0.82	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.71	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.55	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.60	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.47	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.57	0.010	0.051	1
08357	Chrysene	218-01-9	0.69	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.44	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.80	0.010	0.051	1
08357	Fluorene	86-73-7	0.82	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.44	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.79	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.75	0.010	0.051	1
08357	Naphthalene	91-20-3	0.84	0.030	0.051	1
08357	Phenanthrene	85-01-8	0.82	0.030	0.051	1
08357	Pyrene	129-00-0	0.78	0.010	0.051	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 17:35	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: WS-004(0.5-1.0)061214MSD Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498572
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 12:10 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

61204 SDG#: PEO04-05MSD

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	0.92	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.87	0.010	0.051	1
08357	Anthracene	120-12-7	0.80	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.68	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.55	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.58	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.47	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.57	0.010	0.051	1
08357	Chrysene	218-01-9	0.66	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.44	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.77	0.010	0.051	1
08357	Fluorene	86-73-7	0.81	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.44	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.80	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.76	0.010	0.051	1
08357	Naphthalene	91-20-3	0.87	0.030	0.051	1
08357	Phenanthrene	85-01-8	0.80	0.030	0.051	1
08357	Pyrene	129-00-0	0.75	0.010	0.051	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The client was contacted and the data reported.

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	14167WAH026	06/19/2014 18:02	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Sample Description: DUP-WS-132-061214 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7498573
LL Group # 1481806
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 06/12/2014 by MH

ExxonMobil

PO Box 4592

Submitted: 06/13/2014 09:45

Houston TX 77210-4592

Reported: 06/20/2014 14:42

FD132 SDG#: PEO04-06FD*

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	0.052	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.052	1
08357	Anthracene	120-12-7	N.D.	0.010	0.052	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.052	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.052	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.052	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.052	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.052	1
08357	Chrysene	218-01-9	N.D.	0.010	0.052	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.052	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.052	1
08357	Fluorene	86-73-7	N.D.	0.010	0.052	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.052	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.052	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.052	1
08357	Naphthalene	91-20-3	N.D.	0.031	0.052	1
08357	Phenanthrene	85-01-8	N.D.	0.031	0.052	1
08357	Pyrene	129-00-0	N.D.	0.010	0.052	1

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	14167WAH026	06/19/2014 23:01	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14167WAH026	06/17/2014 12:00	Anna E Stager	1

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

Quality Control Summary

Client Name: ExxonMobil
Reported: 06/20/14 at 02:42 PM

Group Number: 1481806

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

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL**</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 14167WAH026	Sample number(s): 7498566-7498573								
Acenaphthene	N.D.	0.010	0.050	ug/l	106		83-119		
Acenaphthylene	N.D.	0.010	0.050	ug/l	97		81-130		
Anthracene	N.D.	0.010	0.050	ug/l	101		83-125		
Benzo(a)anthracene	N.D.	0.010	0.050	ug/l	94		79-122		
Benzo(a)pyrene	N.D.	0.010	0.050	ug/l	94		80-121		
Benzo(b)fluoranthene	N.D.	0.010	0.050	ug/l	99		79-136		
Benzo(g,h,i)perylene	N.D.	0.010	0.050	ug/l	86		72-132		
Benzo(k)fluoranthene	N.D.	0.010	0.050	ug/l	96		81-131		
Chrysene	N.D.	0.010	0.050	ug/l	97		84-118		
Dibenz(a,h)anthracene	N.D.	0.010	0.050	ug/l	76		66-133		
Fluoranthene	N.D.	0.010	0.050	ug/l	99		84-124		
Fluorene	N.D.	0.010	0.050	ug/l	95		82-119		
Indeno(1,2,3-cd)pyrene	N.D.	0.010	0.050	ug/l	79		68-132		
1-Methylnaphthalene	N.D.	0.010	0.050	ug/l	91		86-130		
2-Methylnaphthalene	N.D.	0.010	0.050	ug/l	87		81-131		
Naphthalene	N.D.	0.030	0.050	ug/l	106		82-122		
Phenanthrene	N.D.	0.030	0.050	ug/l	98		83-116		
Pyrene	N.D.	0.010	0.050	ug/l	92		78-125		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 14167WAH026	Sample number(s): 7498566-7498573 UNSPK: 7498570								
Acenaphthene	90	91	60-130	1	30				
Acenaphthylene	84	86	75-132	2	30				
Anthracene	80	78	69-119	2	30				
Benzo(a)anthracene	70	67	37-135	4	30				
Benzo(a)pyrene	54*	54*	64-123	0	30				
Benzo(b)fluoranthene	59	57	41-137	3	30				
Benzo(g,h,i)perylene	47	46	21-127	1	30				
Benzo(k)fluoranthene	56	56	38-130	0	30				
Chrysene	68	65	58-117	4	30				
Dibenz(a,h)anthracene	43	43	17-134	1	30				
Fluoranthene	79	76	63-129	4	30				
Fluorene	81	80	74-127	1	30				
Indeno(1,2,3-cd)pyrene	44	44	26-130	0	30				

*- 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: 1481806

Reported: 06/20/14 at 02:42 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1-Methylnaphthalene	77*	78*	82-133	1	30				
2-Methylnaphthalene	74	75	73-138	1	30				
Naphthalene	83	86	58-131	4	30				
Phenanthrene	80	79	72-126	2	30				
Pyrene	77	74	36-142	5	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: 14167WAH026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7498566	65	37*	67*
7498567	75	45*	75
7498568	75	45*	80
7498569	71	36*	75
7498570	76	49*	76
7498571	78	53*	76
7498572	75	53*	78
7498573	95	92	83
Blank	93	86	84
LCS	97	99	89
MS	78	53*	76
MSD	75	53*	78
Limits:	59-128	62-141	70-134

*- 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.

