

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Revised August 8, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

|                                                                                                      |                                           |
|------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Name of Company El Paso Natural Gas Company, LLC (a Kinder Morgan owned company)                     | Contact Sheila Castellano                 |
| Address approximately 0.8 miles north of NM Hwy 82 (Lovington Hwy) and 1.1 miles west of Heidel Road | Telephone No. (719) 520-3719              |
| Facility Name El Paso Natural Gas Company Line 3031                                                  | Facility Type 8-inch Natural Gas Pipeline |

|                                                   |               |         |
|---------------------------------------------------|---------------|---------|
| Surface Owner Stephen & Johnson Operating Company | Mineral Owner | API No. |
|---------------------------------------------------|---------------|---------|

### LOCATION OF RELEASE

|             |                    |              |           |               |                  |               |                |                       |
|-------------|--------------------|--------------|-----------|---------------|------------------|---------------|----------------|-----------------------|
| Unit Letter | Section SE/4 Sec35 | Township 14S | Range 37E | Feet from the | North/South Line | Feet from the | East/West Line | County Lea County, NM |
|-------------|--------------------|--------------|-----------|---------------|------------------|---------------|----------------|-----------------------|

Latitude 33.057840 Longitude -103.164042

### NATURE OF RELEASE

|                                                                                                                                          |                                                                                                 |                                               |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Type of Release Inadvertent release of hydrostatic test water                                                                            | Volume of Release Approximately 15,000 gallons                                                  | Volume Recovered Approximately 13,860 gallons |
| Source of Release 8-inch natural gas pipeline                                                                                            | Date and Hour of Occurrence 7/22/16 9:05a MDT                                                   | Date and Hour of Discovery 7/22/16 9:05a MDT  |
| Was Immediate Notice Given?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required | If YES, To Whom?<br>NMOCD Santa Fe Office: Jim Griswold<br>NMOCD District 1 Office: Maxey Brown |                                               |
| By Whom? Sheila Castellano                                                                                                               | Date and Hour 7/22/16 2:15p MDT                                                                 |                                               |
| Was a Watercourse Reached?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                        | If YES, Volume Impacting the Watercourse.                                                       |                                               |

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

EPNG was conducting a hydrostatic spike test of the existing L3031 and the pipeline failed during the test. Test was stopped. A sample of the residual water in the pipeline was taken and analyzed using Test 8260. Test was recommended by Tomas Oberding, NMOCD Hydrologist.

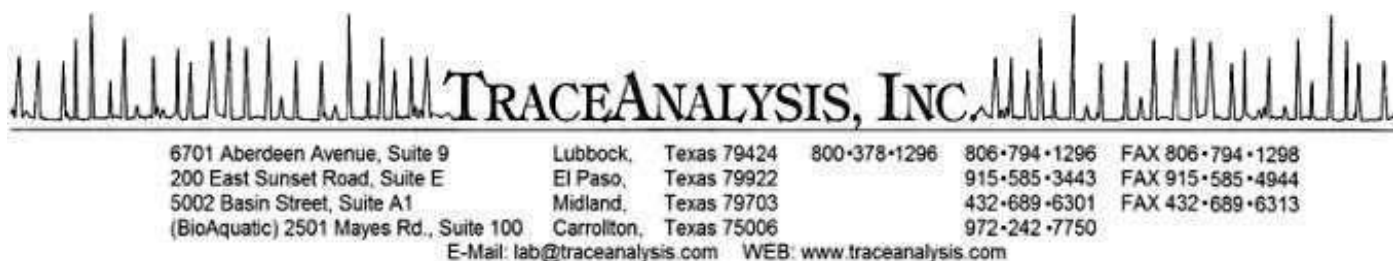
Describe Area Affected and Cleanup Action Taken.\* Test water release was contained within the existing right of way. Approximately 1,140 gallons of hydrostatic test water were not recovered from the rupture site. Affected soil has been piled and covered. Soil sample was taken from within the affected area. Analysis results are pending. A water sample was taken from the pipeline after the rupture. The analysis report is attached.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

|                                                                                                |                                                                                                                             |                                               |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Signature:  | <b>OIL CONSERVATION DIVISION</b>                                                                                            |                                               |
| Printed Name: Sheila F. Castellano                                                             | Approved by Environmental Specialist:  |                                               |
| Title: Consultant/Contractor                                                                   | Approval Date: 8/15/2016                                                                                                    | Expiration Date: 10/15/2016                   |
| E-mail Address: sheila_castellano@kindermorgan.com                                             | Conditions of Approval:<br>Discrete Samples Only Delineate and Remediate per NMOCD Guidelines                               | Attached <input type="checkbox"/><br>IRP-4395 |
| Date: August 4, 2016 Phone: (719) 520-3719                                                     |                                                                                                                             |                                               |

\* Attach Additional Sheets If Necessary

nKL1622849135  
pKL1622849996



## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Glen Thompson  
Kinder Morgan/El Paso Natural Gas-Odessa  
1550 Windway  
Odessa, TX, 79761

Report Date: July 26, 2016

Work Order: 16072501



Project Name: Lovington Leak  
Project Number: Lovington Leak

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

| Sample | Description    | Matrix | Date Taken | Time Taken | Date Received |
|--------|----------------|--------|------------|------------|---------------|
| 425046 | Lovington Leak | water  | 2016-07-22 | 16:17      | 2016-07-22    |

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 27 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director  
James Taylor, Assistant Director  
Johnny Grindstaff, Operations Manager

# Report Contents

|                                              |           |
|----------------------------------------------|-----------|
| <b>Case Narrative</b>                        | <b>3</b>  |
| <b>Analytical Report</b>                     | <b>4</b>  |
| Sample 425046 (Lovington Leak) . . . . .     | 4         |
| <b>Method Blanks</b>                         | <b>8</b>  |
| QC Batch 131681 - Method Blank (1) . . . . . | 8         |
| QC Batch 131694 - Method Blank (1) . . . . . | 8         |
| QC Batch 131696 - Method Blank (1) . . . . . | 8         |
| QC Batch 131700 - Method Blank (1) . . . . . | 10        |
| <b>Duplicates</b>                            | <b>11</b> |
| QC Batch 131673 - Duplicate (1) . . . . .    | 11        |
| <b>Laboratory Control Spikes</b>             | <b>12</b> |
| QC Batch 131681 - LCS (1) . . . . .          | 12        |
| QC Batch 131694 - LCS (1) . . . . .          | 12        |
| QC Batch 131696 - LCS (1) . . . . .          | 12        |
| QC Batch 131700 - LCS (1) . . . . .          | 16        |
| <b>Matrix Spikes</b>                         | <b>17</b> |
| QC Batch 131681 - MS (1) . . . . .           | 17        |
| QC Batch 131694 - MS (1) . . . . .           | 17        |
| QC Batch 131696 - MS (1) . . . . .           | 17        |
| QC Batch 131700 - xMS (1) . . . . .          | 21        |
| <b>Calibration Standards</b>                 | <b>22</b> |
| QC Batch 131673 - CCV (1) . . . . .          | 22        |
| QC Batch 131681 - CCV (1) . . . . .          | 22        |
| QC Batch 131681 - CCV (2) . . . . .          | 22        |
| QC Batch 131694 - ICV (1) . . . . .          | 22        |
| QC Batch 131694 - CCV (1) . . . . .          | 22        |
| QC Batch 131696 - CCV (1) . . . . .          | 23        |
| QC Batch 131700 - CCV (1) . . . . .          | 24        |
| QC Batch 131700 - CCV (2) . . . . .          | 25        |
| <b>Appendix</b>                              | <b>26</b> |
| Report Definitions . . . . .                 | 26        |
| Laboratory Certifications . . . . .          | 26        |
| Standard Flags . . . . .                     | 26        |
| Result Comments . . . . .                    | 26        |
| Attachments . . . . .                        | 27        |

## Case Narrative

Samples for project Lovington Leak were received by TraceAnalysis, Inc. on 2016-07-22 and assigned to work order 16072501. Samples for work order 16072501 were received intact at a temperature of 3.3 C.

Samples were analyzed for the following tests using their respective methods.

| Test          | Method     | Prep<br>Batch | Prep<br>Date        | QC<br>Batch | Analysis<br>Date    |
|---------------|------------|---------------|---------------------|-------------|---------------------|
| Chloride (IC) | E 300.0    | 111600        | 2016-07-26 at 15:08 | 131694      | 2016-07-25 at 16:20 |
| pH            | SM 4500-H+ | 111584        | 2016-07-25 at 13:20 | 131673      | 2016-07-25 at 13:20 |
| TPH DRO       | S 8015 D   | 111608        | 2016-07-25 at 13:00 | 131700      | 2016-07-26 at 12:25 |
| TPH GRO       | S 8015 D   | 111589        | 2016-07-25 at 08:32 | 131681      | 2016-07-25 at 08:32 |
| Volatiles     | S 8260 C   | 111601        | 2016-07-25 at 12:00 | 131696      | 2016-07-25 at 12:00 |

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16072501 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: July 26, 2016  
Lovington Leak

Work Order: 16072501  
Lovington Leak

Page Number: 4 of 27

# Analytical Report

## Sample: 425046 - Lovington Leak

|             |               |                     |            |              |     |
|-------------|---------------|---------------------|------------|--------------|-----|
| Laboratory: | Lubbock       | Analytical Method:  | E 300.0    | Prep Method: | N/A |
| Analysis:   | Chloride (IC) | Date Analyzed:      | 2016-07-25 | Analyzed By: | CF  |
| QC Batch:   | 131694        | Sample Preparation: |            | Prepared By: | CF  |
| Prep Batch: | 111600        |                     |            |              |     |

| Parameter | Flag | Cert    | RL<br>Result | Units | Dilution | RL   |
|-----------|------|---------|--------------|-------|----------|------|
| Chloride  |      | 1,2,3,4 | 91.8         | mg/L  | 5        | 2.50 |

## Sample: 425046 - Lovington Leak

|             |         |                     |            |              |     |
|-------------|---------|---------------------|------------|--------------|-----|
| Laboratory: | Lubbock | Analytical Method:  | SM 4500-H+ | Prep Method: | N/A |
| Analysis:   | pH      | Date Analyzed:      | 2016-07-25 | Analyzed By: | CF  |
| QC Batch:   | 131673  | Sample Preparation: | 2016-07-25 | Prepared By: | CF  |
| Prep Batch: | 111584  |                     |            |              |     |

| Parameter | Flag | Cert    | RL<br>Result | Units | Dilution | RL   |
|-----------|------|---------|--------------|-------|----------|------|
| pH        |      | 1,2,3,4 | 7.40         | s.u.  | 1        | 2.00 |

