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

September 12, 2014

Project: Mayflower, AR Pipeline Incident

Submittal Date: 09/06/2014
Group Number: 1501452
SDG: PEO22
PO Number: 4410181435
Release Number: SIXSMITH
State of Sample Origin: AR

Client Sample Description	Lancaster Labs (LL) #
WS-007(0.5-1.0)090514 Grab Surface Water	7590312
WS-007(0.5-1.0)090514MS Grab Surface Water	7590313
WS-007(0.5-1.0)090514MSD Grab Surface Water	7590314
WS-009(Surface)090514 Grab Surface Water	7590315
WS-001(0.5-1.0)090514 Grab Surface Water	7590316
WS-021(Surface)090514 Grab Surface Water	7590317
WS-004(0.5-1.0)090514 Grab Surface Water	7590318
DUP-WS-135-090514 Grab Surface Water	7590319

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 Parmalee
ELECTRONIC COPY TO	ExxonMobil	Attn: Michael L Sixsmith
ELECTRONIC COPY TO	ExxonMobil	Attn: Julie Foster
ELECTRONIC	ARCADIS	Attn: Sonal Patil

COPY TO
ELECTRONIC ARCADIS Attn: Kim Abbott
COPY TO

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Mayflower, AR Pipeline Incident
LL Group #: 1501452

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: 7590317

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 #: 14252WAB026 (Sample number(s): 7590312-7590319 UNSPK: 7590312)

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

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside outside acceptance windows: Anthracene

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 7590317

Sample Description: WS-007(0.5-1.0)090514 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590312
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 14:45 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0071 SDG#: PEO22-01BKG

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	0.052	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	0.021 J	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	0.014 J	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	14252WAB026	09/10/2014 02:29	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: WS-007(0.5-1.0)090514MS Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590313
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 14:45 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0071 SDG#: PEO22-01MS

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	1.0	0.011	0.055	1
08357	Acenaphthylene	208-96-8	0.96	0.011	0.055	1
08357	Anthracene	120-12-7	0.35	0.011	0.055	1
08357	Benzo(a)anthracene	56-55-3	0.74	0.011	0.055	1
08357	Benzo(a)pyrene	50-32-8	0.58	0.011	0.055	1
08357	Benzo(b)fluoranthene	205-99-2	0.85	0.011	0.055	1
08357	Benzo(g,h,i)perylene	191-24-2	0.78	0.011	0.055	1
08357	Benzo(k)fluoranthene	207-08-9	0.84	0.011	0.055	1
08357	Chrysene	218-01-9	0.92	0.011	0.055	1
08357	Dibenz(a,h)anthracene	53-70-3	0.86	0.011	0.055	1
08357	Fluoranthene	206-44-0	0.85	0.011	0.055	1
08357	Fluorene	86-73-7	1.0	0.011	0.055	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.81	0.011	0.055	1
08357	1-Methylnaphthalene	90-12-0	0.98	0.011	0.055	1
08357	2-Methylnaphthalene	91-57-6	0.92	0.011	0.055	1
08357	Naphthalene	91-20-3	1.0	0.033	0.066	1
08357	Phenanthrene	85-01-8	1.0	0.033	0.066	1
08357	Pyrene	129-00-0	0.64	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	14252WAB026	09/10/2014 02:57	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: WS-007(0.5-1.0)090514MSD Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590314
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 14:45 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0071 SDG#: PEO22-01MSD

