

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

October 31, 2014

Project: Mayflower, AR Pipeline Incident

Submittal Date: 10/17/2014
Group Number: 1511877
SDG: PEO33
PO Number: 4410181435
Release Number: SIXSMITH
State of Sample Origin: AR

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
WS-007(0.5-1.0)101614 Grab Surface Water	7641389
WS-007(0.5-1.0)101614MS Grab Surface Water	7641390
WS-007(0.5-1.0)101614MSD Grab Surface Water	7641391
DUP-WS-136-101614 Grab Surface Water	7641392
WS-009(Surface)101614 Grab Surface Water	7641393
WS-001(0.5-1.0)101614 Grab Surface Water	7641394
WS-021(Surface)101614 Grab Surface Water	7641395
WS-004(0.5-1.0)101614 Grab Surface Water	7641396

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

COPY TO
ELECTRONIC ARCADIS
COPY TO

Attn: Kim Abbott

Respectfully Submitted,



Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Mayflower, AR Pipeline Incident
LL Group #: 1511877

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: 7641389, 7641390, 7641391, 7641393, 7641394, 7641395, 7641396

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

Sample #s: 7641392

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is >10%, the data is reported.

Batch #: 14291WAK026 (Sample number(s): 7641389-7641396 UNSPK: 7641389)

The recovery(ies) for the following analyte(s) in the LCS were below the acceptance window: Naphthalene

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Anthracene

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 7641392

Sample Description: WS-007(0.5-1.0)101614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641389
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:05 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP7-- SDG#: PEO33-01BKG

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	0.056 J	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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/30/2014 16:46	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: WS-007(0.5-1.0)101614MS Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641390
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:05 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP7-- SDG#: PEO33-01MS

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	0.84	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.69	0.010	0.051	1
08357	Anthracene	120-12-7	0.50	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.67	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.49	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.67	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.43	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.61	0.010	0.051	1
08357	Chrysene	218-01-9	0.63	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.51	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.77	0.010	0.051	1
08357	Fluorene	86-73-7	0.74	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.48	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.70	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.67	0.010	0.051	1
08357	Naphthalene	91-20-3	0.74	0.030	0.061	1
08357	Phenanthrene	85-01-8	0.73	0.030	0.061	1
08357	Pyrene	129-00-0	0.66	0.010	0.051	1

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/30/2014 17:14	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: WS-007(0.5-1.0)101614MSD Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641391
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:05 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP7-- SDG#: PEO33-01MSD

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	0.83	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.67	0.010	0.051	1
08357	Anthracene	120-12-7	0.52	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.62	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.45	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.62	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.39	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.57	0.010	0.051	1
08357	Chrysene	218-01-9	0.59	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.47	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.72	0.010	0.051	1
08357	Fluorene	86-73-7	0.70	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	0.69	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.67	0.010	0.051	1
08357	Naphthalene	91-20-3	0.74	0.030	0.061	1
08357	Phenanthrene	85-01-8	0.70	0.030	0.061	1
08357	Pyrene	129-00-0	0.63	0.010	0.051	1

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/30/2014 17:41	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: DUP-WS-136-101614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641392
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 by ZP

ExxonMobil

PO Box 4592

Submitted: 10/17/2014 09:40

Houston TX 77210-4592

Reported: 10/31/2014 14:33

MD136 SDG#: PEO33-02FD

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is >10%, the data is 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	14291WAK026	10/31/2014 05:41	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: WS-009(Surface)101614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641393
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:15 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP9-- SDG#: PEO33-03

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	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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/31/2014 06:09	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: WS-001(0.5-1.0)101614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641394
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:20 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP--1 SDG#: PEO33-04

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/31/2014 06:36	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: WS-021(Surface)101614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641395
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:25 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP21- SDG#: PEO33-05

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	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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/31/2014 07:04	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Sample Description: WS-004(0.5-1.0)101614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7641396
LL Group # 1511877
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 10/16/2014 16:30 by ZP ExxonMobil
PO Box 4592
Submitted: 10/17/2014 09:40 Houston TX 77210-4592
Reported: 10/31/2014 14:33