## Sample: 425046 - Lovington Leak

|             |         |                     |            |              |     |
|-------------|---------|---------------------|------------|--------------|-----|
| Laboratory: | Lubbock | Analytical Method:  | S 8015 D   | Prep Method: | N/A |
| Analysis:   | TPH DRO | Date Analyzed:      | 2016-07-26 | Analyzed By: | HJ  |
| QC Batch:   | 131700  | Sample Preparation: | 2016-07-25 | Prepared By: | HJ  |
| Prep Batch: | 111608  |                     |            |              |     |

| Parameter | Flag | Cert  | RL<br>Result | Units | Dilution | RL   |
|-----------|------|-------|--------------|-------|----------|------|
| DRO       |      | 1,2,3 | 5.52         | mg/L  | 1        | 5.00 |

| Surrogate   | Flag | Cert | Result | Units | Dilution | Spike<br>Amount | Percent<br>Recovery | Recovery<br>Limits |
|-------------|------|------|--------|-------|----------|-----------------|---------------------|--------------------|
| n-Tricosane |      |      | 2.98   | mg/L  | 1        | 2.50            | 119                 | 70 - 130           |

Report Date: July 26, 2016  
Lovington Leak

Work Order: 16072501  
Lovington Leak

Page Number: 5 of 27

**Sample: 425046 - Lovington Leak**

|             |         |                     |            |              |         |
|-------------|---------|---------------------|------------|--------------|---------|
| Laboratory: | Lubbock | Analytical Method:  | S 8015 D   | Prep Method: | S 5030B |
| Analysis:   | TPH GRO | Date Analyzed:      | 2016-07-25 | Analyzed By: | MT      |
| QC Batch:   | 131681  | Sample Preparation: | 2016-07-25 | Prepared By: | MT      |
| Prep Batch: | 111589  |                     |            |              |         |

| Parameter | Flag | Cert  | RL<br>Result | Units | Dilution | RL    |
|-----------|------|-------|--------------|-------|----------|-------|
| GRO       | Qs   | 1,2,3 | <b>0.734</b> | mg/L  | 1        | 0.200 |

| Surrogate                    | Flag | Cert | Result | Units | Dilution | Spike<br>Amount | Percent<br>Recovery | Recovery<br>Limits |
|------------------------------|------|------|--------|-------|----------|-----------------|---------------------|--------------------|
| Trifluorotoluene (TFT)       |      |      | 0.116  | mg/L  | 1        | 0.100           | 116                 | 72.8 - 136         |
| 4-Bromofluorobenzene (4-BFB) |      |      | 0.111  | mg/L  | 1        | 0.100           | 111                 | 73.3 - 120         |

**Sample: 425046 - Lovington Leak**

|             |           |                     |            |              |         |
|-------------|-----------|---------------------|------------|--------------|---------|
| Laboratory: | Lubbock   | Analytical Method:  | S 8260 C   | Prep Method: | S 5030B |
| Analysis:   | Volatiles | Date Analyzed:      | 2016-07-25 | Analyzed By: | KB      |
| QC Batch:   | 131696    | Sample Preparation: | 2016-07-25 | Prepared By: | KB      |
| Prep Batch: | 111601    |                     |            |              |         |

| Parameter                       | Flag | Cert | RL      |             |          |    |      |
|---------------------------------|------|------|---------|-------------|----------|----|------|
|                                 |      |      | Result  | Units       | Dilution | RL |      |
| Bromochloromethane              | 1    | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Dichlorodifluoromethane         |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Chloromethane (methyl chloride) |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Vinyl Chloride                  |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Bromomethane (methyl bromide)   |      | U    | 1,2,3,4 | <25.0       | µg/L     | 5  | 5.00 |
| Chloroethane                    |      | Qc,U | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Trichlorofluoromethane          |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Acetone                         |      | Qr,U | 1,2,3,4 | <50.0       | µg/L     | 5  | 10.0 |
| Iodomethane (methyl iodide)     |      | U    | 1,2,3,4 | <25.0       | µg/L     | 5  | 5.00 |
| Carbon Disulfide                |      |      | 1,2,3,4 | <b>5.24</b> | µg/L     | 5  | 1.00 |
| Acrylonitrile                   |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| 2-Butanone (MEK)                |      | Qc,U | 1,2,3,4 | <25.0       | µg/L     | 5  | 5.00 |
| 4-Methyl-2-pentanone (MIBK)     |      | Qc,U | 1,2,3,4 | <25.0       | µg/L     | 5  | 5.00 |
| 2-Hexanone                      |      | Qc,U | 1,2,3,4 | <25.0       | µg/L     | 5  | 5.00 |
| trans 1,4-Dichloro-2-butene     |      | Qc,U | 1,2,3,4 | <50.0       | µg/L     | 5  | 10.0 |
| 1,1-Dichloroethene              |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| Methylene chloride              |      | U    | 1,2,3,4 | <25.0       | µg/L     | 5  | 5.00 |
| MTBE                            |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| trans-1,2-Dichloroethene        |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| 1,1-Dichloroethane              |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |
| cis-1,2-Dichloroethene          |      | U    | 1,2,3,4 | <5.00       | µg/L     | 5  | 1.00 |

*continued ...*

sample 425046 continued ...

| Parameter                          | Flag | Cert    | RL<br>Result | Units | Dilution | RL   |
|------------------------------------|------|---------|--------------|-------|----------|------|
| 2,2-Dichloropropane                | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,2-Dichloroethane (EDC)           | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Chloroform                         | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,1,1-Trichloroethane              | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,1-Dichloropropene                | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Benzene                            |      | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Carbon Tetrachloride               | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,2-Dichloropropane                | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Trichloroethene (TCE)              | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Dibromomethane (methylene bromide) | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Bromodichloromethane               | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 2-Chloroethyl vinyl ether          | U    | 1,2,3,4 | <25.0        | µg/L  | 5        | 5.00 |
| cis-1,3-Dichloropropene            | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| trans-1,3-Dichloropropene          | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Toluene                            | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,1,2-Trichloroethane              | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,3-Dichloropropane                | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Dibromochloromethane               | U    | 1,3,4   | <5.00        | µg/L  | 5        | 1.00 |
| 1,2-Dibromoethane (EDB)            | Qc,U | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Tetrachloroethene (PCE)            | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Chlorobenzene                      | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,1,1,2-Tetrachloroethane          | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Ethylbenzene                       | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| m,p-Xylene                         | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Bromoform                          | Qc,U | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Styrene                            | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| o-Xylene                           | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,1,2,2-Tetrachloroethane          | Qc,U | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 2-Chlorotoluene                    | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,2,3-Trichloropropane             | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Isopropylbenzene                   | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| Bromobenzene                       | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| n-Propylbenzene                    | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,3,5-Trimethylbenzene             | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| tert-Butylbenzene                  | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,2,4-Trimethylbenzene             | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,4-Dichlorobenzene (para)         | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| sec-Butylbenzene                   | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,3-Dichlorobenzene (meta)         | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| p-Isopropyltoluene                 | U    | 1,2,3   | <5.00        | µg/L  | 5        | 1.00 |
| 4-Chlorotoluene                    | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| 1,2-Dichlorobenzene (ortho)        | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |
| n-Butylbenzene                     | U    | 1,2,3,4 | <5.00        | µg/L  | 5        | 1.00 |

continued ...

*sample 425046 continued ...*

| Parameter                   | Flag | Cert    | RL<br>Result | Units | Dilution | RL   |
|-----------------------------|------|---------|--------------|-------|----------|------|
| 1,2-Dibromo-3-chloropropane | Qc,U | 1,3     | <25.0        | µg/L  | 5        | 5.00 |
| 1,2,3-Trichlorobenzene      | Qc,U | 1,2,3,4 | <25.0        | µg/L  | 5        | 5.00 |
| 1,2,4-Trichlorobenzene      | Qc,U | 1,2,3,4 | <25.0        | µg/L  | 5        | 5.00 |
| Naphthalene                 | Qc,U | 1,2,3,4 | <25.0        | µg/L  | 5        | 5.00 |
| Hexachlorobutadiene         | B,U  | 1,2,3,4 | <25.0        | µg/L  | 5        | 5.00 |

| Surrogate                    | Flag | Cert | Result | Units | Dilution | Spike<br>Amount | Percent<br>Recovery | Recovery<br>Limits |
|------------------------------|------|------|--------|-------|----------|-----------------|---------------------|--------------------|
| Dibromofluoromethane         |      |      | 270    | µg/L  | 5        | 250             | 108                 | 70 - 130           |
| Toluene-d8                   |      |      | 235    | µg/L  | 5        | 250             | 94                  | 70 - 130           |
| 4-Bromofluorobenzene (4-BFB) |      |      | 271    | µg/L  | 5        | 250             | 108                 | 70 - 130           |

## Method Blanks

### Method Blank (1) QC Batch: 131681

QC Batch: 131681 Date Analyzed: 2016-07-25 Analyzed By: MT  
Prep Batch: 111589 QC Preparation: 2016-07-25 Prepared By: MT

| Parameter | Flag | Cert  | MDL<br>Result | Units | RL  |
|-----------|------|-------|---------------|-------|-----|
| GRO       |      | 1,2,3 | <0.0369       | mg/L  | 0.2 |

| Surrogate                    | Flag | Cert | Result | Units | Dilution | Spike<br>Amount | Percent<br>Recovery | Recovery<br>Limits |
|------------------------------|------|------|--------|-------|----------|-----------------|---------------------|--------------------|
| Trifluorotoluene (TFT)       |      |      | 0.118  | mg/L  | 1        | 0.100           | 118                 | 72.8 - 136         |
| 4-Bromofluorobenzene (4-BFB) |      |      | 0.104  | mg/L  | 1        | 0.100           | 104                 | 73.3 - 120         |

### Method Blank (1) QC Batch: 131694

QC Batch: 131694 Date Analyzed: 2016-07-25 Analyzed By: CF  
Prep Batch: 111600 QC Preparation: 2016-07-26 Prepared By: CF

| Parameter | Flag | Cert    | MDL<br>Result | Units | RL  |
|-----------|------|---------|---------------|-------|-----|
| Chloride  |      | 1,2,3,4 | <0.297        | mg/L  | 2.5 |

### Method Blank (1) QC Batch: 131696

QC Batch: 131696 Date Analyzed: 2016-07-25 Analyzed By: KB  
Prep Batch: 111601 QC Preparation: 2016-07-25 Prepared By: KB

| Parameter                       | Flag | Cert    | MDL<br>Result | Units | RL |
|---------------------------------|------|---------|---------------|-------|----|
| Bromochloromethane              |      | 1,2,3,4 | <0.330        | µg/L  | 1  |
| Dichlorodifluoromethane         |      | 1,2,3,4 | <0.350        | µg/L  | 1  |
| Chloromethane (methyl chloride) |      | 1,2,3,4 | <0.330        | µg/L  | 1  |
| Vinyl Chloride                  |      | 1,2,3,4 | <0.410        | µg/L  | 1  |
| Bromomethane (methyl bromide)   |      | 1,2,3,4 | <1.69         | µg/L  | 5  |
| Chloroethane                    |      | 1,2,3,4 | <0.420        | µg/L  | 1  |
| Trichlorofluoromethane          |      | 1,2,3,4 | <0.410        | µg/L  | 1  |

