ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

November 05, 2013

Project: Mayflower, AR Pipeline Incident

Submittal Date: 10/28/2013
Group Number: 1429509
SDG: PEM47
PO Number: B0086003.1301
State of Sample Origin: AR

| Client Sample Description | Lancaster Labs (LL) # |
|---|---|
| WS-018(Surface)102613 Grab Surface Water | 7254064 |
| WS-003(Surface)102613 Grab Surface Water | 7254065 |
| WS-007(0.5-1.0)102613 Grab Surface Water | 7254066 |
| WS-001(0.5-1.0)102613 Grab Surface Water | 7254067 |
| WS-005(Surface)102613 Grab Surface Water | 7254068 |
| WS-014(1.5-2.0)102613 Grab Surface Water | 7254069 |
| WS-014(5.5-6.0)102613 Grab Surface Water | 7254070 |
| WS-012(1.5-2.0)102613 Grab Surface Water | 7254071 |
| WS-012(5.0-5.5)102613 Grab Surface Water | 7254072 |
| WS-010(1.5-2.0)102613 Grab Surface Water | 7254073 |
| WS-010(3.5-4.0)102613 Grab Surface Water | 7254074 |
| WS-006(0.5-1.0)102613 Grab Surface Water | 7254075 |
| WS-011(1.5-2.0)102613 Grab Surface Water | 7254076 |
| WS-011(5.0-5.5)102613 Grab Surface Water | 7254077 |
| WS-002(Surface)102613 Grab Surface Water | 7254078 |
| DUP-WS-108-102613 Grab Surface Water | 7254079 |
| WS-EB-103-102613 Grab Water | 7254080 |

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 | ARCADIS | Attn: Emily Leamer |

| | | |
|---|---|---|
| COPY TO | | |
| ELECTRONIC | ARCADIS | Attn: Rhiannon Parmalee |
| COPY TO | | |
| ELECTRONIC | ExxonMobil | Attn: Michael L Sixsmith |
| COPY TO | | |
| ELECTRONIC | ExxonMobil | Attn: Julie Foster |
| COPY TO | | |

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Project Name: Mayflower, AR Pipeline Incident
LLI Group #: 1429509

**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 not 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: 7254064, 7254065, 7254067, 7254068, 7254069, 7254071, 7254073, 7254074, 7254075, 7254076, 7254079, 7254080

The laboratory did not receive sufficient sample volume to perform

the method QC requirement for MS/MSD or MS/DUP analysis.

Sample #s: 7254066

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Since the result is </= 1/2 the LOQ, the data is reported.

Sample #s: 7254070, 7254072, 7254077, 7254078

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. 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 #: 13302WAH026 (Sample number(s): 7254064-7254065, 7254067-7254080)

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 7254070, 7254072, 7254077, 7254078

SW-846 6010B, Metals

Batch #: 133011848007 (Sample number(s): 7254064-7254080 UNSPK: 7254070 BKG: 7254070)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Lead, Nickel

**Sample Description:** WS-018(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254064
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2618S SDG#: PEM47-01

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-018(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254064
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2618S SDG#: PEM47-01

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.051 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.051 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.051 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.9 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0312 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-018(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254064**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2618S SDG#: PEM47-01

| CAT No. | Analysis Name | CAS Number | As Received Result | | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.87 | | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.38 | | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | 2.6 | J | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/29/2013 22:09 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/29/2013 22:09 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/30/2013 21:43 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:10 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:54 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:06 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-018(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254064**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2618S SDG#: PEM47-01

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-003(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254065**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2603S SDG#: PEM47-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-003(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254065**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2603S SDG#: PEM47-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.031 | 0.052 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.031 | 0.052 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.052 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.8 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0278 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-003(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254065**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2603S SDG#: PEM47-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.76 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.39 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/29/2013 22:32 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/29/2013 22:32 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/30/2013 22:12 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:14 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:58 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:09 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-003(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254065**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 08:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2603S SDG#: PEM47-02

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-007(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254066
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26070 SDG#: PEM47-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-007(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254066**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26070 SDG#: PEM47-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **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 | 0.012 J | 0.010 | 0.051 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.051 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.051 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.051 | 1 |

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Since the result is </= 1/2 the LOQ, the data is reported.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 19.2 | 0.033 | 0.20 | 1 |

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

**Sample Description:** WS-007(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254066**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26070 SDG#: PEM47-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | 0.0073 J | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0350 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |
| 01750 | Calcium | 7440-70-2 | 4.47 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | 0.0058 J | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 1.95 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | 2.7 J | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/29/2013 22:54 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/29/2013 22:54 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13305WAC026 | 11/04/2013 12:40 | Chad A Moline | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 2 | 13305WAC026 | 11/02/2013 11:00 | Katheryne V Sponheimer | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:26 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:10 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:11 | Damary Valentin | 1 |

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

**Sample Description:** WS-007(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254066**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26070 SDG#: PEM47-03

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-001(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254067**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26010 SDG#: PEM47-04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-001(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254067**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26010 SDG#: PEM47-04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.051 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.051 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.051 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.051 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.5 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0260 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-001(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254067**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26010 SDG#: PEM47-04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.75 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | 0.0053 J | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.34 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/29/2013 23:17 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/29/2013 23:17 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/30/2013 23:10 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:30 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:14 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:13 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-001(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254067**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26010 SDG#: PEM47-04

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-005(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254068**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2605S SDG#: PEM47-05

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-005(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254068**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2605S SDG#: PEM47-05

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.052 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.031 | 0.052 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.031 | 0.052 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.052 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 22.1 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0190 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-005(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254068**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2605S SDG#: PEM47-05

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.98 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.36 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/29/2013 23:40 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/29/2013 23:40 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/30/2013 23:39 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:33 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:18 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:25 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-005(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254068**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 09:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2605S SDG#: PEM47-05

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-014(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254069
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26141 SDG#: PEM47-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-014(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254069
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26141 SDG#: PEM47-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 19.4 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0243 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-014(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254069**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26141 SDG#: PEM47-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.26 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.14 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 01:10 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 01:10 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 00:08 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:37 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:22 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:27 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-014(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254069**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26141 SDG#: PEM47-06

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-014(5.5-6.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254070**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26145 SDG#: PEM47-07

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-014(5.5-6.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254070
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26145 SDG#: PEM47-07

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

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.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 19.6 | 0.033 | 0.20 | 1 |

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

**Sample Description:** WS-014(5.5-6.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254070**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26145 SDG#: PEM47-07

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0247 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |
| 01750 | Calcium | 7440-70-2 | 4.27 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.16 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | 0.0015 J | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 01:33 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 01:33 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 00:37 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 09:47 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 21:31 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:29 | Damary Valentin | 1 |

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

**Sample Description:** WS-014(5.5-6.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254070**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26145 SDG#: PEM47-07

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-012(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254071**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26121 SDG#: PEM47-08

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-012(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254071**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26121 SDG#: PEM47-08

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 20.2 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0244 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-012(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254071**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26121 SDG#: PEM47-08

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.44 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | 0.0050 J | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.21 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 01:55 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 01:55 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 01:06 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:41 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:26 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:31 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-012(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254071**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26121 SDG#: PEM47-08

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-012(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254072**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26125 SDG#: PEM47-09

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-012(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254072**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26125 SDG#: PEM47-09

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

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.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 20.6 | 0.033 | 0.20 | 1 |

