Analyst:

Prepared by:

Eurofins Lancaster Laboratories Environmental

2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ExxonMobil

Mobil Pipeline Company

PO Box 4416

Houston TX 77210-4416

July 23, 2013

Project:  Mayflower, AR Pipeline Incident

Submittal Date:  07/18/2013

Group Number:  1404974

SDG:  PEJ21

PO Number:  4510076246

Release Number:  MAYFLOWER 1406

State of Sample Origin:  AR

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<th>Client Sample Description</th>
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The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO ARCADIS Attn: Stephen Barrick
ELECTRONIC COPY TO ARCADIS Attn: Lyndi Mott
ELECTRONIC COPY TO ExxonMobil Attn: Michael J. Firth
ELECTRONIC COPY TO ARCADIS Attn: Emily Leamer
ELECTRONIC COPY TO ARCADIS Attn: Rhiannon Parmalee
Respectfully Submitted,

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256
Case Narrative

Project Name: Mayflower, AR Pipeline Incident
LLI Group #: 1404974

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:

No additional comments are necessary.
Sample Description: WS-003(Surface)071713 Filt Grab Surface Water
Mayflower, AR
Pipeline Incident

Project Name: Mayflower, AR Pipeline Incident

Collected: 07/17/2013 08:20  by AP
Submitted: 07/18/2013 09:25
Reported: 07/23/2013 13:09

1703F  SDG#: PEJ21-01

### General Sample Comments
This sample was filtered in the lab for dissolved metals.
All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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### Laboratory Sample Analysis Record

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Mayflower, AR
Pipeline Incident

Project Name: Mayflower, AR Pipeline Incident

Collected: 07/17/2013 11:35 by AP
Submitted: 07/18/2013 09:25
Reported: 07/23/2013 13:09

General Sample Comments

This sample was filtered in the lab for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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Laboratory Sample Analysis Record

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**Mayflower, AR**

**Pipeline Incident**

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

**Collected:** 07/17/2013 08:10  by AP

**Submitted:** 07/18/2013 09:25

**Reported:** 07/23/2013 13:09

**PO Box 4416**

**Houston TX 77210-4416**

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**General Sample Comments**

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Mayflower, AR  
Pipeline Incident

Project Name: Mayflower, AR Pipeline Incident

Collected: 07/17/2013 10:00  by AP  
Submitted: 07/18/2013 09:25  
Reported: 07/23/2013 13:09

General Sample Comments

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Mayflower, AR
Pipeline Incident

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### Analysis Report

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*This limit was used in the evaluation of the final result*
**Sample Description:** WS-010(1.5-2.0)071713 Filt Grab Surface Water  
**Project Name:** Mayflower, AR Pipeline Incident  
**Collected:** 07/17/2013 10:45 by AP  
**Submitted:** 07/18/2013 09:25  
**Reported:** 07/23/2013 13:09  

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**General Sample Comments**

This sample was filtered in the lab for dissolved metals.

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Mayflower, AR  
Pipeline Incident

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

Collected: 07/17/2013 11:15 by AP  
Submitted: 07/18/2013 09:25  
Reported: 07/23/2013 13:09  
1705F SDG#: PEJ21-07

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**General Sample Comments**

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Mayflower, AR  
Pipeline Incident

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

Collected: 07/17/2013 11:50 by AP  
Submitted: 07/18/2013 09:25  
Reported: 07/23/2013 13:09  

1702F  SDG#: PEJ21-08

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Mayflower, AR
Pipeline Incident

Project Name: Mayflower, AR Pipeline Incident

Collected: 07/17/2013 12:30 by AP
Submitted: 07/18/2013 09:25
Reported: 07/23/2013 13:09

1701F SDG#: PEJ21-09

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**General Sample Comments**

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Mayflower, AR  
Pipeline Incident

Project Name: Mayflower, AR Pipeline Incident

Collected: 07/17/2013 12:40 by AP  
Submitted: 07/18/2013 09:25  
Reported: 07/23/2013 13:09

1707F  SDG#: PEJ21-10

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**Sample Description:** WS-006(0.5-1.0)071713 Filt Grab Surface Water  
Mayflower, AR  
Pipeline Incident

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

**Collected:** 07/17/2013 12:50  
by AP  
**Submitted:** 07/18/2013 09:25

**Sample Description:** WS-006(0.5-1.0)071713 Filt Grab Surface Water  
Mayflower, AR  
Pipeline Incident

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

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DUP-WS-57-071713 Filt Grab Surface Water
Mayflower, AR
Pipeline Incident

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

**Collected:** 07/17/2013 by AP

**Submitted:** 07/18/2013 09:25

**Reported:** 07/23/2013 13:09

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**General Sample Comments**

This sample was filtered in the lab for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

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*This limit was used in the evaluation of the final result*
Sample Description: WS-EB-03-071713 Filt Grab Water
Mayflower, AR
Pipeline Incident

Project Name: Mayflower, AR Pipeline Incident

Collected: 07/17/2013 14:30  by AP
Submitted: 07/18/2013 09:25
Reported: 07/23/2013 13:09

17E3F  SDG#: PEJ21-13EB*

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General Sample Comments

This sample was filtered in the lab for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.
Quality Control Summary

Client Name: ExxonMobil                      Group Number: 1404974
Reported: 07/23/13 at 01:09 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.