*continued ...*

*method blank continued . . .*

| Parameter                          | Flag | Cert    | MDL<br>Result | Units | RL |
|------------------------------------|------|---------|---------------|-------|----|
| Acetone                            |      | 1,2,3,4 | <1.09         | µg/L  | 10 |
| Iodomethane (methyl iodide)        |      | 1,2,3,4 | <2.47         | µg/L  | 5  |
| Carbon Disulfide                   |      | 1,2,3,4 | <0.400        | µg/L  | 1  |
| Acrylonitrile                      |      | 1,2,3,4 | <0.360        | µg/L  | 1  |
| 2-Butanone (MEK)                   |      | 1,2,3,4 | <1.67         | µg/L  | 5  |
| 4-Methyl-2-pentanone (MIBK)        |      | 1,2,3,4 | <2.14         | µg/L  | 5  |
| 2-Hexanone                         |      | 1,2,3,4 | <1.49         | µg/L  | 5  |
| trans 1,4-Dichloro-2-butene        |      | 1,2,3,4 | <1.75         | µg/L  | 10 |
| 1,1-Dichloroethene                 |      | 1,2,3,4 | <0.330        | µg/L  | 1  |
| Methylene chloride                 |      | 1,2,3,4 | <2.04         | µg/L  | 5  |
| MTBE                               |      | 1,2,3,4 | <0.320        | µg/L  | 1  |
| trans-1,2-Dichloroethene           |      | 1,2,3,4 | <0.360        | µg/L  | 1  |
| 1,1-Dichloroethane                 |      | 1,2,3,4 | <0.330        | µg/L  | 1  |
| cis-1,2-Dichloroethene             |      | 1,2,3,4 | <0.330        | µg/L  | 1  |
| 2,2-Dichloropropane                |      | 1,2,3,4 | <0.380        | µg/L  | 1  |
| 1,2-Dichloroethane (EDC)           |      | 1,2,3,4 | <0.280        | µg/L  | 1  |
| Chloroform                         |      | 1,2,3,4 | <0.390        | µg/L  | 1  |
| 1,1,1-Trichloroethane              |      | 1,2,3,4 | <0.370        | µg/L  | 1  |
| 1,1-Dichloropropene                |      | 1,2,3,4 | <0.320        | µg/L  | 1  |
| Benzene                            |      | 1,2,3,4 | <0.340        | µg/L  | 1  |
| Carbon Tetrachloride               |      | 1,2,3,4 | <0.350        | µg/L  | 1  |
| 1,2-Dichloropropane                |      | 1,2,3,4 | <0.270        | µg/L  | 1  |
| Trichloroethene (TCE)              |      | 1,2,3,4 | <0.310        | µg/L  | 1  |
| Dibromomethane (methylene bromide) |      | 1,2,3,4 | <0.230        | µg/L  | 1  |
| Bromodichloromethane               |      | 1,2,3,4 | <0.320        | µg/L  | 1  |
| 2-Chloroethyl vinyl ether          |      | 1,2,3,4 | <0.480        | µg/L  | 5  |
| cis-1,3-Dichloropropene            |      | 1,2,3,4 | <0.210        | µg/L  | 1  |
| trans-1,3-Dichloropropene          |      | 1,2,3,4 | <0.310        | µg/L  | 1  |
| Toluene                            |      | 1,2,3,4 | <0.350        | µg/L  | 1  |
| 1,1,2-Trichloroethane              |      | 1,2,3,4 | <0.390        | µg/L  | 1  |
| 1,3-Dichloropropane                |      | 1,2,3,4 | <0.310        | µg/L  | 1  |
| Dibromochloromethane               |      | 1,3,4   | <0.370        | µg/L  | 1  |
| 1,2-Dibromoethane (EDB)            |      | 1,2,3,4 | <0.310        | µg/L  | 1  |
| Tetrachloroethene (PCE)            |      | 1,2,3,4 | <0.190        | µg/L  | 1  |
| Chlorobenzene                      |      | 1,2,3,4 | <0.290        | µg/L  | 1  |
| 1,1,1,2-Tetrachloroethane          |      | 1,2,3,4 | <0.300        | µg/L  | 1  |
| Ethylbenzene                       |      | 1,2,3,4 | <0.260        | µg/L  | 1  |
| m,p-Xylene                         |      | 1,2,3,4 | <0.480        | µg/L  | 1  |
| Bromoform                          |      | 1,2,3,4 | <0.480        | µg/L  | 1  |
| Styrene                            |      | 1,2,3,4 | <0.250        | µg/L  | 1  |
| o-Xylene                           |      | 1,2,3,4 | <0.260        | µg/L  | 1  |
| 1,1,2,2-Tetrachloroethane          |      | 1,2,3,4 | <0.560        | µg/L  | 1  |
| 2-Chlorotoluene                    |      | 1,2,3,4 | <0.250        | µg/L  | 1  |
| 1,2,3-Trichloropropane             |      | 1,2,3,4 | <0.450        | µg/L  | 1  |

*continued . . .*

method blank continued ...

| Parameter                   | Flag | Cert    | MDL<br>Result | Units | RL |
|-----------------------------|------|---------|---------------|-------|----|
| Isopropylbenzene            |      | 1,2,3,4 | <0.260        | µg/L  | 1  |
| Bromobenzene                |      | 1,2,3,4 | <0.280        | µg/L  | 1  |
| n-Propylbenzene             |      | 1,2,3,4 | <0.240        | µg/L  | 1  |
| 1,3,5-Trimethylbenzene      |      | 1,2,3,4 | <0.260        | µg/L  | 1  |
| tert-Butylbenzene           |      | 1,2,3,4 | <0.270        | µg/L  | 1  |
| 1,2,4-Trimethylbenzene      |      | 1,2,3,4 | <0.270        | µg/L  | 1  |
| 1,4-Dichlorobenzene (para)  |      | 1,2,3,4 | <0.310        | µg/L  | 1  |
| sec-Butylbenzene            |      | 1,2,3,4 | <0.200        | µg/L  | 1  |
| 1,3-Dichlorobenzene (meta)  |      | 1,2,3,4 | <0.280        | µg/L  | 1  |
| p-Isopropyltoluene          |      | 1,2,3   | <0.200        | µg/L  | 1  |
| 4-Chlorotoluene             |      | 1,2,3,4 | <0.290        | µg/L  | 1  |
| 1,2-Dichlorobenzene (ortho) |      | 1,2,3,4 | <0.250        | µg/L  | 1  |
| n-Butylbenzene              |      | 1,2,3,4 | <0.170        | µg/L  | 1  |
| 1,2-Dibromo-3-chloropropane |      | 1,3     | <1.70         | µg/L  | 5  |
| 1,2,3-Trichlorobenzene      |      | 1,2,3,4 | <0.400        | µg/L  | 5  |
| 1,2,4-Trichlorobenzene      |      | 1,2,3,4 | <2.12         | µg/L  | 5  |
| Naphthalene                 |      | 1,2,3,4 | <2.23         | µg/L  | 5  |
| Hexachlorobutadiene         | B    | B       | 0.790         | µg/L  | 5  |

| Surrogate                    | Flag | Cert | Result | Units | Dilution | Spike<br>Amount | Percent<br>Recovery | Recovery<br>Limits |
|------------------------------|------|------|--------|-------|----------|-----------------|---------------------|--------------------|
| Dibromofluoromethane         |      |      | 56.0   | µg/L  | 1        | 50.0            | 112                 | 70 - 130           |
| Toluene-d8                   |      |      | 47.4   | µg/L  | 1        | 50.0            | 95                  | 70 - 130           |
| 4-Bromofluorobenzene (4-BFB) |      |      | 54.3   | µg/L  | 1        | 50.0            | 109                 | 70 - 130           |

**Method Blank (1)**      QC Batch: 131700

QC Batch: 131700      Date Analyzed: 2016-07-26      Analyzed By: HJ  
 Prep Batch: 111608      QC Preparation: 2016-07-25      Prepared By: HJ

| Parameter | Flag | Cert  | MDL<br>Result | Units | RL |
|-----------|------|-------|---------------|-------|----|
| DRO       |      | 1,2,3 | <0.890        | mg/L  | 5  |

| Surrogate   | Flag | Cert | Result | Units | Dilution | Spike<br>Amount | Percent<br>Recovery | Recovery<br>Limits |
|-------------|------|------|--------|-------|----------|-----------------|---------------------|--------------------|
| n-Tricosane |      |      | 2.92   | mg/L  | 1        | 2.50            | 117                 | 70 - 130           |

# Duplicates

Duplicates (1)     Duplicated Sample: 425046

|             |        |                 |            |              |    |
|-------------|--------|-----------------|------------|--------------|----|
| QC Batch:   | 131673 | Date Analyzed:  | 2016-07-25 | Analyzed By: | CF |
| Prep Batch: | 111584 | QC Preparation: | 2016-07-25 | Prepared By: | CF |

| Param |         | Duplicate<br>Result | Sample<br>Result | Units | Dilution | RPD | RPD<br>Limit |
|-------|---------|---------------------|------------------|-------|----------|-----|--------------|
| pH    | 1,2,3,4 | 7.44                | 7.40             | s.u.  | 1        | 0   | 20           |

Report Date: July 26, 2016  
Lovington Leak

Work Order: 16072501  
Lovington Leak

Page Number: 12 of 27

## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 131681  
Prep Batch: 111589

Date Analyzed: 2016-07-25  
QC Preparation: 2016-07-25

Analyzed By: MT  
Prepared By: MT

| Param | F | C     | LCS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|-------|---|-------|---------------|-------|------|-----------------|------------------|------|---------------|
| GRO   |   | 1,2,3 | 0.951         | mg/L  | 1    | 1.00            | <0.0369          | 95   | 74.6 - 123    |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param | F | C     | LCSD<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|-------|---|-------|----------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| GRO   |   | 1,2,3 | 1.11           | mg/L  | 1    | 1.00            | <0.0369          | 111  | 74.6 - 123    | 15  | 20           |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate                    | LCS<br>Result | LCSD<br>Result | Units | Dil. | Spike<br>Amount | LCS<br>Rec. | LCSD<br>Rec. | Rec.<br>Limit |
|------------------------------|---------------|----------------|-------|------|-----------------|-------------|--------------|---------------|
| Trifluorotoluene (TFT)       | 0.110         | 0.112          | mg/L  | 1    | 0.100           | 110         | 112          | 72.8 - 136    |
| 4-Bromofluorobenzene (4-BFB) | 0.111         | 0.113          | mg/L  | 1    | 0.100           | 111         | 113          | 73.3 - 120    |

### Laboratory Control Spike (LCS-1)

QC Batch: 131694  
Prep Batch: 111600

Date Analyzed: 2016-07-25  
QC Preparation: 2016-07-26

Analyzed By: CF  
Prepared By: CF

| Param    | F | C       | LCS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|----------|---|---------|---------------|-------|------|-----------------|------------------|------|---------------|
| Chloride |   | 1,2,3,4 | 24.2          | mg/L  | 1    | 25.0            | <0.297           | 97   | 90 - 110      |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param    | F | C       | LCSD<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|----------|---|---------|----------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| Chloride |   | 1,2,3,4 | 24.2           | mg/L  | 1    | 25.0            | <0.297           | 97   | 90 - 110      | 0   | 20           |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**