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

**Sample Description:** WS-012(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254072**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26125 SDG#: PEM47-09

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0259 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |
| 01750 | Calcium | 7440-70-2 | 4.51 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | 0.0022 J | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | 0.0048 J | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.27 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | 3.1 J | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 02:18 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 02:18 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 01:35 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:45 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:29 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:33 | Damary Valentin | 1 |

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

**Sample Description:** WS-012(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254072**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 10:50 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26125 SDG#: PEM47-09

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-010(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254073**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:10 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26101 SDG#: PEM47-10

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-010(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254073**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:10 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26101 SDG#: PEM47-10

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **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. | 0.031 | 0.051 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.031 | 0.051 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.051 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 20.2 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0262 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-010(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254073**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:10 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26101 SDG#: PEM47-10

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.47 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.19 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 02:41 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 02:41 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 02:05 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:49 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:33 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:35 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-010(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254073**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:10 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26101 SDG#: PEM47-10

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-010(3.5-4.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254074**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26103 SDG#: PEM47-11

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-010(3.5-4.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254074**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26103 SDG#: PEM47-11

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.8 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0263 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-010(3.5-4.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254074**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26103 SDG#: PEM47-11

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.82 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | 0.0054 J | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.37 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | 2.4 J | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 03:03 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 03:03 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 02:34 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:53 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:37 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:37 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-010(3.5-4.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254074**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26103 SDG#: PEM47-11

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-006(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254075**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26060 SDG#: PEM47-12

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-006(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254075**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26060 SDG#: PEM47-12

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.3 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0273 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-006(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254075**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26060 SDG#: PEM47-12

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.71 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.32 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 03:26 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 03:26 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 03:03 | Catherine E Bachman | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 10:57 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:41 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:44 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

**Sample Description:** WS-006(0.5-1.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254075**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 11:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26060 SDG#: PEM47-12

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-011(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254076**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26111 SDG#: PEM47-13

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-011(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254076**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26111 SDG#: PEM47-13

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.3 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0296 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-011(1.5-2.0)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254076**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:20 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26111 SDG#: PEM47-13

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 4.67 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.33 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 03:49 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 03:49 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 14:35 | Chad A Moline | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 11:00 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:45 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:46 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-011(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254077**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26115 SDG#: PEM47-14

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-011(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample #** WW 7254077
**LL Group #** 1429509
**Account #** 14739

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26115 SDG#: PEM47-14

| CAT No. | Analysis Name | CAS Number | As Received Result | | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | 0.1 | J | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | | 0.010 | 0.050 | 1 |

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

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.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Metals** | **SM 2340 B-1997** | | **mg/l** | | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 22.1 | | 0.033 | 0.20 | 1 |

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

**Sample Description:** WS-011(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254077**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26115 SDG#: PEM47-14

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0295 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |
| 01750 | Calcium | 7440-70-2 | 4.94 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.38 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | 0.0017 J | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 04:12 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 04:12 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 15:05 | Chad A Moline | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 11:12 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 22:57 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:48 | Damary Valentin | 1 |

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

**Sample Description:** WS-011(5.0-5.5)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254077**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

26115 SDG#: PEM47-14

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-002(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254078**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2602S SDG#: PEM47-15

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-002(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254078**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2602S SDG#: PEM47-15

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |

The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.

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.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 20.5 | 0.033 | 0.20 | 1 |

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

**Sample Description:** WS-002(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254078**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2602S SDG#: PEM47-15

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0229 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |
| 01750 | Calcium | 7440-70-2 | 4.52 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 2.25 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 04:34 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 04:34 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 15:34 | Chad A Moline | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 11:16 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:00 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:50 | Damary Valentin | 1 |

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

**Sample Description:** WS-002(Surface)102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254078**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 12:40 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

2602S SDG#: PEM47-15

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** DUP-WS-108-102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254079**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

DP108 SDG#: PEM47-16FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** DUP-WS-108-102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254079**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

DP108 SDG#: PEM47-16FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.010 | 0.050 | 1 |
| 08357 | Naphthalene | 91-20-3 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.030 | 0.050 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.010 | 0.050 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 21.1 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | 0.0280 | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** DUP-WS-108-102613 Grab Surface Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254079**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

DP108 SDG#: PEM47-16FD

| CAT No. | Analysis Name | | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **Metals** | | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | | 7440-70-2 | 4.65 | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | | 7439-95-4 | 2.31 | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | | 7440-02-0 | 0.0016 J | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 1 |
| **Wet Chemistry** | | **EPA 1664A** | | **mg/l** | **mg/l** | **mg/l** | |
| 08079 | HEM (oil & grease) | | n.a. | N.D. | 1.4 | 5.0 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 04:57 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 04:57 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 16:03 | Chad A Moline | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 11:20 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:04 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:52 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |
| 08079 | HEM (oil & grease) | EPA 1664A | 1 | 13308807901A | 11/04/2013 09:35 | Yolunder Y Bunch | 1 |

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

**Sample Description:** WS-EB-103-102613 Grab Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254080**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 13:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

EB103 SDG#: PEM47-17EB*

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | ug/l | ug/l | ug/l | |
| 02898 | Acetone | 67-64-1 | N.D. | 3.0 | 5.0 | 1 |
| 02898 | Allyl Chloride | 107-05-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Benzene | 71-43-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromobenzene | 108-86-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromochloromethane | 74-97-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromodichloromethane | 75-27-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromoform | 75-25-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Bromomethane | 74-83-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2-Butanone | 78-93-3 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | n-Butylbenzene | 104-51-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | sec-Butylbenzene | 135-98-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | tert-Butylbenzene | 98-06-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chlorobenzene | 108-90-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroethane | 75-00-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloroform | 67-66-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Chloromethane | 74-87-3 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 2-Chlorotoluene | 95-49-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Chlorotoluene | 106-43-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Dibromochloromethane | 124-48-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dibromomethane | 74-95-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Dichlorofluoromethane | 75-43-4 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3-Dichloropropane | 142-28-9 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 2,2-Dichloropropane | 594-20-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1-Dichloropropene | 563-58-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethyl ether | 60-29-7 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Ethylbenzene | 100-41-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Freon 113 | 76-13-1 | N.D. | 0.2 | 0.5 | 1 |
| 02898 | Hexachlorobutadiene | 87-68-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Isopropylbenzene | 98-82-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | p-Isopropyltoluene | 99-87-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 4-Methyl-2-Pentanone | 108-10-1 | N.D. | 1.0 | 5.0 | 1 |
| 02898 | Methylene Chloride | 75-09-2 | N.D. | 0.2 | 0.5 | 1 |

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

**Sample Description:** WS-EB-103-102613 Grab Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254080**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 13:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

