

## 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

April 29, 2014

Project: Mayflower, AR Pipeline Incident

Submittal Date: 04/18/2014

Group Number: 1468265

SDG: PEM95

PO Number: 4410181435

Release Number: SIXSMITH

State of Sample Origin: AR

Client Sample DescriptionLancaster Labs (LL) #

WS-007(0.5-1.0)041714 Grab Surface Water	7435451
WS-009(Surface)041714 Grab Surface Water	7435452
WS-009(Surface)041714MS Grab Surface Water	7435453
WS-009(Surface)041714MSD Grab Surface Water	7435454
WS-001(0.5-1.0)041714 Grab Surface Water	7435455
WS-021(Surface)041714 Grab Surface Water	7435456
WS-004(0.5-1.0)041714 Grab Surface Water	7435457
DUP-WS-130-041714 Grab Surface Water	7435458

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

Respectfully Submitted,



Katherine A. Klinefelter  
Principal Specialist

(717) 556-7256

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Project Name: Mayflower, AR Pipeline Incident  
LLI Group #: 1468265

**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: 7435451, 7435455, 7435457**

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample. All results are reported from the first trial.

**Sample #s: 7435456, 7435458**

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample. All results are reported from the first trial.  
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.

**Sample #s: 7435454**

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 #: 14109WAG026 (Sample number(s): 7435451-7435458 UNSPK: 7435452)

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

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 7435454, 7435456, 7435458, MSD

Sample Description: WS-007(0.5-1.0)041714 Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435451  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 13:30 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9501 SDG#: PEM95-01

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	0.016 J	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.015 J	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.022 J	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.017 J	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.014 J	0.010	0.051	1
08357	Chrysene	218-01-9	0.016 J	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.012 J	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.019 J	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	0.016 J	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	0.031 J	0.030	0.051	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.051	1
08357	Pyrene	129-00-0	0.014 J	0.010	0.051	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample.  
All results are reported from the first trial.

## 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	14109WAG026	04/24/2014 18:16	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

Sample Description: WS-009(Surface)041714 Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435452  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 13:40 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9502 SDG#: PEM95-02BKG

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	0.035 J	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

## 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	14109WAG026	04/24/2014 16:25	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

Sample Description: WS-009(Surface)041714MS Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435453  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 13:40 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9502 SDG#: PEM95-02MS

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	0.99	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.95	0.010	0.051	1
08357	Anthracene	120-12-7	0.83	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.89	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.80	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.88	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.74	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.84	0.010	0.051	1
08357	Chrysene	218-01-9	0.77	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.75	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.85	0.010	0.051	1
08357	Fluorene	86-73-7	0.95	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.76	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.95	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.92	0.010	0.051	1
08357	Naphthalene	91-20-3	1.0	0.031	0.051	1
08357	Phenanthrene	85-01-8	0.95	0.031	0.051	1
08357	Pyrene	129-00-0	0.80	0.010	0.051	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	14109WAG026	04/24/2014 16:53	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

Sample Description: WS-009(Surface)041714MSD Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435454  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 13:40 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9502 SDG#: PEM95-02MSD

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	0.86	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.83	0.010	0.051	1
08357	Anthracene	120-12-7	0.75	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.54	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.41	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.46	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.35	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.42	0.010	0.051	1
08357	Chrysene	218-01-9	0.45	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.36	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.65	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	0.36	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.80	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.78	0.010	0.051	1
08357	Naphthalene	91-20-3	0.85	0.031	0.051	1
08357	Phenanthrene	85-01-8	0.76	0.031	0.051	1
08357	Pyrene	129-00-0	0.61	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	14109WAG026	04/24/2014 17:21	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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



Sample Description: WS-001(0.5-1.0)041714 Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435455  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 13:50 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9503 SDG#: PEM95-03

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	0.051	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	0.014 J	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.011 J	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.013 J	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.013 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	0.011 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	0.011 J	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	0.013 J	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	0.039 J	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

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample.  
All results are reported from the first trial.