QC Batch: 131696  
 Prep Batch: 111601

Date Analyzed: 2016-07-25  
 QC Preparation: 2016-07-25

Analyzed By: KB  
 Prepared By: KB

| Param                              | F  | C          | LCS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|------------------------------------|----|------------|---------------|-------|------|-----------------|------------------|------|---------------|
| Bromochloromethane                 |    | 1,2,3,4    | 48.7          | µg/L  | 1    | 50.0            | <0.330           | 97   | 74.4 - 128    |
| Dichlorodifluoromethane            |    | 1,2,3,4    | 49.6          | µg/L  | 1    | 50.0            | <0.350           | 99   | 46.8 - 148    |
| Chloromethane (methyl chloride)    |    | 1,2,3,4    | 54.9          | µg/L  | 1    | 50.0            | <0.330           | 110  | 63.8 - 125    |
| Vinyl Chloride                     |    | 1,2,3,4    | 60.4          | µg/L  | 1    | 50.0            | <0.410           | 121  | 60.3 - 129    |
| Bromomethane (methyl bromide)      |    | 1,2,3,4    | 62.6          | µg/L  | 1    | 50.0            | <1.69            | 125  | 49.7 - 141    |
| Chloroethane                       | Qs | Qs 1,2,3,4 | 66.1          | µg/L  | 1    | 50.0            | <0.420           | 132  | 62.4 - 131    |
| Trichlorofluoromethane             |    | 1,2,3,4    | 61.2          | µg/L  | 1    | 50.0            | <0.410           | 122  | 53.5 - 152    |
| Acetone                            |    | 1,2,3,4    | 40.9          | µg/L  | 1    | 50.0            | <1.09            | 82   | 20 - 190      |
| Iodomethane (methyl iodide)        |    | 1,2,3,4    | 51.2          | µg/L  | 1    | 50.0            | <2.47            | 102  | 67.8 - 135    |
| Carbon Disulfide                   |    | 1,2,3,4    | 50.7          | µg/L  | 1    | 50.0            | <0.400           | 101  | 68.9 - 136    |
| Acrylonitrile                      |    | 1,2,3,4    | 42.0          | µg/L  | 1    | 50.0            | <0.360           | 84   | 67.6 - 131    |
| 2-Butanone (MEK)                   |    | 1,2,3,4    | 41.6          | µg/L  | 1    | 50.0            | <1.67            | 83   | 45 - 137      |
| 4-Methyl-2-pentanone (MIBK)        |    | 1,2,3,4    | 36.0          | µg/L  | 1    | 50.0            | <2.14            | 72   | 61.4 - 142    |
| 2-Hexanone                         |    | 1,2,3,4    | 36.7          | µg/L  | 1    | 50.0            | <1.49            | 73   | 51.7 - 145    |
| trans 1,4-Dichloro-2-butene        |    | 1,2,3,4    | 32.0          | µg/L  | 1    | 50.0            | <1.75            | 64   | 44.3 - 137    |
| 1,1-Dichloroethene                 |    | 1,2,3,4    | 51.6          | µg/L  | 1    | 50.0            | <0.330           | 103  | 70.6 - 132    |
| Methylene chloride                 |    | 1,2,3,4    | 57.8          | µg/L  | 1    | 50.0            | <2.04            | 116  | 66.5 - 135    |
| MTBE                               |    | 1,2,3,4    | 48.5          | µg/L  | 1    | 50.0            | <0.320           | 97   | 72.1 - 130    |
| trans-1,2-Dichloroethene           |    | 1,2,3,4    | 51.5          | µg/L  | 1    | 50.0            | <0.360           | 103  | 75.5 - 127    |
| 1,1-Dichloroethane                 |    | 1,2,3,4    | 54.4          | µg/L  | 1    | 50.0            | <0.330           | 109  | 73.7 - 129    |
| cis-1,2-Dichloroethene             |    | 1,2,3,4    | 55.2          | µg/L  | 1    | 50.0            | <0.330           | 110  | 75.5 - 127    |
| 2,2-Dichloropropane                |    | 1,2,3,4    | 57.7          | µg/L  | 1    | 50.0            | <0.380           | 115  | 24.3 - 158    |
| 1,2-Dichloroethane (EDC)           |    | 1,2,3,4    | 51.9          | µg/L  | 1    | 50.0            | <0.280           | 104  | 71 - 134      |
| Chloroform                         |    | 1,2,3,4    | 54.2          | µg/L  | 1    | 50.0            | <0.390           | 108  | 74 - 131      |
| 1,1,1-Trichloroethane              |    | 1,2,3,4    | 60.0          | µg/L  | 1    | 50.0            | <0.370           | 120  | 59.2 - 150    |
| 1,1-Dichloropropene                |    | 1,2,3,4    | 54.9          | µg/L  | 1    | 50.0            | <0.320           | 110  | 77.7 - 128    |
| Benzene                            |    | 1,2,3,4    | 52.6          | µg/L  | 1    | 50.0            | <0.340           | 105  | 73 - 124      |
| Carbon Tetrachloride               |    | 1,2,3,4    | 58.8          | µg/L  | 1    | 50.0            | <0.350           | 118  | 61.2 - 146    |
| 1,2-Dichloropropane                |    | 1,2,3,4    | 52.6          | µg/L  | 1    | 50.0            | <0.270           | 105  | 78 - 125      |
| Trichloroethene (TCE)              |    | 1,2,3,4    | 53.5          | µg/L  | 1    | 50.0            | <0.310           | 107  | 70.9 - 137    |
| Dibromomethane (methylene bromide) |    | 1,2,3,4    | 49.1          | µg/L  | 1    | 50.0            | <0.230           | 98   | 76.2 - 127    |
| Bromodichloromethane               |    | 1,2,3,4    | 54.5          | µg/L  | 1    | 50.0            | <0.320           | 109  | 73.6 - 130    |
| 2-Chloroethyl vinyl ether          |    | 1,2,3,4    | 44.2          | µg/L  | 1    | 50.0            | <0.480           | 88   | 61.1 - 136    |
| cis-1,3-Dichloropropene            |    | 1,2,3,4    | 51.7          | µg/L  | 1    | 50.0            | <0.210           | 103  | 79 - 125      |
| trans-1,3-Dichloropropene          |    | 1,2,3,4    | 50.0          | µg/L  | 1    | 50.0            | <0.310           | 100  | 77.1 - 128    |
| Toluene                            |    | 1,2,3,4    | 54.0          | µg/L  | 1    | 50.0            | <0.350           | 108  | 75.4 - 126    |
| 1,1,2-Trichloroethane              |    | 1,2,3,4    | 41.9          | µg/L  | 1    | 50.0            | <0.390           | 84   | 72.9 - 122    |
| 1,3-Dichloropropane                |    | 1,2,3,4    | 43.0          | µg/L  | 1    | 50.0            | <0.310           | 86   | 75 - 120      |
| Dibromochloromethane               |    | 1,3,4      | 42.7          | µg/L  | 1    | 50.0            | <0.370           | 85   | 64.8 - 128    |
| 1,2-Dibromoethane (EDB)            |    | 1,2,3,4    | 40.5          | µg/L  | 1    | 50.0            | <0.310           | 81   | 74.6 - 121    |