EB103 SDG#: PEM47-17EB*

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260B 25mL purge** | | **ug/l** | **ug/l** | **ug/l** | |
| 02898 | n-Propylbenzene | 103-65-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Styrene | 100-42-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1,2-Tetrachloroethane | 630-20-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrachloroethene | 127-18-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Tetrahydrofuran | 109-99-9 | N.D. | 2.0 | 5.0 | 1 |
| 02898 | Toluene | 108-88-3 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichlorobenzene | 87-61-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichloroethene | 79-01-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,2,3-Trichloropropane | 96-18-4 | N.D. | 0.3 | 1.0 | 1 |
| 02898 | 1,2,4-Trimethylbenzene | 95-63-6 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | 1,3,5-Trimethylbenzene | 108-67-8 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Vinyl Chloride | 75-01-4 | N.D. | 0.1 | 0.5 | 1 |
| 02898 | Xylene (Total) | 1330-20-7 | N.D. | 0.1 | 0.5 | 1 |
| **GC/MS Semivolatiles** | **SW-846 8270C SIM** | | **ug/l** | **ug/l** | **ug/l** | |
| 08357 | Acenaphthene | 83-32-9 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Acenaphthylene | 208-96-8 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Anthracene | 120-12-7 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Benzo(a)anthracene | 56-55-3 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Benzo(a)pyrene | 50-32-8 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Benzo(b)fluoranthene | 205-99-2 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Benzo(g,h,i)perylene | 191-24-2 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Benzo(k)fluoranthene | 207-08-9 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Chrysene | 218-01-9 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Dibenz(a,h)anthracene | 53-70-3 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Fluoranthene | 206-44-0 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Fluorene | 86-73-7 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Indeno(1,2,3-cd)pyrene | 193-39-5 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | 1-Methylnaphthalene | 90-12-0 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | 2-Methylnaphthalene | 91-57-6 | N.D. | 0.011 | 0.056 | 1 |
| 08357 | Naphthalene | 91-20-3 | 0.088 | 0.034 | 0.056 | 1 |
| 08357 | Phenanthrene | 85-01-8 | N.D. | 0.034 | 0.056 | 1 |
| 08357 | Pyrene | 129-00-0 | N.D. | 0.011 | 0.056 | 1 |
| | The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis. | | | | | |
| **Metals** | **SM 2340 B-1997** | | **mg/l** | **mg/l** | **mg/l** | |
| 06256 | Total Hardness as CaCO3 | 471-34-1 | 0.52 | 0.033 | 0.20 | 1 |
| | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0068 | 0.0200 | 1 |
| 07046 | Barium | 7440-39-3 | N.D. | 0.00033 | 0.0050 | 1 |
| 07049 | Cadmium | 7440-43-9 | N.D. | 0.00076 | 0.0050 | 1 |

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

**Sample Description:** WS-EB-103-102613 Grab Water
Mayflower, AR
Pipeline Incident

**LL Sample # WW 7254080**
**LL Group # 1429509**
**Account # 14739**

**Project Name: Mayflower, AR Pipeline Incident**

Collected: 10/26/2013 13:30 by CP

Submitted: 10/28/2013 13:45
Reported: 11/05/2013 12:17

ExxonMobil c/o Arcadis
630 Plaza Drive, Suite 600
Highlands Ranch CO 80129

EB103 SDG#: PEM47-17EB*

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **Metals** | **SW-846 6010B** | | **mg/l** | **mg/l** | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 0.162 J | 0.0334 | 0.200 | 1 |
| 07051 | Chromium | 7440-47-3 | N.D. | 0.0016 | 0.0150 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0047 | 0.0150 | 1 |
| 01757 | Magnesium | 7439-95-4 | 0.0293 J | 0.0167 | 0.100 | 1 |
| 07061 | Nickel | 7440-02-0 | N.D. | 0.0015 | 0.0100 | 1 |
| 07036 | Selenium | 7782-49-2 | N.D. | 0.0084 | 0.0200 | 1 |
| 07066 | Silver | 7440-22-4 | N.D. | 0.0021 | 0.0050 | 1 |
| 07071 | Vanadium | 7440-62-2 | N.D. | 0.0020 | 0.0050 | 1 |
| | **SW-846 7470A** | | **mg/l** | **mg/l** | **mg/l** | |
| 00259 | Mercury | 7439-97-6 | N.D. | 0.000060 | 0.00020 | 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 |
|---|---|---|---|---|---|---|---|
| 02898 | Silvertip & Mayflower VOCs8260 | SW-846 8260B 25mL purge | 1 | C133022AA | 10/30/2013 05:19 | Brett W Kenyon | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030B | 1 | C133022AA | 10/30/2013 05:19 | Brett W Kenyon | 1 |
| 08357 | PAHs in waters by SIM | SW-846 8270C SIM | 1 | 13302WAH026 | 10/31/2013 16:32 | Chad A Moline | 1 |
| 10470 | BNA Water Extraction (SIM) | SW-846 3510C | 1 | 13302WAH026 | 10/30/2013 08:00 | Kerrie A Freeburn | 1 |
| 06256 | Total Hardness as CaCO3 | SM 2340 B-1997 | 1 | 133076256001 | 11/03/2013 07:15 | Deborah A Krady | 1 |
| 07035 | Arsenic | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07046 | Barium | SW-846 6010B | 1 | 133011848007 | 11/03/2013 11:24 | Eric L Eby | 1 |
| 07049 | Cadmium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07051 | Chromium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 01757 | Magnesium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07061 | Nickel | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07036 | Selenium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07066 | Silver | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 07071 | Vanadium | SW-846 6010B | 1 | 133011848007 | 11/02/2013 23:08 | Tara L Snyder | 1 |
| 00259 | Mercury | SW-846 7470A | 1 | 133015713004 | 10/30/2013 08:54 | Damary Valentin | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 133011848007 | 10/29/2013 07:22 | James L Mertz | 1 |
| 05713 | WW SW846 Hg Digest | SW-846 7470A | 1 | 133015713004 | 10/29/2013 15:35 | Nelli S Markaryan | 1 |