## 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	14109WAG026	04/24/2014 18:44	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

Sample Description: WS-021(Surface)041714 Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435456  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 13:55 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9504 SDG#: PEM95-04

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	0.014 J	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.011 J	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.013 J	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.013 J	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.012 J	0.010	0.051	1
08357	Chrysene	218-01-9	0.011 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	0.012 J	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	0.013 J	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	0.038 J	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

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample. All results are reported from the first trial.

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	14109WAG026	04/24/2014 19:12	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

Sample Description: WS-004(0.5-1.0)041714 Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435457  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 14:00 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9505 SDG#: PEM95-05

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	0.051	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	0.015 J	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.013 J	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.017 J	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.016 J	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.014 J	0.010	0.051	1
08357	Chrysene	218-01-9	0.015 J	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.012 J	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.016 J	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	0.015 J	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	0.035 J	0.031	0.051	1
08357	Phenanthrene	85-01-8	N.D.	0.031	0.051	1
08357	Pyrene	129-00-0	0.012 J	0.010	0.051	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample.  
All results are reported from the first trial.

## 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	14109WAG026	04/24/2014 19:40	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

Sample Description: DUP-WS-130-041714 Grab Surface Water  
S20135565 Mayflower, AR  
Pipeline Incident

LL Sample # WW 7435458  
LL Group # 1468265  
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 04/17/2014 by ZP

ExxonMobil

PO Box 4592

Submitted: 04/18/2014 09:25

Houston TX 77210-4592

Reported: 04/29/2014 19:58

P9506 SDG#: PEM95-06FD\*

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	0.051	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	0.014 J	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.013 J	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.017 J	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.014 J	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.012 J	0.010	0.051	1
08357	Chrysene	218-01-9	0.014 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	0.020 J	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	0.013 J	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	0.034 J	0.030	0.051	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.051	1
08357	Pyrene	129-00-0	0.013 J	0.010	0.051	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. The following corrective action was taken:  
The sample was re-extracted outside the method required holding time and target analytes were again detected in the method blank and sample. All results are reported from the first trial.

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	14109WAG026	04/24/2014 20:08	Chad A Moline	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14109WAG026	04/21/2014 10:00	Anna E Stager	1

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

## Quality Control Summary

Client Name: ExxonMobil  
Reported: 04/29/14 at 07:58 PM

Group Number: 1468265

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: 14109WAG026	Sample number(s): 7435451-7435458								
Acenaphthene	N.D.	0.010	0.050	ug/l	100		83-119		
Acenaphthylene	N.D.	0.010	0.050	ug/l	95		81-130		
Anthracene	N.D.	0.010	0.050	ug/l	100		83-125		
Benzo(a)anthracene	N.D.	0.010	0.050	ug/l	92		79-122		
Benzo(a)pyrene	N.D.	0.010	0.050	ug/l	95		80-121		
Benzo(b)fluoranthene	N.D.	0.010	0.050	ug/l	97		79-136		
Benzo(g,h,i)perylene	0.011 J	0.010	0.050	ug/l	78		72-132		
Benzo(k)fluoranthene	N.D.	0.010	0.050	ug/l	95		81-131		
Chrysene	N.D.	0.010	0.050	ug/l	91		84-118		
Dibenz(a,h)anthracene	0.012 J	0.010	0.050	ug/l	72		66-133		
Fluoranthene	N.D.	0.010	0.050	ug/l	98		84-124		
Fluorene	N.D.	0.010	0.050	ug/l	96		82-119		
Indeno(1,2,3-cd)pyrene	0.010 J	0.010	0.050	ug/l	77		68-132		
1-Methylnaphthalene	N.D.	0.010	0.050	ug/l	94		86-130		
2-Methylnaphthalene	N.D.	0.010	0.050	ug/l	91		81-131		
Naphthalene	N.D.	0.030	0.050	ug/l	98		82-122		
Phenanthrene	N.D.	0.030	0.050	ug/l	94		83-116		
Pyrene	N.D.	0.010	0.050	ug/l	88		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: 14109WAG026	Sample number(s): 7435451-7435458 UNSPK: 7435452								
Acenaphthene	97	83	60-130	15	30				
Acenaphthylene	93	81	75-132	13	30				
Anthracene	81	73	69-119	11	30				
Benzo(a)anthracene	87	53	37-135	49*	30				
Benzo(a)pyrene	78	40*	64-123	65*	30				
Benzo(b)fluoranthene	86	45	41-137	62*	30				
Benzo(g,h,i)perylene	73	34	21-127	71*	30				
Benzo(k)fluoranthene	82	41	38-130	66*	30				
Chrysene	75	44*	58-117	52*	30				
Dibenz(a,h)anthracene	73	35	17-134	70*	30				
Fluoranthene	83	64	63-129	26	30				
Fluorene	93	80	74-127	15	30				
Indeno(1,2,3-cd)pyrene	75	35	26-130	71*	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: 1468265