*continued ...*

*control spikes continued ...*

| Param                       | F | C       | LCS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|-----------------------------|---|---------|---------------|-------|------|-----------------|------------------|------|---------------|
| Tetrachloroethene (PCE)     |   | 1,2,3,4 | 46.3          | µg/L  | 1    | 50.0            | <0.190           | 93   | 28.6 - 177    |
| Chlorobenzene               |   | 1,2,3,4 | 45.2          | µg/L  | 1    | 50.0            | <0.290           | 90   | 73.5 - 120    |
| 1,1,1,2-Tetrachloroethane   |   | 1,2,3,4 | 47.0          | µg/L  | 1    | 50.0            | <0.300           | 94   | 67 - 128      |
| Ethylbenzene                |   | 1,2,3,4 | 48.5          | µg/L  | 1    | 50.0            | <0.260           | 97   | 73 - 123      |
| m,p-Xylene                  |   | 1,2,3,4 | 97.8          | µg/L  | 1    | 100             | <0.480           | 98   | 71 - 126      |
| Bromoform                   |   | 1,2,3,4 | 37.2          | µg/L  | 1    | 50.0            | <0.480           | 74   | 55.5 - 131    |
| Styrene                     |   | 1,2,3,4 | 45.6          | µg/L  | 1    | 50.0            | <0.250           | 91   | 75.7 - 122    |
| o-Xylene                    |   | 1,2,3,4 | 48.5          | µg/L  | 1    | 50.0            | <0.260           | 97   | 70.2 - 125    |
| 1,1,2,2-Tetrachloroethane   |   | 1,2,3,4 | 36.1          | µg/L  | 1    | 50.0            | <0.560           | 72   | 61.1 - 133    |
| 2-Chlorotoluene             |   | 1,2,3,4 | 48.2          | µg/L  | 1    | 50.0            | <0.250           | 96   | 71.8 - 120    |
| 1,2,3-Trichloropropane      |   | 1,2,3,4 | 37.3          | µg/L  | 1    | 50.0            | <0.450           | 75   | 67.2 - 132    |
| Isopropylbenzene            |   | 1,2,3,4 | 49.2          | µg/L  | 1    | 50.0            | <0.260           | 98   | 72.2 - 123    |
| Bromobenzene                |   | 1,2,3,4 | 43.6          | µg/L  | 1    | 50.0            | <0.280           | 87   | 66.7 - 121    |
| n-Propylbenzene             |   | 1,2,3,4 | 49.5          | µg/L  | 1    | 50.0            | <0.240           | 99   | 72.9 - 121    |
| 1,3,5-Trimethylbenzene      |   | 1,2,3,4 | 48.6          | µg/L  | 1    | 50.0            | <0.260           | 97   | 68.4 - 126    |
| tert-Butylbenzene           |   | 1,2,3,4 | 48.4          | µg/L  | 1    | 50.0            | <0.270           | 97   | 68.7 - 128    |
| 1,2,4-Trimethylbenzene      |   | 1,2,3,4 | 48.0          | µg/L  | 1    | 50.0            | <0.270           | 96   | 70.4 - 124    |
| 1,4-Dichlorobenzene (para)  |   | 1,2,3,4 | 42.4          | µg/L  | 1    | 50.0            | <0.310           | 85   | 73.5 - 120    |
| sec-Butylbenzene            |   | 1,2,3,4 | 49.0          | µg/L  | 1    | 50.0            | <0.200           | 98   | 69.6 - 128    |
| 1,3-Dichlorobenzene (meta)  |   | 1,2,3,4 | 44.2          | µg/L  | 1    | 50.0            | <0.280           | 88   | 74.2 - 120    |
| p-Isopropyltoluene          |   | 1,2,3   | 47.0          | µg/L  | 1    | 50.0            | <0.200           | 94   | 73.1 - 124    |
| 4-Chlorotoluene             |   | 1,2,3,4 | 48.5          | µg/L  | 1    | 50.0            | <0.290           | 97   | 72.8 - 120    |
| 1,2-Dichlorobenzene (ortho) |   | 1,2,3,4 | 42.0          | µg/L  | 1    | 50.0            | <0.250           | 84   | 65.2 - 126    |
| n-Butylbenzene              |   | 1,2,3,4 | 48.3          | µg/L  | 1    | 50.0            | <0.170           | 97   | 70.1 - 127    |
| 1,2-Dibromo-3-chloropropane |   | 1,3     | 38.6          | µg/L  | 1    | 50.0            | <1.70            | 77   | 50.5 - 136    |
| 1,2,3-Trichlorobenzene      |   | 1,2,3,4 | 42.5          | µg/L  | 1    | 50.0            | <0.400           | 85   | 43.3 - 153    |
| 1,2,4-Trichlorobenzene      |   | 1,2,3,4 | 43.6          | µg/L  | 1    | 50.0            | <2.12            | 87   | 59.6 - 134    |
| Naphthalene                 |   | 1,2,3,4 | 37.1          | µg/L  | 1    | 50.0            | <2.23            | 74   | 38.5 - 159    |
| Hexachlorobutadiene         |   | 1,2,3,4 | 54.7          | µg/L  | 1    | 50.0            | 0.79             | 108  | 35.8 - 175    |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param                           | F | C       | LCS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|---------------------------------|---|---------|---------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| Bromochloromethane              |   | 1,2,3,4 | 46.1          | µg/L  | 1    | 50.0            | <0.330           | 92   | 74.4 - 128    | 6   | 20           |
| Dichlorodifluoromethane         |   | 1,2,3,4 | 45.1          | µg/L  | 1    | 50.0            | <0.350           | 90   | 46.8 - 148    | 10  | 20           |
| Chloromethane (methyl chloride) |   | 1,2,3,4 | 50.6          | µg/L  | 1    | 50.0            | <0.330           | 101  | 63.8 - 125    | 8   | 20           |
| Vinyl Chloride                  |   | 1,2,3,4 | 54.9          | µg/L  | 1    | 50.0            | <0.410           | 110  | 60.3 - 129    | 10  | 20           |
| Bromomethane (methyl bromide)   |   | 1,2,3,4 | 56.7          | µg/L  | 1    | 50.0            | <1.69            | 113  | 49.7 - 141    | 10  | 20           |
| Chloroethane                    |   | 1,2,3,4 | 61.3          | µg/L  | 1    | 50.0            | <0.420           | 123  | 62.4 - 131    | 8   | 20           |
| Trichlorofluoromethane          |   | 1,2,3,4 | 55.2          | µg/L  | 1    | 50.0            | <0.410           | 110  | 53.5 - 152    | 10  | 20           |
| Acetone                         |   | 1,2,3,4 | 39.2          | µg/L  | 1    | 50.0            | <1.09            | 78   | 20 - 190      | 4   | 20           |
| Iodomethane (methyl iodide)     |   | 1,2,3,4 | 49.3          | µg/L  | 1    | 50.0            | <2.47            | 99   | 67.8 - 135    | 4   | 20           |
| Carbon Disulfide                |   | 1,2,3,4 | 49.6          | µg/L  | 1    | 50.0            | <0.400           | 99   | 68.9 - 136    | 2   | 20           |
| Acrylonitrile                   |   | 1,2,3,4 | 39.6          | µg/L  | 1    | 50.0            | <0.360           | 79   | 67.6 - 131    | 6   | 20           |

*continued ...*

*control spikes continued ...*

| Param                              | F | C       | LCSD   |       | Dil. | Spike  | Matrix | Rec. | Rec.       | RPD | RPD   |
|------------------------------------|---|---------|--------|-------|------|--------|--------|------|------------|-----|-------|
|                                    |   |         | Result | Units |      | Amount | Result |      | Limit      |     | Limit |
| 2-Butanone (MEK)                   |   | 1,2,3,4 | 39.3   | µg/L  | 1    | 50.0   | <1.67  | 79   | 45 - 137   | 6   | 20    |
| 4-Methyl-2-pentanone (MIBK)        |   | 1,2,3,4 | 35.4   | µg/L  | 1    | 50.0   | <2.14  | 71   | 61.4 - 142 | 2   | 20    |
| 2-Hexanone                         |   | 1,2,3,4 | 35.4   | µg/L  | 1    | 50.0   | <1.49  | 71   | 51.7 - 145 | 4   | 20    |
| trans 1,4-Dichloro-2-butene        |   | 1,2,3,4 | 30.2   | µg/L  | 1    | 50.0   | <1.75  | 60   | 44.3 - 137 | 6   | 20    |
| 1,1-Dichloroethene                 |   | 1,2,3,4 | 49.6   | µg/L  | 1    | 50.0   | <0.330 | 99   | 70.6 - 132 | 4   | 20    |
| Methylene chloride                 |   | 1,2,3,4 | 56.2   | µg/L  | 1    | 50.0   | <2.04  | 112  | 66.5 - 135 | 3   | 20    |
| MTBE                               |   | 1,2,3,4 | 47.0   | µg/L  | 1    | 50.0   | <0.320 | 94   | 72.1 - 130 | 3   | 20    |
| trans-1,2-Dichloroethene           |   | 1,2,3,4 | 50.6   | µg/L  | 1    | 50.0   | <0.360 | 101  | 75.5 - 127 | 2   | 20    |
| 1,1-Dichloroethane                 |   | 1,2,3,4 | 52.4   | µg/L  | 1    | 50.0   | <0.330 | 105  | 73.7 - 129 | 4   | 20    |
| cis-1,2-Dichloroethene             |   | 1,2,3,4 | 51.7   | µg/L  | 1    | 50.0   | <0.330 | 103  | 75.5 - 127 | 6   | 20    |
| 2,2-Dichloropropane                |   | 1,2,3,4 | 54.5   | µg/L  | 1    | 50.0   | <0.380 | 109  | 24.3 - 158 | 6   | 20    |
| 1,2-Dichloroethane (EDC)           |   | 1,2,3,4 | 50.7   | µg/L  | 1    | 50.0   | <0.280 | 101  | 71 - 134   | 2   | 20    |
| Chloroform                         |   | 1,2,3,4 | 52.5   | µg/L  | 1    | 50.0   | <0.390 | 105  | 74 - 131   | 3   | 20    |
| 1,1,1-Trichloroethane              |   | 1,2,3,4 | 56.8   | µg/L  | 1    | 50.0   | <0.370 | 114  | 59.2 - 150 | 6   | 20    |
| 1,1-Dichloropropene                |   | 1,2,3,4 | 53.4   | µg/L  | 1    | 50.0   | <0.320 | 107  | 77.7 - 128 | 3   | 20    |
| Benzene                            |   | 1,2,3,4 | 51.6   | µg/L  | 1    | 50.0   | <0.340 | 103  | 73 - 124   | 2   | 20    |
| Carbon Tetrachloride               |   | 1,2,3,4 | 57.2   | µg/L  | 1    | 50.0   | <0.350 | 114  | 61.2 - 146 | 3   | 20    |
| 1,2-Dichloropropane                |   | 1,2,3,4 | 52.1   | µg/L  | 1    | 50.0   | <0.270 | 104  | 78 - 125   | 1   | 20    |
| Trichloroethene (TCE)              |   | 1,2,3,4 | 51.5   | µg/L  | 1    | 50.0   | <0.310 | 103  | 70.9 - 137 | 4   | 20    |
| Dibromomethane (methylene bromide) |   | 1,2,3,4 | 46.8   | µg/L  | 1    | 50.0   | <0.230 | 94   | 76.2 - 127 | 5   | 20    |
| Bromodichloromethane               |   | 1,2,3,4 | 52.8   | µg/L  | 1    | 50.0   | <0.320 | 106  | 73.6 - 130 | 3   | 20    |
| 2-Chloroethyl vinyl ether          |   | 1,2,3,4 | 39.7   | µg/L  | 1    | 50.0   | <0.480 | 79   | 61.1 - 136 | 11  | 20    |
| cis-1,3-Dichloropropene            |   | 1,2,3,4 | 50.6   | µg/L  | 1    | 50.0   | <0.210 | 101  | 79 - 125   | 2   | 20    |
| trans-1,3-Dichloropropene          |   | 1,2,3,4 | 48.7   | µg/L  | 1    | 50.0   | <0.310 | 97   | 77.1 - 128 | 3   | 20    |
| Toluene                            |   | 1,2,3,4 | 52.0   | µg/L  | 1    | 50.0   | <0.350 | 104  | 75.4 - 126 | 4   | 20    |
| 1,1,2-Trichloroethane              |   | 1,2,3,4 | 40.1   | µg/L  | 1    | 50.0   | <0.390 | 80   | 72.9 - 122 | 4   | 20    |
| 1,3-Dichloropropane                |   | 1,2,3,4 | 41.3   | µg/L  | 1    | 50.0   | <0.310 | 83   | 75 - 120   | 4   | 20    |
| Dibromochloromethane               |   | 1,3,4   | 41.2   | µg/L  | 1    | 50.0   | <0.370 | 82   | 64.8 - 128 | 4   | 20    |
| 1,2-Dibromoethane (EDB)            |   | 1,2,3,4 | 39.2   | µg/L  | 1    | 50.0   | <0.310 | 78   | 74.6 - 121 | 3   | 20    |
| Tetrachloroethene (PCE)            |   | 1,2,3,4 | 45.0   | µg/L  | 1    | 50.0   | <0.190 | 90   | 28.6 - 177 | 3   | 20    |
| Chlorobenzene                      |   | 1,2,3,4 | 44.1   | µg/L  | 1    | 50.0   | <0.290 | 88   | 73.5 - 120 | 2   | 20    |
| 1,1,1,2-Tetrachloroethane          |   | 1,2,3,4 | 44.8   | µg/L  | 1    | 50.0   | <0.300 | 90   | 67 - 128   | 5   | 20    |
| Ethylbenzene                       |   | 1,2,3,4 | 46.4   | µg/L  | 1    | 50.0   | <0.260 | 93   | 73 - 123   | 4   | 20    |
| m,p-Xylene                         |   | 1,2,3,4 | 95.2   | µg/L  | 1    | 100    | <0.480 | 95   | 71 - 126   | 3   | 20    |
| Bromoform                          |   | 1,2,3,4 | 35.8   | µg/L  | 1    | 50.0   | <0.480 | 72   | 55.5 - 131 | 4   | 20    |
| Styrene                            |   | 1,2,3,4 | 44.9   | µg/L  | 1    | 50.0   | <0.250 | 90   | 75.7 - 122 | 2   | 20    |
| o-Xylene                           |   | 1,2,3,4 | 46.7   | µg/L  | 1    | 50.0   | <0.260 | 93   | 70.2 - 125 | 4   | 20    |
| 1,1,2,2-Tetrachloroethane          |   | 1,2,3,4 | 35.3   | µg/L  | 1    | 50.0   | <0.560 | 71   | 61.1 - 133 | 2   | 20    |
| 2-Chlorotoluene                    |   | 1,2,3,4 | 47.0   | µg/L  | 1    | 50.0   | <0.250 | 94   | 71.8 - 120 | 2   | 20    |
| 1,2,3-Trichloropropane             |   | 1,2,3,4 | 37.7   | µg/L  | 1    | 50.0   | <0.450 | 75   | 67.2 - 132 | 1   | 20    |
| Isopropylbenzene                   |   | 1,2,3,4 | 47.4   | µg/L  | 1    | 50.0   | <0.260 | 95   | 72.2 - 123 | 4   | 20    |
| Bromobenzene                       |   | 1,2,3,4 | 41.8   | µg/L  | 1    | 50.0   | <0.280 | 84   | 66.7 - 121 | 4   | 20    |
| n-Propylbenzene                    |   | 1,2,3,4 | 48.1   | µg/L  | 1    | 50.0   | <0.240 | 96   | 72.9 - 121 | 3   | 20    |
| 1,3,5-Trimethylbenzene             |   | 1,2,3,4 | 47.7   | µg/L  | 1    | 50.0   | <0.260 | 95   | 68.4 - 126 | 2   | 20    |