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

# Quality Control Summary

Client Name: ExxonMobil c/o Arcadis Group Number: 1429509
Reported: 11/05/13 at 12:17 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: C133022AA | Sample number(s): 7254064-7254080 | | | | | | | | |
| Acetone | N.D. | 3.0 | 5.0 | ug/l | 119 | | 60-139 | | |
| Allyl Chloride | N.D. | 0.1 | 0.5 | ug/l | 85 | | 61-130 | | |
| Benzene | N.D. | 0.1 | 0.5 | ug/l | 98 | | 80-120 | | |
| Bromobenzene | N.D. | 0.1 | 0.5 | ug/l | 102 | | 80-120 | | |
| Bromochloromethane | N.D. | 0.1 | 0.5 | ug/l | 109 | | 80-125 | | |
| Bromodichloromethane | N.D. | 0.1 | 0.5 | ug/l | 109 | | 80-120 | | |
| Bromoform | N.D. | 0.1 | 0.5 | ug/l | 115 | | 73-128 | | |
| Bromomethane | N.D. | 0.1 | 0.5 | ug/l | 97 | | 62-126 | | |
| 2-Butanone | N.D. | 1.0 | 5.0 | ug/l | 106 | | 70-130 | | |
| n-Butylbenzene | N.D. | 0.1 | 0.5 | ug/l | 94 | | 80-120 | | |
| sec-Butylbenzene | N.D. | 0.1 | 0.5 | ug/l | 95 | | 80-120 | | |
| tert-Butylbenzene | N.D. | 0.1 | 0.5 | ug/l | 96 | | 80-120 | | |
| Carbon Tetrachloride | N.D. | 0.1 | 0.5 | ug/l | 118 | | 80-129 | | |
| Chlorobenzene | N.D. | 0.1 | 0.5 | ug/l | 103 | | 80-120 | | |
| Chloroethane | N.D. | 0.1 | 0.5 | ug/l | 91 | | 68-120 | | |
| Chloroform | N.D. | 0.1 | 0.5 | ug/l | 110 | | 80-120 | | |
| Chloromethane | N.D. | 0.2 | 0.5 | ug/l | 83 | | 55-120 | | |
| 2-Chlorotoluene | N.D. | 0.1 | 0.5 | ug/l | 97 | | 80-120 | | |
| 4-Chlorotoluene | N.D. | 0.1 | 0.5 | ug/l | 98 | | 80-120 | | |
| 1,2-Dibromo-3-chloropropane | N.D. | 0.2 | 0.5 | ug/l | 119 | | 64-141 | | |
| Dibromochloromethane | N.D. | 0.1 | 0.5 | ug/l | 109 | | 80-126 | | |
| 1,2-Dibromoethane | N.D. | 0.1 | 0.5 | ug/l | 106 | | 80-120 | | |
| Dibromomethane | N.D. | 0.1 | 0.5 | ug/l | 106 | | 80-120 | | |
| 1,2-Dichlorobenzene | N.D. | 0.1 | 0.5 | ug/l | 105 | | 80-120 | | |
| 1,3-Dichlorobenzene | N.D. | 0.1 | 0.5 | ug/l | 103 | | 80-120 | | |
| 1,4-Dichlorobenzene | N.D. | 0.1 | 0.5 | ug/l | 103 | | 80-120 | | |
| Dichlorodifluoromethane | N.D. | 0.1 | 0.5 | ug/l | 79 | | 39-120 | | |
| 1,1-Dichloroethane | N.D. | 0.1 | 0.5 | ug/l | 99 | | 80-120 | | |
| 1,2-Dichloroethane | N.D. | 0.1 | 0.5 | ug/l | 117 | | 80-127 | | |
| 1,1-Dichloroethene | N.D. | 0.1 | 0.5 | ug/l | 100 | | 80-123 | | |
| cis-1,2-Dichloroethene | N.D. | 0.1 | 0.5 | ug/l | 101 | | 80-120 | | |
| trans-1,2-Dichloroethene | N.D. | 0.1 | 0.5 | ug/l | 104 | | 80-120 | | |
| Dichlorofluoromethane | N.D. | 0.2 | 0.5 | ug/l | 122 | | 75-145 | | |
| 1,2-Dichloropropane | N.D. | 0.1 | 0.5 | ug/l | 98 | | 80-120 | | |
| 1,3-Dichloropropane | N.D. | 0.1 | 0.5 | ug/l | 97 | | 80-120 | | |
| 2,2-Dichloropropane | N.D. | 0.1 | 0.5 | ug/l | 103 | | 75-122 | | |
| 1,1-Dichloropropene | N.D. | 0.1 | 0.5 | ug/l | 104 | | 80-121 | | |
| cis-1,3-Dichloropropene | N.D. | 0.1 | 0.5 | ug/l | 101 | | 80-123 | | |
| trans-1,3-Dichloropropene | N.D. | 0.1 | 0.5 | ug/l | 101 | | 80-120 | | |
| Ethyl ether | N.D. | 0.1 | 0.5 | ug/l | 100 | | 59-130 | | |
| Ethylbenzene | N.D. | 0.1 | 0.5 | ug/l | 99 | | 80-120 | | |
| Freon 113 | N.D. | 0.2 | 0.5 | ug/l | 100 | | 78-132 | | |
| Hexachlorobutadiene | N.D. | 0.1 | 0.5 | ug/l | 109 | | 73-120 | | |

*- 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 c/o Arcadis Group Number: 1429509
Reported: 11/05/13 at 12:17 PM

| Analysis Name | Blank Result | Blank MDL** | Blank LOQ | Report Units | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Isopropylbenzene | N.D. | 0.1 | 0.5 | ug/l | 101 | | 80-120 | | |
| p-Isopropyltoluene | N.D. | 0.1 | 0.5 | ug/l | 96 | | 80-120 | | |
| Methyl Tertiary Butyl Ether | N.D. | 0.1 | 0.5 | ug/l | 101 | | 80-120 | | |
| 4-Methyl-2-Pentanone | N.D. | 1.0 | 5.0 | ug/l | 98 | | 69-135 | | |
| Methylene Chloride | N.D. | 0.2 | 0.5 | ug/l | 102 | | 80-120 | | |
| n-Propylbenzene | N.D. | 0.1 | 0.5 | ug/l | 93 | | 80-120 | | |
| Styrene | N.D. | 0.1 | 0.5 | ug/l | 101 | | 80-120 | | |
| 1,1,1,2-Tetrachloroethane | N.D. | 0.1 | 0.5 | ug/l | 111 | | 80-120 | | |
| 1,1,2,2-Tetrachloroethane | N.D. | 0.1 | 0.5 | ug/l | 94 | | 80-125 | | |
| Tetrachloroethene | N.D. | 0.1 | 0.5 | ug/l | 108 | | 80-120 | | |
| Tetrahydrofuran | N.D. | 2.0 | 5.0 | ug/l | 104 | | 65-131 | | |
| Toluene | N.D. | 0.1 | 0.5 | ug/l | 97 | | 80-120 | | |
| 1,2,3-Trichlorobenzene | N.D. | 0.1 | 0.5 | ug/l | 103 | | 63-120 | | |
| 1,2,4-Trichlorobenzene | N.D. | 0.1 | 0.5 | ug/l | 103 | | 70-120 | | |
| 1,1,1-Trichloroethane | N.D. | 0.1 | 0.5 | ug/l | 113 | | 80-120 | | |
| 1,1,2-Trichloroethane | N.D. | 0.1 | 0.5 | ug/l | 102 | | 80-120 | | |
| Trichloroethene | N.D. | 0.1 | 0.5 | ug/l | 107 | | 80-120 | | |
| Trichlorofluoromethane | N.D. | 0.1 | 0.5 | ug/l | 110 | | 77-132 | | |
| 1,2,3-Trichloropropane | N.D. | 0.3 | 1.0 | ug/l | 101 | | 80-120 | | |
| 1,2,4-Trimethylbenzene | N.D. | 0.1 | 0.5 | ug/l | 97 | | 80-120 | | |
| 1,3,5-Trimethylbenzene | N.D. | 0.1 | 0.5 | ug/l | 96 | | 80-120 | | |
| Vinyl Chloride | N.D. | 0.1 | 0.5 | ug/l | 88 | | 65-127 | | |
| Xylene (Total) | N.D. | 0.1 | 0.5 | ug/l | 100 | | 80-120 | | |
| Batch number: 13302WAH026 | Sample number(s): 7254064-7254065,7254067-7254080 | | | | | | | | |
| Acenaphthene | N.D. | 0.010 | 0.050 | ug/l | 107 | 91 | 77-118 | 16 | 30 |
| Acenaphthylene | N.D. | 0.010 | 0.050 | ug/l | 111 | 90 | 80-123 | 21 | 30 |
| Anthracene | N.D. | 0.010 | 0.050 | ug/l | 107 | 92 | 78-123 | 16 | 30 |
| Benzo(a)anthracene | N.D. | 0.010 | 0.050 | ug/l | 105 | 97 | 73-127 | 7 | 30 |
| Benzo(a)pyrene | N.D. | 0.010 | 0.050 | ug/l | 100 | 84 | 72-120 | 18 | 30 |
| Benzo(b)fluoranthene | N.D. | 0.010 | 0.050 | ug/l | 105 | 93 | 79-136 | 12 | 30 |
| Benzo(g,h,i)perylene | N.D. | 0.010 | 0.050 | ug/l | 105 | 95 | 64-130 | 10 | 30 |
| Benzo(k)fluoranthene | N.D. | 0.010 | 0.050 | ug/l | 117 | 102 | 73-131 | 14 | 30 |
| Chrysene | N.D. | 0.010 | 0.050 | ug/l | 105 | 89 | 76-125 | 16 | 30 |
| Dibenz(a,h)anthracene | N.D. | 0.010 | 0.050 | ug/l | 95 | 88 | 58-131 | 8 | 30 |
| Fluoranthene | N.D. | 0.010 | 0.050 | ug/l | 108 | 97 | 79-124 | 11 | 30 |
| Fluorene | N.D. | 0.010 | 0.050 | ug/l | 108 | 95 | 74-115 | 13 | 30 |
| Indeno(1,2,3-cd)pyrene | N.D. | 0.010 | 0.050 | ug/l | 102 | 95 | 62-130 | 7 | 30 |
| 1-Methylnaphthalene | N.D. | 0.010 | 0.050 | ug/l | 119 | 101 | 80-126 | 17 | 30 |
| 2-Methylnaphthalene | N.D. | 0.010 | 0.050 | ug/l | 117 | 100 | 81-124 | 16 | 30 |
| Naphthalene | N.D. | 0.030 | 0.050 | ug/l | 108 | 94 | 75-120 | 14 | 30 |
| Phenanthrene | N.D. | 0.030 | 0.050 | ug/l | 102 | 90 | 75-120 | 13 | 30 |
| Pyrene | N.D. | 0.010 | 0.050 | ug/l | 103 | 98 | 71-130 | 4 | 30 |
| Batch number: 13305WAC026 | Sample number(s): 7254066 | | | | | | | | |
| Acenaphthene | N.D. | 0.010 | 0.050 | ug/l | 106 | 109 | 77-118 | 3 | 30 |
| Acenaphthylene | N.D. | 0.010 | 0.050 | ug/l | 107 | 107 | 80-123 | 1 | 30 |
| Anthracene | N.D. | 0.010 | 0.050 | ug/l | 111 | 115 | 78-123 | 3 | 30 |
| Benzo(a)anthracene | N.D. | 0.010 | 0.050 | ug/l | 107 | 102 | 73-127 | 4 | 30 |
| Benzo(a)pyrene | N.D. | 0.010 | 0.050 | ug/l | 99 | 96 | 72-120 | 3 | 30 |
| Benzo(b)fluoranthene | N.D. | 0.010 | 0.050 | ug/l | 106 | 101 | 79-136 | 5 | 30 |
| Benzo(g,h,i)perylene | N.D. | 0.010 | 0.050 | ug/l | 105 | 104 | 64-130 | 1 | 30 |
| Benzo(k)fluoranthene | N.D. | 0.010 | 0.050 | ug/l | 111 | 110 | 73-131 | 1 | 30 |
| Chrysene | N.D. | 0.010 | 0.050 | ug/l | 102 | 103 | 76-125 | 1 | 30 |
| Dibenz(a,h)anthracene | 0.013 J | 0.010 | 0.050 | ug/l | 96 | 95 | 58-131 | 1 | 30 |
| Fluoranthene | N.D. | 0.010 | 0.050 | ug/l | 105 | 109 | 79-124 | 4 | 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 c/o Arcadis Group Number: 1429509
Reported: 11/05/13 at 12:17 PM