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	1.0	0.010	0.051	1
08357	Acenaphthylene	208-96-8	0.84	0.010	0.051	1
08357	Anthracene	120-12-7	0.51	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	0.78	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	0.57	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	0.83	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	0.75	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	0.83	0.010	0.051	1
08357	Chrysene	218-01-9	0.92	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	0.83	0.010	0.051	1
08357	Fluoranthene	206-44-0	0.88	0.010	0.051	1
08357	Fluorene	86-73-7	0.90	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	0.79	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	0.95	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	0.91	0.010	0.051	1
08357	Naphthalene	91-20-3	1.0	0.031	0.061	1
08357	Phenanthrene	85-01-8	0.95	0.031	0.061	1
08357	Pyrene	129-00-0	0.74	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	14252WAB026	09/10/2014 03:24	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: WS-009(Surface)090514 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590315
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 14:50 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0091 SDG#: PEO22-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.051	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.051	1
08357	Anthracene	120-12-7	N.D.	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.051	1
08357	Chrysene	218-01-9	N.D.	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.051	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.051	1
08357	Fluorene	86-73-7	N.D.	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.051	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.061	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	14252WAB026	09/10/2014 03:51	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: WS-001(0.5-1.0)090514 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590316
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 15:00 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0011 SDG#: PEO22-03

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

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	14252WAB026	09/10/2014 04:19	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: WS-021(Surface)090514 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590317
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 15:05 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0211 SDG#: PEO22-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.051	1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.051	1
08357	Anthracene	120-12-7	N.D.	0.010	0.051	1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.051	1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.051	1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.051	1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.051	1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.051	1
08357	Chrysene	218-01-9	N.D.	0.010	0.051	1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.051	1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.051	1
08357	Fluorene	86-73-7	N.D.	0.010	0.051	1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.051	1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.051	1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.051	1
08357	Naphthalene	91-20-3	N.D.	0.030	0.061	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 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	14252WAB026	09/10/2014 04:46	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: WS-004(0.5-1.0)090514 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590318
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 15:10 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W0041 SDG#: PEO22-05

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

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	14252WAB026	09/10/2014 05:14	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Sample Description: DUP-WS-135-090514 Grab Surface Water
S20135565 Mayflower, AR
Pipeline Incident

LL Sample # WW 7590319
LL Group # 1501452
Account # 14739

Project Name: Mayflower, AR Pipeline Incident

Collected: 09/05/2014 by ZP

Submitted: 09/06/2014 10:00
Reported: 09/12/2014 12:30

ExxonMobil
PO Box 4592
Houston TX 77210-4592

W00FD SDG#: PEO22-06FD*

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	0.014 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	0.015 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	0.030 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.	0.030	0.061	1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.061	1
08357	Pyrene	129-00-0	0.021 J	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	14252WAB026	09/10/2014 05:41	Brian K Graham	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	14252WAB026	09/09/2014 15:30	Seth A Farrier	1

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

Quality Control Summary

Client Name: ExxonMobil Group Number: 1501452
Reported: 09/12/14 at 12:30 PM

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

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

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 14252WAB026	Sample number(s): 7590312-7590319								
Acenaphthene	N.D.	0.010	0.050	ug/l	101		82-126		
Acenaphthylene	N.D.	0.010	0.050	ug/l	82		72-124		
Anthracene	N.D.	0.010	0.050	ug/l	93		83-125		
Benzo(a)anthracene	N.D.	0.010	0.050	ug/l	88		79-122		
Benzo(a)pyrene	N.D.	0.010	0.050	ug/l	85		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	76		59-137		
Benzo(k)fluoranthene	N.D.	0.010	0.050	ug/l	86		72-129		
Chrysene	N.D.	0.010	0.050	ug/l	90		77-122		
Dibenz(a,h)anthracene	N.D.	0.010	0.050	ug/l	60		42-143		
Fluoranthene	N.D.	0.010	0.050	ug/l	93		76-121		
Fluorene	N.D.	0.010	0.050	ug/l	89		82-119		
Indeno(1,2,3-cd)pyrene	N.D.	0.010	0.050	ug/l	70		53-136		
1-Methylnaphthalene	N.D.	0.010	0.050	ug/l	81		75-117		
2-Methylnaphthalene	N.D.	0.010	0.050	ug/l	77		68-124		
Naphthalene	N.D.	0.030	0.060	ug/l	84		78-117		
Phenanthrene	N.D.	0.030	0.060	ug/l	92		83-116		
Pyrene	N.D.	0.010	0.050	ug/l	89		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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 14252WAB026	Sample number(s): 7590312-7590319 UNSPK: 7590312								
Acenaphthene	93	97	69-134	3	30				
Acenaphthylene	88	82	66-132	13	30				
Anthracene	32*	50*	64-129	36*	30				
Benzo(a)anthracene	68	76	37-135	5	30				
Benzo(a)pyrene	53	56	32-137	2	30				
Benzo(b)fluoranthene	78	81	41-137	3	30				
Benzo(g,h,i)perylene	71	73	21-127	4	30				
Benzo(k)fluoranthene	77	81	36-139	2	30				
Chrysene	84	90	51-129	1	30				
Dibenz(a,h)anthracene	78	81	17-134	3	30				
Fluoranthene	76	84	53-133	3	30				
Fluorene	93	88	59-137	12	30				
Indeno(1,2,3-cd)pyrene	74	77	26-130	2	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.