*continued ...*

control spikes continued ...

| Param                       | F | C       | LCSD |      | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit | RPD | RPD Limit |
|-----------------------------|---|---------|------|------|------|--------------|---------------|------|------------|-----|-----------|
| tert-Butylbenzene           |   | 1,2,3,4 | 46.8 | µg/L | 1    | 50.0         | <0.270        | 94   | 68.7 - 128 | 3   | 20        |
| 1,2,4-Trimethylbenzene      |   | 1,2,3,4 | 47.0 | µg/L | 1    | 50.0         | <0.270        | 94   | 70.4 - 124 | 2   | 20        |
| 1,4-Dichlorobenzene (para)  |   | 1,2,3,4 | 41.6 | µg/L | 1    | 50.0         | <0.310        | 83   | 73.5 - 120 | 2   | 20        |
| sec-Butylbenzene            |   | 1,2,3,4 | 47.3 | µg/L | 1    | 50.0         | <0.200        | 95   | 69.6 - 128 | 4   | 20        |
| 1,3-Dichlorobenzene (meta)  |   | 1,2,3,4 | 43.5 | µg/L | 1    | 50.0         | <0.280        | 87   | 74.2 - 120 | 2   | 20        |
| p-Isopropyltoluene          |   | 1,2,3   | 45.4 | µg/L | 1    | 50.0         | <0.200        | 91   | 73.1 - 124 | 4   | 20        |
| 4-Chlorotoluene             |   | 1,2,3,4 | 46.4 | µg/L | 1    | 50.0         | <0.290        | 93   | 72.8 - 120 | 4   | 20        |
| 1,2-Dichlorobenzene (ortho) |   | 1,2,3,4 | 41.0 | µg/L | 1    | 50.0         | <0.250        | 82   | 65.2 - 126 | 2   | 20        |
| n-Butylbenzene              |   | 1,2,3,4 | 47.0 | µg/L | 1    | 50.0         | <0.170        | 94   | 70.1 - 127 | 3   | 20        |
| 1,2-Dibromo-3-chloropropane |   | 1,3     | 37.2 | µg/L | 1    | 50.0         | <1.70         | 74   | 50.5 - 136 | 4   | 20        |
| 1,2,3-Trichlorobenzene      |   | 1,2,3,4 | 43.1 | µg/L | 1    | 50.0         | <0.400        | 86   | 43.3 - 153 | 1   | 20        |
| 1,2,4-Trichlorobenzene      |   | 1,2,3,4 | 42.8 | µg/L | 1    | 50.0         | <2.12         | 86   | 59.6 - 134 | 2   | 20        |
| Naphthalene                 |   | 1,2,3,4 | 36.7 | µg/L | 1    | 50.0         | <2.23         | 73   | 38.5 - 159 | 1   | 20        |
| Hexachlorobutadiene         |   | 1,2,3,4 | 53.2 | µg/L | 1    | 50.0         | 0.79          | 105  | 35.8 - 175 | 3   | 20        |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate                    | LCS Result | LCSD Result | Units | Dil. | Spike Amount | LCS Rec. | LCSD Rec. | Rec. Limit |
|------------------------------|------------|-------------|-------|------|--------------|----------|-----------|------------|
| Dibromofluoromethane         | 53.7       | 53.4        | µg/L  | 1    | 50.0         | 107      | 107       | 70 - 130   |
| Toluene-d8                   | 48.2       | 47.9        | µg/L  | 1    | 50.0         | 96       | 96        | 70 - 130   |
| 4-Bromofluorobenzene (4-BFB) | 53.5       | 53.8        | µg/L  | 1    | 50.0         | 107      | 108       | 70 - 130   |

### Laboratory Control Spike (LCS-1)

QC Batch: 131700  
 Prep Batch: 111608

Date Analyzed: 2016-07-26  
 QC Preparation: 2016-07-25

Analyzed By: HJ  
 Prepared By: HJ

| Param | F | C     | LCS Result | Units | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit |
|-------|---|-------|------------|-------|------|--------------|---------------|------|------------|
| DRO   |   | 1,2,3 | 48.8       | mg/L  | 1    | 50.0         | <0.890        | 98   | 70 - 130   |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param | F | C     | LCSD |      | Dil. | Spike Amount | Matrix Result | Rec. | Rec. Limit | RPD | RPD Limit |
|-------|---|-------|------|------|------|--------------|---------------|------|------------|-----|-----------|
| DRO   |   | 1,2,3 | 46.0 | mg/L | 1    | 50.0         | <0.890        | 92   | 70 - 130   | 6   | 20        |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate   | LCS Result | LCSD Result | Units | Dil. | Spike Amount | LCS Rec. | LCSD Rec. | Rec. Limit |
|-------------|------------|-------------|-------|------|--------------|----------|-----------|------------|
| n-Tricosane | 2.53       | 2.39        | mg/L  | 1    | 2.50         | 101      | 96        | 70 - 130   |

## Matrix Spikes

### Matrix Spike (MS-1) Spiked Sample: 425046

QC Batch: 131681  
Prep Batch: 111589

Date Analyzed: 2016-07-25  
QC Preparation: 2016-07-25

Analyzed By: MT  
Prepared By: MT

| Param | F | C     | MS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|-------|---|-------|--------------|-------|------|-----------------|------------------|------|---------------|
| GRO   |   | 1,2,3 | 6.77         | mg/L  | 5    | 5.00            | 0.734            | 121  | 57 - 134      |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param |    |    | MSD    |       | Dil. | Spike  | Matrix | Rec.  |       | RPD      |       |    |
|-------|----|----|--------|-------|------|--------|--------|-------|-------|----------|-------|----|
|       | F  | C  | Result | Units |      | Amount | Result | Rec.  | Limit | RPD      | Limit |    |
| GRO   | Qs | Qs | 1,2,3  | 7.64  | mg/L | 5      | 5.00   | 0.734 | 138   | 57 - 134 | 12    | 20 |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate                    | MS<br>Result | MSD<br>Result | Units | Dil. | Spike<br>Amount | MS<br>Rec. | MSD<br>Rec. | Rec.<br>Limit |
|------------------------------|--------------|---------------|-------|------|-----------------|------------|-------------|---------------|
| Trifluorotoluene (TFT)       | 0.569        | 0.568         | mg/L  | 5    | 0.5             | 114        | 114         | 72.8 - 136    |
| 4-Bromofluorobenzene (4-BFB) | 0.582        | 0.577         | mg/L  | 5    | 0.5             | 116        | 115         | 73.3 - 120    |

### Matrix Spike (MS-1) Spiked Sample: 425046

QC Batch: 131694  
Prep Batch: 111600

Date Analyzed: 2016-07-25  
QC Preparation: 2016-07-26

Analyzed By: CF  
Prepared By: CF

| Param    | F | C       | MS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|----------|---|---------|--------------|-------|------|-----------------|------------------|------|---------------|
| Chloride |   | 1,2,3,4 | 215          | mg/L  | 5    | 125             | 91.8             | 98   | 80 - 120      |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param    | F | C       | MSD<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|----------|---|---------|---------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| Chloride |   | 1,2,3,4 | 218           | mg/L  | 5    | 125             | 91.8             | 101  | 80 - 120      | 1   | 20           |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Matrix Spike (MS-1)**      Spiked Sample: 425046