| Analysis Name | Blank Result | Blank MDL** | Blank LOQ | Report Units | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Fluorene | N.D. | 0.010 | 0.050 | ug/l | 106 | 105 | 74-115 | 0 | 30 |
| Indeno(1,2,3-cd)pyrene | 0.012 J | 0.010 | 0.050 | ug/l | 99 | 97 | 62-130 | 2 | 30 |
| 1-Methylnaphthalene | N.D. | 0.010 | 0.050 | ug/l | 116 | 116 | 80-126 | 1 | 30 |
| 2-Methylnaphthalene | N.D. | 0.010 | 0.050 | ug/l | 114 | 114 | 81-124 | 0 | 30 |
| Naphthalene | N.D. | 0.030 | 0.050 | ug/l | 106 | 105 | 75-120 | 1 | 30 |
| Phenanthrene | N.D. | 0.030 | 0.050 | ug/l | 100 | 101 | 75-120 | 1 | 30 |
| Pyrene | N.D. | 0.010 | 0.050 | ug/l | 110 | 107 | 71-130 | 3 | 30 |
| Batch number: 133011848007 | Sample number(s): 7254064-7254080 | | | | | | | | |
| Arsenic | N.D. | 0.0068 | 0.0200 | mg/l | 106 | | 90-113 | | |
| Barium | N.D. | 0.00033 | 0.0050 | mg/l | 103 | | 90-110 | | |
| Cadmium | N.D. | 0.00076 | 0.0050 | mg/l | 104 | | 90-112 | | |
| Calcium | N.D. | 0.0334 | 0.200 | mg/l | 103 | | 90-112 | | |
| Chromium | N.D. | 0.0016 | 0.0150 | mg/l | 106 | | 90-110 | | |
| Lead | N.D. | 0.0047 | 0.0150 | mg/l | 110 | | 88-110 | | |
| Magnesium | N.D. | 0.0167 | 0.100 | mg/l | 102 | | 89-110 | | |
| Nickel | N.D. | 0.0015 | 0.0100 | mg/l | 106 | | 90-111 | | |
| Selenium | N.D. | 0.0084 | 0.0200 | mg/l | 105 | | 80-120 | | |
| Silver | N.D. | 0.0021 | 0.0050 | mg/l | 112 | | 80-120 | | |
| Vanadium | N.D. | 0.0020 | 0.0050 | mg/l | 104 | | 90-110 | | |
| Batch number: 133015713004 | Sample number(s): 7254064-7254080 | | | | | | | | |
| Mercury | N.D. | 0.00006 0 | 0.00020 | mg/l | 96 | | 80-120 | | |
| Batch number: 13308807901A | Sample number(s): 7254064-7254079 | | | | | | | | |
| HEM (oil & grease) | N.D. | 1.4 | 5.0 | mg/l | 103 | 99 | 78-114 | 4 | 16 |