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Quality Control Summary

Client Name: ExxonMobil Group Number: 1501452
Reported: 09/12/14 at 12:30 PM

Sample Matrix Quality Control

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

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1-Methylnaphthalene	89	92	60-129	3	30				
2-Methylnaphthalene	84	89	64-129	1	30				
Naphthalene	95	99	58-131	3	30				
Phenanthrene	92	92	66-126	6	30				
Pyrene	57	71	49-136	14	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: 14252WAB026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7590312	77	58	82
7590313	76	64	86
7590314	83	70	90
7590315	92	62	85
7590316	83	41	80
7590317	75	31*	73
7590318	78	38	75
7590319	92	65	84
Blank	105	97	86
LCS	95	95	78
MS	76	64	86
MSD	83	70	90
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

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Acct. # 14739 — For Eurofins Lancaster Laboratories Environmental use only — Group # 1501452 — Sample # 7590312-19

Instructions on reverse side correspond with circled numbers.

SCR#: _____

(1) Client Information

Facility #/SID: Mayflower Pipeline Incident

Site Address: Mayflower AR

ExxonMobil PM: Mike Sixsmith — Cost Center/AFE:

Consultant/Office: Arcadis

Consultant PM: Steve Barrick — Consultant Phone #: 919-302-6799

Sampler: Zac Powers

(4) Matrix

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

(5) Analyses Requested — Preservation Code

Preservation Codes

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

(6) Remarks

(2) Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	Total # of Containers	PAH 8270 SIM	Remarks
WS-007 (0.5-1.0) 090514	9/5/14	1445	X		2	X	
WS-007 (0.5-1.0) 090514	9/5/14	1445	X		4	X	MS/MSD
WS-009 (surface) 090514	9/5/14	1450	X		2	X	
WS-001 (0.5-1.0) 090514	9/5/14	1500	X		2	X	
WS-021 (surface) 090514	9/5/14	1505	X		2	X	
WS-004 (0.5-1.0) 090514	9/5/14	1510	X		2	X	
DUP-WS-135-090514	9/5/14	—	X		2	X	

(7) Turnaround Time Requested (TAT) (please circle)

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

(8) Data Package (circle if required)

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

EDD (circle if required)

Locus EIM (default)
Other _____

Relinquished by	Date	Time	Received by	Date	Time
[signature]	9/5/14	1730			
Relinquished by Commercial Carrier: UPS X FedEx ____ Other ____			Received by [signature]	9.6.14	1000

Temperature Upon Receipt 2.2 °C

Custody Seals Intact? (Yes) No

(9)

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Sample Administration Receipt Documentation Log

Doc Log ID: 27519

Group Number(s): 1501452

Client: ExxonMobil

Delivery and Receipt Information

Delivery Method:	UPS	Arrival Timestamp:	09/06/2014 10:00
Number of Packages:	1	Number of Projects:	1

Arrival Condition Summary

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

Unpacked by Timothy Cubberley (6520) at 11:10 on 09/06/2014

Samples Chilled Details

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

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	8013596-IR	2.2	IR	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

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

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

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

> greater than

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

ppb parts per billion

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

Data Qualifiers:

C – result confirmed by reanalysis.

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

U.S. EPA CLP Data Qualifiers:

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

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

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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