Client Information				Analyses Requested		Preservation Codes	
Facility #/SID		Preservation Code		H = HCl N = HNO ₃ S = H ₂ SO ₄		T = Thiou sulfate B = NaOH O = Other	
Mayflower Pipeline Incident							
Site Address							
Mayflower AR							
ExxonMobil PM							
Mike Sixsmith							
Consultant/Office							
Arcadis							
Consultant PM							
Steve Barrick							
Consultant Phone #							
919-302-6799							
Sampler							
Matt Hamby Zac Powers							
Sample Identification							
Date		Time					
6-12-14		1145					
6-12-14		1150					
6-12-14		1200					
6-12-14		1205					
6-12-14		1210					
6-12-14		1210					
6-12-14		---					
Relinquished by							
Relinquished by							
Relinquished by							
Relinquished by Commercial Carrier							
UPS X FedEx Other							
Temperature Upon Receipt				0.5 °C			
Custody Seals Intact?				Yes		No	

1481806

Katherine Klinefelter

From: Powers, Zachary <zpowers@croworld.com>
Sent: Friday, June 13, 2014 3:25 PM
To: Katherine Klinefelter
Cc: Hamby, Leland
Subject: RE: Mayflower sample discrepancies.

Katherine,

Go by the time on the bottles/COC because we fill out the labels before entering the field and then write the time as we go. Sorry for any inconvenience.

Best,

Zac Powers
CRA Inc.
501.850.6610
501.224.1926

From: Katherine Klinefelter [<mailto:KatherineKlinefelter@eurofinsus.com>]
Sent: Friday, June 13, 2014 2:15 PM
To: Hamby, Leland; Powers, Zachary
Subject: Mayflower sample discrepancies.

Hello,

What are the correct collection dates and times for samples WS-001(0.5-1.0)061214 and WS-021(Surface)061214?

Please see the attached COC and sample receipt doc log. The COC lists sample IDs and collection dates and times. The bottles for 2 sample locations match the collection dates and times per the COC, but have different sample IDs on the labels.

Should these bottles be assigned to sample locations for analysis based on the sample IDs on the bottle labels, or based on the collection time info on the labels?

Please advise asap today.

Thanks,

Kathy

Katherine Klinefelter
Principal Project Manager, Environmental Client Services

Eurofins Lancaster Laboratories
Environmental, LLC
2425 New Holland Pike
Lancaster, PA 17601
USA
Phone: +1 717-556-7256
Fax: +1 717-656-6766

Sample Administration
Receipt Documentation Log

Doc Log ID: 17331

Group Number(s): 1481806

Client: ExxonMobil**Mayflower****Delivery and Receipt Information**

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>06/13/2014 9:45</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>AR</u>		

Arrival Condition Summary

Shipping Container Sealed:	<u>Yes</u>	Total Trip Blank Qty:	<u>0</u>
Custody Seal Present:	<u>Yes</u>	Trip Blank Type:	<u>N/A</u>
Custody Seal Intact:	<u>Yes</u>	Air Quality Samples Present:	<u>No</u>
Samples Chilled:	<u>Yes</u>	Air Quality Flow Controllers Present:	<u>N/A</u>
Paperwork Enclosed:	<u>Yes</u>	Flow Controller Quantity:	<u>0</u>
Samples Intact:	<u>Yes</u>	Air Quality Returns:	<u>N/A</u>
Missing Samples:	<u>No</u>		
Extra Samples:	<u>No</u>		
Discrepancy in Container Qty on COC:	<u>No</u>		
Sample IDs on COC match Containers:	<u>No</u>		
Sample Date/Times match COC:	<u>Yes</u>		
VOA Vial Headspace \geq 6mm:	<u>N/A</u>		
VOA IDs (\geq 6mm):	<u>N/A</u>		

Unpacked by Brandy Barclay (2299) at 12:52 on 06/13/2014

Samples Chilled Details: Mayflower

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	Samples Collected Same Day as Receipt?	Elevated Temp?
1	DT121	0.3	DT	Wet	Y	Bagged	N	N

Sample ID Discrepancy Details: Mayflower

Sample ID on COC	Sample ID on Label	Comments
WS-001 (0.5-1.0)061214	WS-021 (0.5-1.0)061214	
WS-021 (Surface)061214	WS-001 (Surface)061214	

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 <u>limit of quantitation</u> , 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 \geq 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 \geq 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.

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. 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. 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.