QC Batch: 131696  
 Prep Batch: 111601

Date Analyzed: 2016-07-25  
 QC Preparation: 2016-07-25

Analyzed By: KB  
 Prepared By: KB

| Param                              | F | C       | MS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|------------------------------------|---|---------|--------------|-------|------|-----------------|------------------|------|---------------|
| Bromochloromethane                 |   | 1,2,3,4 | 254          | µg/L  | 5    | 250             | <1.65            | 102  | 64.4 - 146    |
| Dichlorodifluoromethane            |   | 1,2,3,4 | 234          | µg/L  | 5    | 250             | <1.75            | 94   | 36.2 - 162    |
| Chloromethane (methyl chloride)    |   | 1,2,3,4 | 270          | µg/L  | 5    | 250             | <1.65            | 108  | 56.1 - 142    |
| Vinyl Chloride                     |   | 1,2,3,4 | 293          | µg/L  | 5    | 250             | <2.05            | 117  | 12 - 172      |
| Bromomethane (methyl bromide)      |   | 1,2,3,4 | 315          | µg/L  | 5    | 250             | <8.45            | 126  | 43.6 - 159    |
| Chloroethane                       |   | 1,2,3,4 | 338          | µg/L  | 5    | 250             | <2.10            | 135  | 58 - 148      |
| Trichlorofluoromethane             |   | 1,2,3,4 | 310          | µg/L  | 5    | 250             | <2.05            | 124  | 52.2 - 163    |
| Acetone                            |   | 1,2,3,4 | 126          | µg/L  | 5    | 250             | <5.45            | 50   | 12.8 - 120    |
| Iodomethane (methyl iodide)        |   | 1,2,3,4 | 260          | µg/L  | 5    | 250             | <12.4            | 104  | 10 - 200      |
| Carbon Disulfide                   |   | 1,2,3,4 | 264          | µg/L  | 5    | 250             | 5.24             | 104  | 57.6 - 149    |
| Acrylonitrile                      |   | 1,2,3,4 | 226          | µg/L  | 5    | 250             | <1.80            | 90   | 67.2 - 134    |
| 2-Butanone (MEK)                   |   | 1,2,3,4 | 161          | µg/L  | 5    | 250             | <8.35            | 64   | 31.3 - 124    |
| 4-Methyl-2-pentanone (MIBK)        |   | 1,2,3,4 | 214          | µg/L  | 5    | 250             | <10.7            | 86   | 56.5 - 143    |
| 2-Hexanone                         |   | 1,2,3,4 | 167          | µg/L  | 5    | 250             | <7.45            | 67   | 29 - 144      |
| trans 1,4-Dichloro-2-butene        |   | 1,2,3,4 | 232          | µg/L  | 5    | 250             | <8.75            | 93   | 10 - 143      |
| 1,1-Dichloroethene                 |   | 1,2,3,4 | 259          | µg/L  | 5    | 250             | <1.65            | 104  | 34.6 - 166    |
| Methylene chloride                 |   | 1,2,3,4 | 300          | µg/L  | 5    | 250             | <10.2            | 120  | 64.3 - 140    |
| MTBE                               |   | 1,2,3,4 | 266          | µg/L  | 5    | 250             | <1.60            | 106  | 41.6 - 161    |
| trans-1,2-Dichloroethene           |   | 1,2,3,4 | 265          | µg/L  | 5    | 250             | <1.80            | 106  | 63.2 - 146    |
| 1,1-Dichloroethane                 |   | 1,2,3,4 | 280          | µg/L  | 5    | 250             | <1.65            | 112  | 69.2 - 143    |
| cis-1,2-Dichloroethene             |   | 1,2,3,4 | 279          | µg/L  | 5    | 250             | <1.65            | 112  | 64.8 - 144    |
| 2,2-Dichloropropane                |   | 1,2,3,4 | 295          | µg/L  | 5    | 250             | <1.90            | 118  | 21.7 - 152    |
| 1,2-Dichloroethane (EDC)           |   | 1,2,3,4 | 288          | µg/L  | 5    | 250             | <1.40            | 115  | 62 - 157      |
| Chloroform                         |   | 1,2,3,4 | 289          | µg/L  | 5    | 250             | <1.95            | 116  | 64.9 - 150    |
| 1,1,1-Trichloroethane              |   | 1,2,3,4 | 315          | µg/L  | 5    | 250             | <1.85            | 126  | 62.3 - 163    |
| 1,1-Dichloropropene                |   | 1,2,3,4 | 286          | µg/L  | 5    | 250             | <1.60            | 114  | 31 - 174      |
| Benzene                            |   | 1,2,3,4 | 278          | µg/L  | 5    | 250             | 4                | 110  | 62 - 139      |
| Carbon Tetrachloride               |   | 1,2,3,4 | 313          | µg/L  | 5    | 250             | <1.75            | 125  | 58 - 164      |
| 1,2-Dichloropropane                |   | 1,2,3,4 | 279          | µg/L  | 5    | 250             | <1.35            | 112  | 68.1 - 140    |
| Trichloroethene (TCE)              |   | 1,2,3,4 | 274          | µg/L  | 5    | 250             | <1.55            | 110  | 49.9 - 163    |
| Dibromomethane (methylene bromide) |   | 1,2,3,4 | 266          | µg/L  | 5    | 250             | <1.15            | 106  | 66.8 - 142    |
| Bromodichloromethane               |   | 1,2,3,4 | 290          | µg/L  | 5    | 250             | <1.60            | 116  | 63.9 - 152    |
| 2-Chloroethyl vinyl ether          |   | 1,2,3,4 | <2.40        | µg/L  | 5    | 250             | <2.40            | 0    | 0 - 120       |
| cis-1,3-Dichloropropene            |   | 1,2,3,4 | 278          | µg/L  | 5    | 250             | <1.05            | 111  | 32.6 - 160    |
| trans-1,3-Dichloropropene          |   | 1,2,3,4 | 277          | µg/L  | 5    | 250             | <1.55            | 111  | 31.4 - 163    |
| Toluene                            |   | 1,2,3,4 | 278          | µg/L  | 5    | 250             | <1.75            | 111  | 40.7 - 160    |
| 1,1,2-Trichloroethane              |   | 1,2,3,4 | 218          | µg/L  | 5    | 250             | <1.95            | 87   | 66 - 130      |
| 1,3-Dichloropropane                |   | 1,2,3,4 | 226          | µg/L  | 5    | 250             | <1.55            | 90   | 66.2 - 131    |
| Dibromochloromethane               |   | 1,3,4   | 232          | µg/L  | 5    | 250             | <1.85            | 93   | 58.8 - 143    |
| 1,2-Dibromoethane (EDB)            |   | 1,2,3,4 | 216          | µg/L  | 5    | 250             | <1.55            | 86   | 66.8 - 132    |

*continued ...*

*matrix spikes continued ...*

| Param                       | F | C       | MS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|-----------------------------|---|---------|--------------|-------|------|-----------------|------------------|------|---------------|
| Tetrachloroethene (PCE)     |   | 1,2,3,4 | 236          | µg/L  | 5    | 250             | <0.950           | 94   | 28.8 - 126    |
| Chlorobenzene               |   | 1,2,3,4 | 232          | µg/L  | 5    | 250             | <1.45            | 93   | 61.6 - 134    |
| 1,1,1,2-Tetrachloroethane   |   | 1,2,3,4 | 246          | µg/L  | 5    | 250             | <1.50            | 98   | 63.1 - 139    |
| Ethylbenzene                |   | 1,2,3,4 | 249          | µg/L  | 5    | 250             | <1.30            | 100  | 43 - 148      |
| m,p-Xylene                  |   | 1,2,3,4 | 507          | µg/L  | 5    | 500             | <2.40            | 101  | 21.5 - 165    |
| Bromoform                   |   | 1,2,3,4 | 221          | µg/L  | 5    | 250             | <2.40            | 88   | 49 - 144      |
| Styrene                     |   | 1,2,3,4 | 235          | µg/L  | 5    | 250             | <1.25            | 94   | 10 - 192      |
| o-Xylene                    |   | 1,2,3,4 | 252          | µg/L  | 5    | 250             | <1.30            | 101  | 28.4 - 160    |
| 1,1,2,2-Tetrachloroethane   |   | 1,2,3,4 | 202          | µg/L  | 5    | 250             | <2.80            | 81   | 65.3 - 133    |
| 2-Chlorotoluene             |   | 1,2,3,4 | 240          | µg/L  | 5    | 250             | <1.25            | 96   | 56 - 134      |
| 1,2,3-Trichloropropane      |   | 1,2,3,4 | 204          | µg/L  | 5    | 250             | <2.25            | 82   | 62.8 - 126    |
| Isopropylbenzene            |   | 1,2,3,4 | 242          | µg/L  | 5    | 250             | <1.30            | 97   | 31.4 - 156    |
| Bromobenzene                |   | 1,2,3,4 | 223          | µg/L  | 5    | 250             | <1.40            | 89   | 57.8 - 128    |
| n-Propylbenzene             |   | 1,2,3,4 | 246          | µg/L  | 5    | 250             | <1.20            | 98   | 30.5 - 154    |
| 1,3,5-Trimethylbenzene      |   | 1,2,3,4 | 241          | µg/L  | 5    | 250             | <1.30            | 96   | 10 - 183      |
| tert-Butylbenzene           |   | 1,2,3,4 | 237          | µg/L  | 5    | 250             | <1.35            | 95   | 42.8 - 148    |
| 1,2,4-Trimethylbenzene      |   | 1,2,3,4 | 243          | µg/L  | 5    | 250             | <1.35            | 97   | 10 - 179      |
| 1,4-Dichlorobenzene (para)  |   | 1,2,3,4 | 213          | µg/L  | 5    | 250             | <1.55            | 85   | 66 - 123      |
| sec-Butylbenzene            |   | 1,2,3,4 | 235          | µg/L  | 5    | 250             | <1.00            | 94   | 30.8 - 155    |
| 1,3-Dichlorobenzene (meta)  |   | 1,2,3,4 | 223          | µg/L  | 5    | 250             | <1.40            | 89   | 66 - 124      |
| p-Isopropyltoluene          |   | 1,2,3   | 228          | µg/L  | 5    | 250             | <1.00            | 91   | 20.9 - 164    |
| 4-Chlorotoluene             |   | 1,2,3,4 | 239          | µg/L  | 5    | 250             | <1.45            | 96   | 54.8 - 136    |
| 1,2-Dichlorobenzene (ortho) |   | 1,2,3,4 | 213          | µg/L  | 5    | 250             | <1.25            | 85   | 65.9 - 124    |
| n-Butylbenzene              |   | 1,2,3,4 | 238          | µg/L  | 5    | 250             | <0.850           | 95   | 31.3 - 153    |
| 1,2-Dibromo-3-chloropropane |   | 1,3     | 214          | µg/L  | 5    | 250             | <8.50            | 86   | 49.3 - 138    |
| 1,2,3-Trichlorobenzene      |   | 1,2,3,4 | 215          | µg/L  | 5    | 250             | <2.00            | 86   | 37.5 - 146    |
| 1,2,4-Trichlorobenzene      |   | 1,2,3,4 | 220          | µg/L  | 5    | 250             | <10.6            | 88   | 55.3 - 132    |
| Naphthalene                 |   | 1,2,3,4 | 185          | µg/L  | 5    | 250             | <11.2            | 74   | 10 - 169      |
| Hexachlorobutadiene         |   | 1,2,3,4 | 248          | µg/L  | 5    | 250             | <3.80            | 99   | 47.4 - 146    |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param                           | F  | C       | MSD<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|---------------------------------|----|---------|---------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| Bromochloromethane              |    | 1,2,3,4 | 246           | µg/L  | 5    | 250             | <1.65            | 98   | 64.4 - 146    | 3   | 20           |
| Dichlorodifluoromethane         |    | 1,2,3,4 | 234           | µg/L  | 5    | 250             | <1.75            | 94   | 36.2 - 162    | 0   | 20           |
| Chloromethane (methyl chloride) |    | 1,2,3,4 | 268           | µg/L  | 5    | 250             | <1.65            | 107  | 56.1 - 142    | 1   | 20           |
| Vinyl Chloride                  |    | 1,2,3,4 | 300           | µg/L  | 5    | 250             | <2.05            | 120  | 12 - 172      | 2   | 20           |
| Bromomethane (methyl bromide)   |    | 1,2,3,4 | 317           | µg/L  | 5    | 250             | <8.45            | 127  | 43.6 - 159    | 1   | 20           |
| Chloroethane                    |    | 1,2,3,4 | 340           | µg/L  | 5    | 250             | <2.10            | 136  | 58 - 148      | 1   | 20           |
| Trichlorofluoromethane          |    | 1,2,3,4 | 314           | µg/L  | 5    | 250             | <2.05            | 126  | 52.2 - 163    | 1   | 20           |
| Acetone                         | Qr | Qr      | 103           | µg/L  | 5    | 250             | <5.45            | 41   | 12.8 - 120    | 20  | 20           |
| Iodomethane (methyl iodide)     |    | 1,2,3,4 | 256           | µg/L  | 5    | 250             | <12.4            | 102  | 10 - 200      | 2   | 20           |
| Carbon Disulfide                |    | 1,2,3,4 | 258           | µg/L  | 5    | 250             | 5.24             | 101  | 57.6 - 149    | 2   | 20           |
| Acrylonitrile                   |    | 1,2,3,4 | 222           | µg/L  | 5    | 250             | <1.80            | 89   | 67.2 - 134    | 2   | 20           |