MP4-- SDG#: PEO33-06

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	0.016 J	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.026 J	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	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	0.013 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	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.	0.031	0.061	1
08357	Phenanthrene	85-01-8	N.D.	0.031	0.061	1
08357	Pyrene	129-00-0	0.022 J	0.010	0.051	1

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance:
naphthalene

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	14291WAK026	10/31/2014 07:31	Mark A Clark	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14291WAK026	10/20/2014 09:45	Jessica M Velez	1

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

Quality Control Summary

Client Name: ExxonMobil
Reported: 10/31/14 at 02:33 PM

Group Number: 1511877

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: 14291WAK026	Sample number(s): 7641389-7641396								
Acenaphthene	N.D.	0.010	0.050	ug/l	109		82-126		
Acenaphthylene	N.D.	0.010	0.050	ug/l	82		72-124		
Anthracene	N.D.	0.010	0.050	ug/l	89		83-125		
Benzo(a)anthracene	N.D.	0.010	0.050	ug/l	87		79-122		
Benzo(a)pyrene	N.D.	0.010	0.050	ug/l	86		72-126		
Benzo(b)fluoranthene	N.D.	0.010	0.050	ug/l	94		79-136		
Benzo(g,h,i)perylene	N.D.	0.010	0.050	ug/l	83		59-137		
Benzo(k)fluoranthene	N.D.	0.010	0.050	ug/l	91		72-129		
Chrysene	N.D.	0.010	0.050	ug/l	91		77-122		
Dibenz(a,h)anthracene	N.D.	0.010	0.050	ug/l	82		42-143		
Fluoranthene	N.D.	0.010	0.050	ug/l	90		76-121		
Fluorene	N.D.	0.010	0.050	ug/l	82		82-119		
Indeno(1,2,3-cd)pyrene	N.D.	0.010	0.050	ug/l	80		53-136		
1-Methylnaphthalene	N.D.	0.010	0.050	ug/l	77		75-117		
2-Methylnaphthalene	N.D.	0.010	0.050	ug/l	74		68-124		
Naphthalene	N.D.	0.030	0.060	ug/l	75*		78-117		
Phenanthrene	N.D.	0.030	0.060	ug/l	86		83-116		
Pyrene	N.D.	0.010	0.050	ug/l	86		70-124		

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: 14291WAK026	Sample number(s): 7641389-7641396 UNSPK: 7641389								
Acenaphthene	83	82	69-134	0	30				
Acenaphthylene	68	66	66-132	3	30				
Anthracene	50*	51*	64-129	3	30				
Benzo(a)anthracene	66	62	37-135	7	30				
Benzo(a)pyrene	49	44	32-137	9	30				
Benzo(b)fluoranthene	66	61	41-137	7	30				
Benzo(g,h,i)perylene	42	39	21-127	9	30				
Benzo(k)fluoranthene	61	56	36-139	8	30				
Chrysene	63	58	51-129	8	30				
Dibenz(a,h)anthracene	50	46	17-134	9	30				
Fluoranthene	76	71	53-133	6	30				
Fluorene	73	69	59-137	5	30				
Indeno(1,2,3-cd)pyrene	48	43	26-130	10	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: 1511877

Reported: 10/31/14 at 02:33 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>RPD</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	69	69	60-129	1	30				
2-Methylnaphthalene	66	66	64-129	0	30				
Naphthalene	68	67	58-131	1	30				
Phenanthrene	73	69	66-126	4	30				
Pyrene	65	62	49-136	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: 14291WAK026

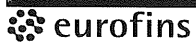
	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7641389	61	43	62
7641390	80	65	69
7641391	76	61	69
7641392	65	52	56*
7641393	85	64	71
7641394	84	63	70
7641395	89	67	74
7641396	80	72	67
Blank	83	84	68
LCS	88	92	74
MS	80	65	69
MSD	76	61	69
Limits:	56-134	36-156	59-132

*- 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.

ExxonMobil Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 14739 For Eurofins Lancaster Laboratories Environmental use only
Group # 1511877 Sample # 7641389-96
Instructions on reverse side correspond with circled numbers.