## 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: C133022AA | Sample number(s): 7254064-7254080 UNSPK: 7254064 | | | | | | | | |
| Acetone | 115 | 118 | 57-163 | 3 | 30 | | | | |
| Allyl Chloride | 92 | 93 | 56-160 | 1 | 30 | | | | |
| Benzene | 106 | 108 | 87-126 | 1 | 30 | | | | |
| Bromobenzene | 108 | 111 | 80-123 | 3 | 30 | | | | |
| Bromochloromethane | 116 | 115 | 82-125 | 1 | 30 | | | | |
| Bromodichloromethane | 115 | 117 | 82-133 | 2 | 30 | | | | |
| Bromoform | 121 | 123 | 60-138 | 2 | 30 | | | | |
| Bromomethane | 106 | 106 | 66-130 | 1 | 30 | | | | |
| 2-Butanone | 96 | 98 | 56-160 | 3 | 30 | | | | |
| n-Butylbenzene | 104 | 106 | 83-131 | 2 | 30 | | | | |
| sec-Butylbenzene | 106 | 108 | 84-128 | 2 | 30 | | | | |
| tert-Butylbenzene | 109 | 112 | 84-135 | 3 | 30 | | | | |
| Carbon Tetrachloride | 137 | 138 | 81-148 | 1 | 30 | | | | |
| Chlorobenzene | 111 | 112 | 78-133 | 1 | 30 | | | | |
| Chloroethane | 99 | 99 | 70-139 | 0 | 30 | | | | |
| Chloroform | 120 | 121 | 86-136 | 1 | 30 | | | | |
| Chloromethane | 89 | 90 | 49-135 | 1 | 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 c/o Arcadis Group Number: 1429509
Reported: 11/05/13 at 12:17 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 |
|---|---|---|---|---|---|---|---|---|---|
| 2-Chlorotoluene | 104 | 108 | 75-134 | 4 | 30 | | | | |
| 4-Chlorotoluene | 105 | 108 | 76-134 | 3 | 30 | | | | |
| 1,2-Dibromo-3-chloropropane | 110 | 116 | 43-143 | 6 | 30 | | | | |
| Dibromochloromethane | 115 | 118 | 79-125 | 3 | 30 | | | | |
| 1,2-Dibromoethane | 109 | 109 | 84-127 | 0 | 30 | | | | |
| Dibromomethane | 111 | 113 | 83-126 | 1 | 30 | | | | |
| 1,2-Dichlorobenzene | 112 | 114 | 83-117 | 2 | 30 | | | | |
| 1,3-Dichlorobenzene | 110 | 112 | 79-132 | 2 | 30 | | | | |
| 1,4-Dichlorobenzene | 110 | 111 | 79-120 | 1 | 30 | | | | |
| Dichlorodifluoromethane | 90 | 83 | 28-136 | 8 | 30 | | | | |
| 1,1-Dichloroethane | 107 | 109 | 88-136 | 2 | 30 | | | | |
| 1,2-Dichloroethane | 122 | 124 | 82-135 | 1 | 30 | | | | |
| 1,1-Dichloroethene | 115 | 114 | 83-150 | 1 | 30 | | | | |
| cis-1,2-Dichloroethene | 109 | 111 | 82-129 | 2 | 30 | | | | |
| trans-1,2-Dichloroethene | 116 | 116 | 88-127 | 1 | 30 | | | | |
| Dichlorofluoromethane | 135 | 135 | 81-161 | 1 | 30 | | | | |
| 1,2-Dichloropropane | 104 | 107 | 91-126 | 3 | 30 | | | | |
| 1,3-Dichloropropane | 101 | 101 | 80-127 | 0 | 30 | | | | |
| 2,2-Dichloropropane | 115 | 116 | 80-134 | 0 | 30 | | | | |
| 1,1-Dichloropropene | 118 | 120 | 86-139 | 1 | 30 | | | | |
| cis-1,3-Dichloropropene | 106 | 109 | 74-132 | 3 | 30 | | | | |
| trans-1,3-Dichloropropene | 105 | 107 | 71-128 | 3 | 30 | | | | |
| Ethyl ether | 101 | 102 | 57-139 | 2 | 30 | | | | |
| Ethylbenzene | 108 | 110 | 80-140 | 2 | 30 | | | | |
| Freon 113 | 119 | 113 | 77-147 | 6 | 30 | | | | |
| Hexachlorobutadiene | 124 | 126 | 65-128 | 2 | 30 | | | | |
| Isopropylbenzene | 113 | 113 | 81-133 | 0 | 30 | | | | |
| p-Isopropyltoluene | 106 | 108 | 84-124 | 2 | 30 | | | | |
| Methyl Tertiary Butyl Ether | 103 | 105 | 82-132 | 1 | 30 | | | | |
| 4-Methyl-2-Pentanone | 100 | 102 | 69-149 | 3 | 30 | | | | |
| Methylene Chloride | 108 | 109 | 77-135 | 1 | 30 | | | | |
| n-Propylbenzene | 103 | 105 | 79-131 | 2 | 30 | | | | |
| Styrene | 108 | 109 | 63-151 | 1 | 30 | | | | |
| 1,1,1,2-Tetrachloroethane | 117 | 119 | 87-126 | 1 | 30 | | | | |
| 1,1,2,2-Tetrachloroethane | 97 | 99 | 75-131 | 2 | 30 | | | | |
| Tetrachloroethene | 122 | 123 | 75-129 | 1 | 30 | | | | |
| Tetrahydrofuran | 94 | 98 | 56-154 | 4 | 30 | | | | |
| Toluene | 105 | 107 | 83-127 | 1 | 30 | | | | |
| 1,2,3-Trichlorobenzene | 110 | 114 | 73-125 | 3 | 30 | | | | |
| 1,2,4-Trichlorobenzene | 111 | 115 | 77-120 | 3 | 30 | | | | |
| 1,1,1-Trichloroethane | 127 | 128 | 85-140 | 1 | 30 | | | | |
| 1,1,2-Trichloroethane | 106 | 107 | 85-129 | 1 | 30 | | | | |
| Trichloroethene | 120 | 120 | 85-131 | 0 | 30 | | | | |
| Trichlorofluoromethane | 125 | 121 | 73-139 | 3 | 30 | | | | |
| 1,2,3-Trichloropropane | 107 | 109 | 76-120 | 2 | 30 | | | | |
| 1,2,4-Trimethylbenzene | 105 | 108 | 87-126 | 3 | 30 | | | | |
| 1,3,5-Trimethylbenzene | 105 | 107 | 89-129 | 1 | 30 | | | | |
| Vinyl Chloride | 98 | 99 | 62-135 | 1 | 30 | | | | |
| Xylene (Total) | 109 | 110 | 81-137 | 1 | 30 | | | | |
| Batch number: 133011848007 | Sample number(s): 7254064-7254080 UNSPK: 7254070 BKG: 7254070 | | | | | | | | |
| Arsenic | 105 | 108 | 81-123 | 2 | 20 | N.D. | N.D. | 0 (1) | 20 |

*- 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 c/o Arcadis Group Number: 1429509
Reported: 11/05/13 at 12:17 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 |
|---|---|---|---|---|---|---|---|---|---|
| Barium | 103 | 103 | 78-118 | 0 | 20 | 0.0247 | 0.0243 | 2 (1) | 20 |
| Cadmium | 104 | 104 | 83-116 | 0 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Calcium | 100 | 97 | 75-125 | 2 | 20 | 4.27 | 4.09 | 4 | 20 |
| Chromium | 104 | 103 | 76-120 | 0 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Lead | 111 | 113 | 75-125 | 2 | 20 | N.D. | 0.0053 J | 200* (1) | 20 |
| Magnesium | 98 | 94 | 75-125 | 2 | 20 | 2.16 | 2.09 | 3 | 20 |
| Nickel | 106 | 105 | 86-115 | 0 | 20 | 0.0015 J | N.D. | 200* (1) | 20 |
| Selenium | 103 | 105 | 75-125 | 2 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Silver | 108 | 109 | 75-125 | 0 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Vanadium | 103 | 102 | 90-117 | 1 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Batch number: 133015713004 | Sample number(s): 7254064-7254080 UNSPK: 7254067 BKG: 7254067 | | | | | | | | |
| Mercury | 99 | 94 | 80-120 | 5 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Batch number: 13308807901A | Sample number(s): 7254064-7254079 UNSPK: 7254064 | | | | | | | | |
| HEM (oil & grease) | 83 | | 78-114 | | | | | | |