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

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* Outside of specification
** This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
### Client Information
- **Facility #/SID:** MAYFLOWER PIPELINE INCIDENT
- **Site Address:** MAYFLOWER, AR
- **ExxonMobil PM:** SCOTT BUSHROE
- **Consultant/Office:** ARCADIS
- **Consultant PM:** ARCADIS
- **Sampler:** STEVE RARBECK
- **Sampler:** PHILS VAN ALLER

### Matrix
- **Grab Composite:**
  - **Soil:**
  - **Water:**
  - **Oil:**
  - **Sediment:**
  - **Air:**

### Analyses Requested
- **Preservation Code:**
  - **H:** 
  - **N:**
  - **B:**
  - **HNO₃:**
  - **NaOH:**
  - **H₂SO₄:**
  - **Other:**

### Remarks
- Labs to filter and preserve upon receipt.

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### Turnaround Time Requested (TAT) (please circle)
- **Standard:** 5 day
- **24 hour:**
- **48 hour:**
- **72 hour:**

### Data Package (circle if required)
- **Type I - Full**
- **Type VI (Raw Data)**
- **NJ Reduced**
- **Other**

### EDD (circle if required)
- **Locus EIM (default)**
- **Other**

### Requisitioned by Commercial Carrier
- **UPS:**
- **FedEx:**
- **Other**

### Temperature Upon Receipt
- **24-34°C**

### Custody Seals Intact?
- **Yes**
- **No**

---

*Issued by Dept. 40 Management*

*Page 18 of 22*
**ExxonMobil Analysis Request/Chain of Custody**

### Client Information
- **Facility #/SID:** Mayflower Pipeline Incident
- **Site Address:** Mayflower, AR
- **ExxonMobil PM:** Scott Bushroe
- **Consultant/Office:** ARCADIS
- **Consultant PM:** Steve Barrick, 919 202 6779
- **Sampler:** A. Paparella / J. Van Aller

### Sample Identification

<table>
<thead>
<tr>
<th>Item</th>
<th>Date</th>
<th>Time</th>
<th>Total Containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>W5-T3-99-071715</td>
<td>2/7/13</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>W5-T3-03-071713</td>
<td>7/17/13</td>
<td>1430</td>
<td>2</td>
</tr>
</tbody>
</table>

### Turnaround Time Requested (TAT) (please circle)
- **Standard:** 5 day
- **72 hour:** 48 hour
- **24 hour:**

### Data Package (circle if required)
- **Type I - Full**
- **Type II (Raw Data)**
- **NJ Reduced**
- **Other**

### Remarks
- *LAB TO FILTER AND PRESERVE UNTIL RECEIVED.*

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Eurofins Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-856-2300

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

According to the field notes, WS-002(surface)071713 has a collection time of 1150, which matches the COC. The bottle label is incorrect.

Thanks,

Jennifer Chandler | Scientist 2 | 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 Please consider the environment before printing this email.

-----Original Message-----
From: Rachel L. Kreamer [mailto:RKreamer@lancasterlabs.com]
Sent: Thursday, July 18, 2013 11:50 AM
To: Chandler, Jennifer
Cc: Kathy Klinefelter
Subject: Collection time for sample received today

Jennifer,

Attached are the chain and doc log for the surface water samples we received today. Sample WS-002(surface)071713 has a collection time of 1150 on the chain. The bottle labels say 1050. Which time should we use?

Thanks
Rachel

-----Original Message-----
From: 39Scanner@lancasterlabs.com [mailto:39Scanner@lancasterlabs.com]
Sent: Thursday, July 18, 2013 1:45 PM
To: Rachel L. Kreamer
Subject:

This E-mail was sent from "RNP367EC2" (MP 4001/LD140).

Scan Date: 07.18.2013 13:44:41 (-0400)
Queries to: 39Scanner@lancasterlabs.com

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**Environmental Sample Administration**

**Receipt Documentation Log**

**Client/Project:** XOM Mayflower

**Date of Receipt:** 7/18/13

**Time of Receipt:** 0925

**Source Code:** 50-1

**Shipping Container Sealed:** YES

**Custody Seal Present:** YES

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

**Package:** Chilled

---

**Temperature of Shipping Containers**

<table>
<thead>
<tr>
<th>Cooler #</th>
<th>Thermometer ID</th>
<th>Temperature (°C)</th>
<th>Temp Bottle (TB) or Surface Temp (ST)</th>
<th>Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)</th>
<th>Ice Present? Y/N</th>
<th>Loose (L) Bagged Ice (B) or NA</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DT121</td>
<td>3.4</td>
<td>TB</td>
<td>WI</td>
<td>Y</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4</td>
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<td></td>
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<tr>
<td>5</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

0

**Paperwork Discrepancy/Unpacking Problems:**

WS-002 Time on label = 10:50

---

**Unpacker Signature/Emp#:**

James Husted / 208

**Date/Time:** 7/18/13 / 0920

Issued by Dept. 6042 Management

2174.06
**Explanation of Symbols and Abbreviations**

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

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

< 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

**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**

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

**Inorganic Qualifiers**

B | Value is <CRDL, but ≥IDL
E | Estimated due to interference
M | Duplicate injection precision not met
N | Spike sample not within control limits
S | Method of standard additions (MSA) used for calculation
U | Compound was not detected
W | Post digestion spike out of control limits
* | Duplicate analysis not within control limits
+ | Correlation coefficient for MSA <0.995

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

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

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

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

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