1 Client Information			4 Matrix			5 Analyses Requested										SCR#: <u>159732</u>	
Facility #/SID <u>Mayflower Pipeline Incident</u>			<input type="checkbox"/> Sediment <input type="checkbox"/> Potable <input type="checkbox"/> Ground <input checked="" type="checkbox"/> Surface <input type="checkbox"/> NPDES <input type="checkbox"/> Air <input type="checkbox"/> Oil	Preservation Code										Preservation Codes H = HCl T = Thiosulfate N = HNO ₃ B = NaOH S = H ₂ SO ₄ O = Other			
Site Address <u>Maytowns AR</u>				6 Remarks													
ExxonMobil PM <u>Milo Sixsmith</u>		Cost Center/AFE		Total # of Containers <u>PAH 8270 SIM</u>													
Consultant/Office <u>Accadis</u>																	
Consultant PM <u>Steve Barrick</u>		Consultant Phone # <u>919-302-6799</u>															
Sampler <u>Zac Powers</u>																	
2 Sample Identification			3 Collected		<input type="checkbox"/> Grab <input type="checkbox"/> Composite												
		Date	Time														
<u>WS-007(0.5-1.0)101614</u>		<u>10-16-14</u>	<u>1605</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>										
<u>WS-007(0.5-1.0)101614 MS/MSD</u>		<u>10-16-14</u>	<u>1605</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>4</u>	<input checked="" type="checkbox"/>										
<u>DUP-WS-136-101614</u>		<u>10-16-14</u>	<u>—</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>										
<u>WS-009(Surface)101614</u>		<u>10-16-14</u>	<u>1615</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>										
<u>WS-001(0.5-1.0)101614</u>		<u>10-16-14</u>	<u>1620</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>										
<u>WS-021(Surface)101614</u>		<u>10-16-14</u>	<u>1625</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>										
<u>WS-004(0.5-1.0)101614</u>		<u>10-16-14</u>	<u>1630</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>2</u>	<input checked="" type="checkbox"/>										
7 Turnaround Time Requested (TAT) (please circle)			Relinquished by <u>Z. Megashko</u>		Date <u>9/23/14</u>	Time <u>8:18</u>	Received by <u>Zac Powers</u>		Date <u>10-16-14</u>	Time <u>1200</u>	Relinquished by <u>Zac Powers</u> Relinquished by <u>UPS</u> Relinquished by <u>UPS</u>	Received by <u>UPS</u> Received by <u>UPS</u>		Date <u>10-16-14</u>	Time <u>940</u>		
Standard 5 day 4 day 72 hour 48 hour 24 hour			Date <u>10-16-14</u>		Time <u>1700</u>	Date <u>10-16-14</u>		Time <u>1700</u>	Date <u>10-16-14</u>	Time <u>1700</u>				Date <u>10-16-14</u>	Time <u>1700</u>		
Type I - Full Type VI (Raw Data) NJ Reduced Other _____			EDD (circle if required) Locus EIM (default) Other _____		Relinquished by Commercial Carrier UPS <input checked="" type="checkbox"/> FedEx _____ Other _____		Temperature Upon Receipt <u>0.5</u> °C		Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								

Client: ExxonMobil

Mayflower

Delivery and Receipt Information

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>10/17/2014 9:40</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:	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 Brandy Barclay (2299) at 13:02 on 10/17/2014

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	Elevated Temp?
1	DT146	0.3	DT	Wet	Y	Bagged	N

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 \geq the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

- A** TIC is a possible aldol-condensation product
- B** Analyte was also detected in the blank
- C** Pesticide result confirmed by GC/MS
- D** Compound quantitated on a diluted sample
- E** Concentration exceeds the calibration range of the instrument
- N** Presumptive evidence of a compound (TICs only)
- P** Concentration difference between primary and confirmation columns $>25\%$
- U** Compound was not detected
- X,Y,Z** Defined in case narrative

Inorganic Qualifiers

- B** Value is $<$ CRDL, but \geq IDL
- E** Estimated due to interference
- M** Duplicate injection precision not met
- N** Spike sample not within control limits
- S** Method of standard additions (MSA) used for calculation
- U** Compound was not detected
- W** Post digestion spike out of control limits
- *** Duplicate analysis not within control limits
- +** 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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