## 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: BTEX 25-ml purge
Batch number: C133022AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 7254064 | 106 | 102 | 97 | 97 |
| 7254065 | 106 | 103 | 96 | 97 |
| 7254066 | 106 | 102 | 95 | 96 |
| 7254067 | 106 | 102 | 96 | 97 |
| 7254068 | 107 | 102 | 96 | 98 |
| 7254069 | 105 | 99 | 96 | 97 |
| 7254070 | 107 | 100 | 96 | 97 |
| 7254071 | 107 | 101 | 96 | 97 |
| 7254072 | 107 | 102 | 95 | 97 |
| 7254073 | 107 | 103 | 96 | 97 |
| 7254074 | 107 | 102 | 96 | 97 |
| 7254075 | 108 | 102 | 96 | 96 |
| 7254076 | 108 | 102 | 97 | 97 |
| 7254077 | 108 | 103 | 96 | 97 |
| 7254078 | 108 | 101 | 95 | 97 |
| 7254079 | 108 | 103 | 96 | 97 |
| 7254080 | 108 | 103 | 97 | 98 |
| Blank | 106 | 101 | 97 | 97 |
| LCS | 106 | 102 | 97 | 98 |
| MS | 108 | 101 | 96 | 98 |
| MSD | 107 | 101 | 96 | 98 |
| Limits: | 77-114 | 74-113 | 77-110 | 78-110 |

*- 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 c/o Arcadis Group Number: 1429509
Reported: 11/05/13 at 12:17 PM

## Surrogate Quality Control

Analysis Name: PAHs in waters by SIM
Batch number: 13302WAH026

| | Fluoranthene-d10 | Benzo(a)pyrene-d12 | 1-Methylnaphthalene-d10 |
|---|---|---|---|
| 7254064 | 106 | 72 | 112 |
| 7254065 | 92 | 65 | 98 |
| 7254067 | 103 | 71 | 111 |
| 7254068 | 103 | 72 | 112 |
| 7254069 | 99 | 68 | 111 |
| 7254070 | 88 | 40* | 103 |
| 7254071 | 101 | 73 | 112 |
| 7254072 | 97 | 49* | 110 |
| 7254073 | 106 | 73 | 112 |
| 7254074 | 104 | 70 | 111 |
| 7254075 | 105 | 64 | 113 |
| 7254076 | 103 | 67 | 112 |
| 7254077 | 103 | 60* | 114 |
| 7254078 | 101 | 61* | 109 |
| 7254079 | 99 | 65 | 112 |
| 7254080 | 113 | 107 | 109 |
| Blank | 108 | 108 | 119 |
| LCS | 106 | 108 | 119 |
| LCSD | 95 | 93 | 102 |
| Limits: | 44-137 | 62-141 | 51-136 |

Analysis Name: PAHs in waters by SIM
Batch number: 13305WAC026

| | Fluoranthene-d10 | Benzo(a)pyrene-d12 | 1-Methylnaphthalene-d10 |
|---|---|---|---|
| 7254066 | 82 | 99 | 108 |
| Blank | 94 | 82 | 106 |
| LCS | 112 | 107 | 115 |
| LCSD | 116 | 109 | 115 |
| Limits: | 44-137 | 62-141 | 51-136 |

*- 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

eurofins | Lancaster Laboratories Environmental

Acct. # 14739

For Eurofins Lancaster Laboratories Environmental use only
Group # 1429509- Sample # 725406 4-80
Instructions on reverse side correspond with circled numbers.

1 of 3

SCR#: _____

**1 Client Information**

Facility #/SID: Mayflower Pipeline Incident
Site Address: Mayflower, AR
ExxonMobil PM: Scott Bushnoe
Cost Center/AFE:
Consultant/Office: ARCADIS
Consultant PM: Steve Barrick
Consultant Phone #: 919-302-6799
Sampler: Clement Papafio / Ryan Lewis

**Preservation Codes**

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

**6 Remarks**

Lab to filter and preserve diss metals upon receipt

| 2 Sample Identification | Collected Date | Collected Time | 3 Grab | Composite | 4 Matrix: Soil | Sediment | Water | Ground | Potable | Surface | NPDES | Air | Oil | Total # of Containers | 5 Analyses Requested: Preservation Code H | | N | | H | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | VOCs 8260B | PAH 8270 SIM | RCRA Metals + hardness, Na, Ca, Mg | Diss Metals | HEM Oil & Grease | | | | | |
| WS-018 (Surface) 102613 | 10-26-13 | 0840 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-003 (Surface) 102613 | 10-26-13 | 0850 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-007 (0.5-1.0) 102613 | 10-26-13 | 0920 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-001 (0.5-1.0) 102613 | 10-26-13 | 0930 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-005 (Surface) 102613 | 10-26-13 | 0950 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-014 (1.5-2.0) 102613 | 10-26-13 | 1020 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-014 (5.5-6.0) 102613 | 10-26-13 | 1030 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-012 (1.5-2.0) 102613 | 10-26-13 | 1040 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-012 (5.0-5.5) 102613 | 10-26-13 | 1050 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-010 (1.5-2.0) 102613 | 10-26-13 | 1110 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-010 (3.5-4.0) 102613 | 10-26-13 | 1120 | X | | | | X | | | X | | | | 9 | X | X | X | X | X | | | | | |
| WS-006 (0.5-1.0) 102613 | 10-26-13 | 1130 | X | | | | X | | | X | | | | 9 | X | X | X | X | 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 |
|---|---|---|---|---|---|
| | 10-27-13 | 1500 | | | |
| Relinquished by | Date | Time | Received by | Date | Time |
| | | | | | |
| Relinquished by | Date | Time | Received by | Date | Time |
| | | | | | |
| Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other Southwest | | | Received by | Date | Time |
| | | | | 10-28-13 | 1345 |

**9**

Temperature Upon Receipt 0.3-3.1 °C

Custody Seals Intact? (Yes) No

# ExxonMobil Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 14739 | For Eurofins Lancaster Laboratories Environmental use only | Group # 1429509 | Sample # 725406 4-80

Instructions on reverse side correspond with circled numbers.

2 of 3

SCR#: _____

## 1 Client Information

Facility #/SID: Mayflower Pipeline Incident

Site Address: Mayflower, AR

ExxonMobil PM: Scott Bushnoe | Cost Center/AFE:

Consultant/Office: ARCADIS

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

Sampler: Clement Pappafio / Ryan Lewis

## 2 Sample Identification

## 3 Collected

## 4 Matrix

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

## 5 Analyses Requested

Preservation Code: H | | N | | H | | | | | |

| Sample Identification | Date | Time | Grab | Composite | Total # of Containers | VOCs 8260 B | PAH 8270 SIM | RCRA Metals + hardness, Na, Ca, Mg | Diss Metals | HEM Oil & Grease |
|---|---|---|---|---|---|---|---|---|---|---|
| WS-011 (1.5-2.0) 102613 | 10-26-13 | 1220 | X | | 9 | X | X | X | X | X |
| WS-011 (5.0-5.5) 102613 | 10-26-13 | 1230 | X | | 9 | X | X | X | X | X |
| WS-002 (surface) 102613 | 10-26-13 | 1240 | X | | 9 | X | X | X | X | X |
| DUP-WS-107-102613 | 10-26-13 | — | X | | 9 | X | X | X | X | X |
| WS-EB-103-102613 | 10-26-13 | 1330 | X | | 7 | X | X | X | X | |
| WS-018 (surface) 102713 | 10-27-13 | 0830 | X | | 9 | X | X | X | X | X |
| WS-003 (surface) 102713 | 10-27-13 | 0840 | X | | 9 | X | X | X | X | X |
| WS-007 (0.5-1.0) 102713 | 10-27-13 | 0850 | X | | 9 | X | X | X | X | X |
| WS-001 (0.5-1.0) 102713 | 10-27-13 | 0900 | X | | 9 | X | X | X | X | X |
| WS-005 (surface) 102713 | 10-27-13 | 0920 | X | | 9 | X | X | X | X | X |
| WS-014 (1.5-2.0) 102713 | 10-27-13 | 0950 | X | | 9 | X | X | X | X | X |
| WS-014 (5.5-6.0) 102713 | 10-27-13 | 1000 | X | | 9 | X | X | X | X | X |