Reported: 04/29/14 at 07:58 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

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
1-Methylnaphthalene	93	78*	82-133	17	30			
2-Methylnaphthalene	90	76	73-138	17	30			
Naphthalene	94	80	58-131	16	30			
Phenanthrene	93	74	72-126	23	30			
Pyrene	78	59	36-142	27	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: 14109WAG026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7435451	72	73	82
7435452	95	99	95
7435453	90	100	98
7435454	68	53*	83
7435455	79	66	86
7435456	79	58*	82
7435457	84	85	85
7435458	77	69	55*
Blank	104	110	97
LCS	103	108	99
MS	90	100	98
MSD	68	53*	83
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.



Acct. # 14739

For Eurofins Lancaster Laboratories use only.  
Group # 1468265 Sample # 7435451-58  
Instructions on reverse side correspond with circled numbers.

Eurolins Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories. The yellow copy should be retained by the client.

Issued by Dept. 40 Management  
7053 0413

Client: EXXONMOBIL**MAYFLOWER PIPELINE****Delivery and Receipt Information**

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>04/18/2014 9:25</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>Yes</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 Corey Eshleman (3647) at 11:20 on 04/18/2014

**Samples Chilled Details: MAYFLOWER PIPELINE**

Thermometer Types: DT = Digital IR = Infrared

Cooler #	Thermometer ID	Raw Temp (°C)	Corrected Temp (°C)	Thermometer Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.8	0.8	DT	Wet	Y	Bagged	N

General Comments:



# Explanation of Symbols and Abbreviations

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

<b>RL</b>	Reporting Limit	<b>BMQL</b>	Below Minimum Quantitation Level
<b>N.D.</b>	none detected	<b>MPN</b>	Most Probable Number
<b>TNTC</b>	Too Numerous To Count	<b>CP Units</b>	cobalt-chloroplatinate units
<b>IU</b>	International Units	<b>NTU</b>	nephelometric turbidity units
<b>umhos/cm</b>	micromhos/cm	<b>ng</b>	nanogram(s)
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>meq</b>	milliequivalents	<b>lb.</b>	pound(s)
<b>g</b>	gram(s)	<b>kg</b>	kilogram(s)
<b>µg</b>	microgram(s)	<b>mg</b>	milligram(s)
<b>mL</b>	milliliter(s)	<b>L</b>	liter(s)
<b>m3</b>	cubic meter(s)	<b>µL</b>	microliter(s)
		<b>pg/L</b>	picogram/liter
<b>&lt;</b>	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.		
<b>&gt;</b>	greater than		
<b>ppm</b>	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.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	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	
<b>A</b>	TIC is a possible aldol-condensation product	<b>B</b>	Value is $<$ CRDL, but $\geq$ IDL
<b>B</b>	Analyte was also detected in the blank	<b>E</b>	Estimated due to interference
<b>C</b>	Pesticide result confirmed by GC/MS	<b>M</b>	Duplicate injection precision not met
<b>D</b>	Compound quantitated on a diluted sample	<b>N</b>	Spike sample not within control limits
<b>E</b>	Concentration exceeds the calibration range of the instrument	<b>S</b>	Method of standard additions (MSA) used for calculation
<b>N</b>	Presumptive evidence of a compound (TICs only)	<b>U</b>	Compound was not detected
<b>P</b>	Concentration difference between primary and confirmation columns $>25\%$	<b>W</b>	Post digestion spike out of control limits
<b>U</b>	Compound was not detected	<b>*</b>	Duplicate analysis not within control limits
<b>X,Y,Z</b>	Defined in case narrative	<b>+</b>	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.

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