

ANALYTICAL RESULTS

Prepared by:

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2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ExxonMobil
PO Box 4592
Houston TX 77210-4592

December 30, 2014

Project: Mayflower, AR Pipeline Incident

Submittal Date: 12/17/2014
Group Number: 1526268
SDG: PEO46
PO Number: 4410263810
Release Number: SIXSMITH
State of Sample Origin: AR

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
WS-007(0.5-1.0)121614 Grab Surface Water	7715163
WS-009(Surface)121614 Grab Surface Water	7715164
WS-009(Surface)121614MS Grab Surface Water	7715165
WS-009(Surface)121614MSD Grab Surface Water	7715166
WS-001(0.5-1.0)121614 Grab Surface Water	7715167
WS-021(Surface)121614 Grab Surface Water	7715168
WS-004(0.5-1.0)121614 Grab Surface Water	7715169
DUP-WS-138-121614 Grab Surface Water	7715170

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

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

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

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ELECTRONIC	ARCADIS	Attn: Kim Abbott
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Respectfully Submitted,



Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Mayflower, AR Pipeline Incident
LL Group #: 1526268

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: 7715165**

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 #: 14352WAJ026 (Sample number(s): 7715163-7715170 UNSPK: 7715164)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Acenaphthene, Anthracene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

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) 7715165, MS

Sample Description: WS-007(0.5-1.0)121614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715163
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 10:30 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS007 SDG#: PEO46-01

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	0.052	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	0.062	1
08357	Phenanthrene	85-01-8	N.D.	0.031	0.062	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	14352WAJ026	12/27/2014 15:22	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: WS-009 (Surface) 121614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715164
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 10:40 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS009 SDG#: PEO46-02BKG

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	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

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	14352WAJ026	12/27/2014 15:50	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: WS-009 (Surface) 121614MS Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715165
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 10:40 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS009 SDG#: PEO46-02MS

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	0.70	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.74	0.010	0.051	1
08357	Anthracene	120-12-7	0.64	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.40	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.27	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.33	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.20	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.31	0.010	0.051	1
08357	Chrysene	218-01-9	0.38	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.20	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.59	0.010	0.051	1
08357	Fluorene	86-73-7	0.75	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.21	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.73	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.70	0.010	0.051	1
08357	Naphthalene	91-20-3	0.76	0.031	0.061	1
08357	Phenanthrene	85-01-8	0.69	0.031	0.061	1
08357	Pyrene	129-00-0	0.49	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	14352WAJ026	12/27/2014 16:18	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: WS-009 (Surface) 121614MSD Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715166
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 10:40 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS009 SDG#: PEO46-02MSD

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	0.84	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.89	0.010	0.051	1
08357	Anthracene	120-12-7	0.79	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.59	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.44	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.55	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.38	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.52	0.010	0.051	1
08357	Chrysene	218-01-9	0.58	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.39	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.78	0.010	0.051	1
08357	Fluorene	86-73-7	0.91	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.40	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.92	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.87	0.010	0.051	1
08357	Naphthalene	91-20-3	0.96	0.030	0.061	1
08357	Phenanthrene	85-01-8	0.85	0.030	0.061	1
08357	Pyrene	129-00-0	0.65	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	14352WAJ026	12/27/2014 16:46	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: WS-001(0.5-1.0)121614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715167
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 10:50 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS001 SDG#: PEO46-03

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.	0.011	0.055	1
08357	Acenaphthylene	208-96-8	N.D.	0.011	0.055	1
08357	Anthracene	120-12-7	N.D.	0.011	0.055	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.011	0.055	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.011	0.055	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	0.055	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.011	0.055	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	0.055	1
08357	Chrysene	218-01-9	N.D.	0.011	0.055	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	0.055	1
08357	Fluoranthene	206-44-0	N.D.	0.011	0.055	1
08357	Fluorene	86-73-7	N.D.	0.011	0.055	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	0.055	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.011	0.055	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.011	0.055	1
08357	Naphthalene	91-20-3	N.D.	0.033	0.066	1
08357	Phenanthrene	85-01-8	N.D.	0.033	0.066	1
08357	Pyrene	129-00-0	N.D.	0.011	0.055	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	14352WAJ026	12/27/2014 17:13	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: WS-021(Surface)121614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715168
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 10:55 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS021 SDG#: PEO46-04

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

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	14352WAJ026	12/27/2014 17:41	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: WS-004(0.5-1.0)121614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715169
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 11:00 by SB ExxonMobil
PO Box 4592
Submitted: 12/17/2014 10:00 Houston TX 77210-4592
Reported: 12/30/2014 13:26