Preservation Codes: H = HCl; T = Thiosulfate; N = $HNO_3$; B = NaOH; S = $H_2SO_4$; O = Other

## 6 Remarks

Lab to filter and preserve diss metals upon receipt

## 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 _____

## 9

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| | 10-27-13 | 1500 | | | |
| | | | | | |
| | | | | | |
| Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other Southwest | | | Received by: | 10-28-13 | 1345 |

Temperature Upon Receipt 0.3-3.1 °C

Custody Seals Intact? Yes / No

**Kathy Klinefelter** 14739, 1429509, 72540 64-80

**From:** Chandler, Jennifer [Jennifer.Chandler@arcadis-us.com]
**Sent:** Tuesday, October 29, 2013 11:03 AM
**To:** Kathy Klinefelter; Mott, Lyndi; Rachel L. Kreamer
**Subject:** RE: Mayflower sample ID discrepancy noted.

Hi Kathy,

It appears that the COC was incorrect and that the bottle labels were correct. The sample ID should be DUP-WS-108-102613.

Thanks,

**Jennifer Chandler** | Scientist 2 – Project Chemist | jennifer.chandler@arcadis-us.com
ARCADIS U.S., Inc. | 630 Plaza Drive, Suite 100 | Highlands Ranch, CO, 80129
T. 303.471.3549 | F. 720.344.3535
www.arcadis-us.com


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**From:** Kathy Klinefelter [mailto:KKlinefelter@lancasterlabs.com]
**Sent:** Tuesday, October 29, 2013 8:07 AM
**To:** Mott, Lyndi; Chandler, Jennifer; Rachel L. Kreamer
**Subject:** Mayflower sample ID discrepancy noted.

Hello,

Please see the attached COC. A sample ID discrepancy was noted. The COC has sample ID listed as DUP-WS-107-102613 Grab Surface Water, but the bottle labels have the ID as DUP-WS-108-102613. Which ID is correct? The lab previously received a sample identified as DUP-WS-107-102413 Grab Surface Water.

Thanks,

Kathy Klinefelter
Principal Project Manager, Environmental Client Services

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

Website: www.LancasterLabsEnv.com

---

**From:** Lewis, Ryan [mailto:Ryan.Lewis@arcadis-us.com]
**Sent:** Sunday, October 27, 2013 7:46 PM
**To:** Van Aller, Hans; Kathy Klinefelter; Mott, Lyndi; Barrick, Stephen; Brewer, Stacey; Kull, Valerie; SA Env Entry; Capria, Dennis; Rachel L. Kreamer; McKenzie, Mary; Chandler, Jennifer
**Cc:** Molina, Joe; Lipka, Shelby; Parmelee, Rhiannon; Pritchard, Jamie; Steve C. Davies
**Subject:** Mayflower Surface water sampling COCs/ Southwest airbill 102713

Hello All
Included are the COC's and Southwest airbill for today's surface water sampling event. We shipped 12 coolers of surface water samples. They will arrive tonight and be ready for pick up first thing in the morning.

Thanks

14739, 1429509, 7254064-80

**Ryan B Lewis** | Geologist 1 | ryan.lewis@arcadis-us.com

ARCADIS U.S., Inc. | 111 SW Columbia Street, Suite 670 | Portland, OR 97201
T: 503 220 8201 ext. 1101 | M: 503 863 9060
www.arcadis-us.com

ARCADIS, Imagine the result
**Please consider the environment before printing this email.**

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# Environmental Sample Administration Receipt Documentation Log

1429509

**Client/Project:** Exxon Mobil

**Date of Receipt:** 10-28-13

**Time of Receipt:** 1345

**Source Code:** 01

**Shipping Container Sealed:** (YES) NO

**Custody Seal Present * :** (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

**Package:** (Chilled) Not Chilled

| Temperature of Shipping Containers | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cooler # | Thermometer ID | Temperature (°C) | Temp Bottle (TB) or Surface Temp (ST) | Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP) | Ice Present? Y/N | Loose (L) Bagged Ice (B) or NA | Comments |
| 1 | DT121 | 1.5° | TB | WI | Y | B | |
| 2 | ↓ | 3.1° | ↓ | ↓ | ↓ | ↓ | |
| 3 | ↓ | 1.4° | ↓ | ↓ | ↓ | ↓ | |
| 4 | ↓ | 0.6° | ↓ | ↓ | ↓ | ↓ | |
| 5 | ↓ | 0.8° | ↓ | ↓ | ↓ | ↓ | |
| 6 | ↓ | 2.4° | ↓ | ↓ | ↓ | ↓ | |

**Number of Trip Blanks received NOT listed on chain of custody:** 0

**Paperwork Discrepancy/Unpacking Problems:**

Dup-WS-107 labeled as Dup-WS-108

**Unpacker Signature/Emp#:** Kristin [illegible] 2123 **Date/Time:** 10-28-13 1430

Issued by Dept. 6042 Management

2174.06

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# Environmental Sample Administration Receipt Documentation Log

1429509

**Client/Project:** Exxon Mobil

**Date of Receipt:** 10-28-13

**Time of Receipt:** 1345

**Source Code:** 01

**Shipping Container Sealed:** (YES) NO

**Custody Seal Present * :** (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

**Package:** (Chilled) Not Chilled

| Temperature of Shipping Containers | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cooler # | Thermometer ID | Temperature (°C) | Temp Bottle (TB) or Surface Temp (ST) | Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP) | Ice Present? Y/N | Loose (L) Bagged Ice (B) or NA | Comments |
| ~~1~~ 7 | DT121 | 2.9° | TB | WI | Y | B | |
| ~~2~~ 8 | ↓ | 0.6° | ↓ | ↓ | ↓ | ↓ | |
| ~~3~~ 9 | ↓ | 0.3° | ↓ | ↓ | ↓ | ↓ | |
| ~~4~~ 10 | ↓ | 0.3° | ↓ | ↓ | ↓ | ↓ | |
| ~~5~~ 11 | ↓ | 1.7° | ↓ | ↓ | ↓ | ↓ | |
| ~~6~~ 12 | ↓ | 0.9° | ↓ | ↓ | ↓ | ↓ | |

**Number of Trip Blanks received NOT listed on chain of custody:** 0

**Paperwork Discrepancy/Unpacking Problems:**

**Unpacker Signature/Emp#:** [signature] 2123 **Date/Time:** 10-28-13 1430

Issued by Dept. 6042 Management

2174.06

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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.