WS004 SDG#: PEO46-05

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.	0.011	0.057	1
08357	Acenaphthylene	208-96-8	N.D.	0.011	0.057	1
08357	Anthracene	120-12-7	N.D.	0.011	0.057	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.011	0.057	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.011	0.057	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.011	0.057	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.011	0.057	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.011	0.057	1
08357	Chrysene	218-01-9	N.D.	0.011	0.057	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.011	0.057	1
08357	Fluoranthene	206-44-0	N.D.	0.011	0.057	1
08357	Fluorene	86-73-7	N.D.	0.011	0.057	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.011	0.057	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.011	0.057	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.011	0.057	1
08357	Naphthalene	91-20-3	N.D.	0.034	0.068	1
08357	Phenanthrene	85-01-8	N.D.	0.034	0.068	1
08357	Pyrene	129-00-0	N.D.	0.011	0.057	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	14352WAJ026	12/27/2014 18:09	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Sample Description: DUP-WS-138-121614 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7715170
LL Group # 1526268
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 12/16/2014 by SB

ExxonMobil

PO Box 4592

Submitted: 12/17/2014 10:00

Houston TX 77210-4592

Reported: 12/30/2014 13:26

D-138 SDG#: PEO46-06FD

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	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	0.011 J	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	0.032 J	0.031	0.062	1
08357	Phenanthrene	85-01-8	N.D.	0.031	0.062	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	14352WAJ026	12/27/2014 18:37	Catherine E Bachman	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14352WAJ026	12/19/2014 09:00	Jessica M Velez	1

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

Quality Control Summary

Client Name: ExxonMobil
Reported: 12/30/14 at 01:26 PM

Group Number: 1526268

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: 14352WAJ026	Sample number(s): 7715163-7715170								
Acenaphthene	N.D.	0.010	0.050	ug/l	93		82-126		
Acenaphthylene	N.D.	0.010	0.050	ug/l	101		72-124		
Anthracene	N.D.	0.010	0.050	ug/l	102		83-125		
Benzo(a)anthracene	N.D.	0.010	0.050	ug/l	95		79-122		
Benzo(a)pyrene	N.D.	0.010	0.050	ug/l	94		72-126		
Benzo(b)fluoranthene	N.D.	0.010	0.050	ug/l	105		79-136		
Benzo(g,h,i)perylene	N.D.	0.010	0.050	ug/l	82		59-137		
Benzo(k)fluoranthene	N.D.	0.010	0.050	ug/l	97		72-129		
Chrysene	N.D.	0.010	0.050	ug/l	104		77-122		
Dibenz(a,h)anthracene	N.D.	0.010	0.050	ug/l	78		42-143		
Fluoranthene	N.D.	0.010	0.050	ug/l	103		76-121		
Fluorene	N.D.	0.010	0.050	ug/l	105		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	98		75-117		
2-Methylnaphthalene	N.D.	0.010	0.050	ug/l	92		68-124		
Naphthalene	N.D.	0.030	0.060	ug/l	98		78-117		
Phenanthrene	N.D.	0.030	0.060	ug/l	102		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: 14352WAJ026	Sample number(s): 7715163-7715170 UNSPK: 7715164								
Acenaphthene	68*	83	69-134	19	30				
Acenaphthylene	72	88	66-132	19	30				
Anthracene	62*	78	64-129	21	30				
Benzo(a)anthracene	39	58	37-135	39*	30				
Benzo(a)pyrene	27*	43	32-137	47*	30				
Benzo(b)fluoranthene	32*	54	41-137	50*	30				
Benzo(g,h,i)perylene	20*	38	21-127	61*	30				
Benzo(k)fluoranthene	30*	51	36-139	50*	30				
Chrysene	37*	57	51-129	41*	30				
Dibenz(a,h)anthracene	20	38	17-134	63*	30				
Fluoranthene	58	76	53-133	27	30				
Fluorene	74	89	59-137	18	30				
Indeno(1,2,3-cd)pyrene	20*	39	26-130	64*	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
Reported: 12/30/14 at 01:26 PM

Group Number: 1526268

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</u> <u>RPD</u> <u>Max</u>
1-Methylnaphthalene	71	90	60-129	23	30				
2-Methylnaphthalene	68	86	64-129	22	30				
Naphthalene	75	95	58-131	23	30				
Phenanthrene	67	83	66-126	20	30				
Pyrene	48*	64	49-136	28	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: 14352WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7715163	93	84	88
7715164	92	70	92
7715165	57	28*	69
7715166	75	48	86
7715167	98	92	90
7715168	99	80	94
7715169	95	87	86
7715170	99	91	92
Blank	101	112	91
LCS	101	106	95
MS	57	28*	69
MSD	75	48	86
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.

Client: EXXONMOBIL

MAYFLOWER PIPELINE INCIDENT

Delivery and Receipt Information

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>12/17/2014 10:00</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 \geq 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 Corey Eshleman (3647) at 11:24 on 12/17/2014

Samples Chilled Details: MAYFLOWER PIPELINE INCIDENT

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT121	0.6	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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