*continued ...*

*matrix spikes continued . . .*

| Param                              | F | C       | MSD    |       | Dil. | Spike<br>Amount | Matrix |      | Rec.<br>Limit | RPD | RPD<br>Limit |
|------------------------------------|---|---------|--------|-------|------|-----------------|--------|------|---------------|-----|--------------|
|                                    |   |         | Result | Units |      |                 | Result | Rec. |               |     |              |
| 2-Butanone (MEK)                   |   | 1,2,3,4 | 179    | µg/L  | 5    | 250             | <8.35  | 72   | 31.3 - 124    | 11  | 20           |
| 4-Methyl-2-pentanone (MIBK)        |   | 1,2,3,4 | 205    | µg/L  | 5    | 250             | <10.7  | 82   | 56.5 - 143    | 4   | 20           |
| 2-Hexanone                         |   | 1,2,3,4 | 164    | µg/L  | 5    | 250             | <7.45  | 66   | 29 - 144      | 2   | 20           |
| trans 1,4-Dichloro-2-butene        |   | 1,2,3,4 | 219    | µg/L  | 5    | 250             | <8.75  | 88   | 10 - 143      | 6   | 20           |
| 1,1-Dichloroethene                 |   | 1,2,3,4 | 253    | µg/L  | 5    | 250             | <1.65  | 101  | 34.6 - 166    | 2   | 20           |
| Methylene chloride                 |   | 1,2,3,4 | 301    | µg/L  | 5    | 250             | <10.2  | 120  | 64.3 - 140    | 0   | 20           |
| MTBE                               |   | 1,2,3,4 | 260    | µg/L  | 5    | 250             | <1.60  | 104  | 41.6 - 161    | 2   | 20           |
| trans-1,2-Dichloroethene           |   | 1,2,3,4 | 259    | µg/L  | 5    | 250             | <1.80  | 104  | 63.2 - 146    | 2   | 20           |
| 1,1-Dichloroethane                 |   | 1,2,3,4 | 273    | µg/L  | 5    | 250             | <1.65  | 109  | 69.2 - 143    | 2   | 20           |
| cis-1,2-Dichloroethene             |   | 1,2,3,4 | 269    | µg/L  | 5    | 250             | <1.65  | 108  | 64.8 - 144    | 4   | 20           |
| 2,2-Dichloropropane                |   | 1,2,3,4 | 283    | µg/L  | 5    | 250             | <1.90  | 113  | 21.7 - 152    | 4   | 20           |
| 1,2-Dichloroethane (EDC)           |   | 1,2,3,4 | 277    | µg/L  | 5    | 250             | <1.40  | 111  | 62 - 157      | 4   | 20           |
| Chloroform                         |   | 1,2,3,4 | 282    | µg/L  | 5    | 250             | <1.95  | 113  | 64.9 - 150    | 2   | 20           |
| 1,1,1-Trichloroethane              |   | 1,2,3,4 | 305    | µg/L  | 5    | 250             | <1.85  | 122  | 62.3 - 163    | 3   | 20           |
| 1,1-Dichloropropene                |   | 1,2,3,4 | 282    | µg/L  | 5    | 250             | <1.60  | 113  | 31 - 174      | 1   | 20           |
| Benzene                            |   | 1,2,3,4 | 273    | µg/L  | 5    | 250             | 4      | 108  | 62 - 139      | 2   | 20           |
| Carbon Tetrachloride               |   | 1,2,3,4 | 304    | µg/L  | 5    | 250             | <1.75  | 122  | 58 - 164      | 3   | 20           |
| 1,2-Dichloropropane                |   | 1,2,3,4 | 272    | µg/L  | 5    | 250             | <1.35  | 109  | 68.1 - 140    | 2   | 20           |
| Trichloroethene (TCE)              |   | 1,2,3,4 | 265    | µg/L  | 5    | 250             | <1.55  | 106  | 49.9 - 163    | 3   | 20           |
| Dibromomethane (methylene bromide) |   | 1,2,3,4 | 259    | µg/L  | 5    | 250             | <1.15  | 104  | 66.8 - 142    | 3   | 20           |
| Bromodichloromethane               |   | 1,2,3,4 | 286    | µg/L  | 5    | 250             | <1.60  | 114  | 63.9 - 152    | 1   | 20           |
| 2-Chloroethyl vinyl ether          |   | 1,2,3,4 | <2.40  | µg/L  | 5    | 250             | <2.40  | 0    | 0 - 120       | 0   | 20           |
| cis-1,3-Dichloropropene            |   | 1,2,3,4 | 270    | µg/L  | 5    | 250             | <1.05  | 108  | 32.6 - 160    | 3   | 20           |
| trans-1,3-Dichloropropene          |   | 1,2,3,4 | 269    | µg/L  | 5    | 250             | <1.55  | 108  | 31.4 - 163    | 3   | 20           |
| Toluene                            |   | 1,2,3,4 | 269    | µg/L  | 5    | 250             | <1.75  | 108  | 40.7 - 160    | 3   | 20           |
| 1,1,2-Trichloroethane              |   | 1,2,3,4 | 215    | µg/L  | 5    | 250             | <1.95  | 86   | 66 - 130      | 1   | 20           |
| 1,3-Dichloropropane                |   | 1,2,3,4 | 221    | µg/L  | 5    | 250             | <1.55  | 88   | 66.2 - 131    | 2   | 20           |
| Dibromochloromethane               |   | 1,3,4   | 227    | µg/L  | 5    | 250             | <1.85  | 91   | 58.8 - 143    | 2   | 20           |
| 1,2-Dibromoethane (EDB)            |   | 1,2,3,4 | 209    | µg/L  | 5    | 250             | <1.55  | 84   | 66.8 - 132    | 3   | 20           |
| Tetrachloroethene (PCE)            |   | 1,2,3,4 | 232    | µg/L  | 5    | 250             | <0.950 | 93   | 28.8 - 126    | 2   | 20           |
| Chlorobenzene                      |   | 1,2,3,4 | 225    | µg/L  | 5    | 250             | <1.45  | 90   | 61.6 - 134    | 3   | 20           |
| 1,1,1,2-Tetrachloroethane          |   | 1,2,3,4 | 242    | µg/L  | 5    | 250             | <1.50  | 97   | 63.1 - 139    | 2   | 20           |
| Ethylbenzene                       |   | 1,2,3,4 | 244    | µg/L  | 5    | 250             | <1.30  | 98   | 43 - 148      | 2   | 20           |
| m,p-Xylene                         |   | 1,2,3,4 | 495    | µg/L  | 5    | 500             | <2.40  | 99   | 21.5 - 165    | 2   | 20           |
| Bromoform                          |   | 1,2,3,4 | 214    | µg/L  | 5    | 250             | <2.40  | 86   | 49 - 144      | 3   | 20           |
| Styrene                            |   | 1,2,3,4 | 230    | µg/L  | 5    | 250             | <1.25  | 92   | 10 - 192      | 2   | 20           |
| o-Xylene                           |   | 1,2,3,4 | 244    | µg/L  | 5    | 250             | <1.30  | 98   | 28.4 - 160    | 3   | 20           |
| 1,1,2,2-Tetrachloroethane          |   | 1,2,3,4 | 198    | µg/L  | 5    | 250             | <2.80  | 79   | 65.3 - 133    | 2   | 20           |
| 2-Chlorotoluene                    |   | 1,2,3,4 | 236    | µg/L  | 5    | 250             | <1.25  | 94   | 56 - 134      | 2   | 20           |
| 1,2,3-Trichloropropane             |   | 1,2,3,4 | 206    | µg/L  | 5    | 250             | <2.25  | 82   | 62.8 - 126    | 1   | 20           |
| Isopropylbenzene                   |   | 1,2,3,4 | 240    | µg/L  | 5    | 250             | <1.30  | 96   | 31.4 - 156    | 1   | 20           |
| Bromobenzene                       |   | 1,2,3,4 | 219    | µg/L  | 5    | 250             | <1.40  | 88   | 57.8 - 128    | 2   | 20           |
| n-Propylbenzene                    |   | 1,2,3,4 | 238    | µg/L  | 5    | 250             | <1.20  | 95   | 30.5 - 154    | 3   | 20           |
| 1,3,5-Trimethylbenzene             |   | 1,2,3,4 | 237    | µg/L  | 5    | 250             | <1.30  | 95   | 10 - 183      | 2   | 20           |

*continued . . .*

matrix spikes continued ...

| Param                       | F | C       | MSD<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|-----------------------------|---|---------|---------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| tert-Butylbenzene           |   | 1,2,3,4 | 233           | µg/L  | 5    | 250             | <1.35            | 93   | 42.8 - 148    | 2   | 20           |
| 1,2,4-Trimethylbenzene      |   | 1,2,3,4 | 239           | µg/L  | 5    | 250             | <1.35            | 96   | 10 - 179      | 2   | 20           |
| 1,4-Dichlorobenzene (para)  |   | 1,2,3,4 | 210           | µg/L  | 5    | 250             | <1.55            | 84   | 66 - 123      | 1   | 20           |
| sec-Butylbenzene            |   | 1,2,3,4 | 235           | µg/L  | 5    | 250             | <1.00            | 94   | 30.8 - 155    | 0   | 20           |
| 1,3-Dichlorobenzene (meta)  |   | 1,2,3,4 | 218           | µg/L  | 5    | 250             | <1.40            | 87   | 66 - 124      | 2   | 20           |
| p-Isopropyltoluene          |   | 1,2,3   | 225           | µg/L  | 5    | 250             | <1.00            | 90   | 20.9 - 164    | 1   | 20           |
| 4-Chlorotoluene             |   | 1,2,3,4 | 236           | µg/L  | 5    | 250             | <1.45            | 94   | 54.8 - 136    | 1   | 20           |
| 1,2-Dichlorobenzene (ortho) |   | 1,2,3,4 | 211           | µg/L  | 5    | 250             | <1.25            | 84   | 65.9 - 124    | 1   | 20           |
| n-Butylbenzene              |   | 1,2,3,4 | 234           | µg/L  | 5    | 250             | <0.850           | 94   | 31.3 - 153    | 2   | 20           |
| 1,2-Dibromo-3-chloropropane |   | 1,3     | 216           | µg/L  | 5    | 250             | <8.50            | 86   | 49.3 - 138    | 1   | 20           |
| 1,2,3-Trichlorobenzene      |   | 1,2,3,4 | 233           | µg/L  | 5    | 250             | <2.00            | 93   | 37.5 - 146    | 8   | 20           |
| 1,2,4-Trichlorobenzene      |   | 1,2,3,4 | 229           | µg/L  | 5    | 250             | <10.6            | 92   | 55.3 - 132    | 4   | 20           |
| Naphthalene                 |   | 1,2,3,4 | 204           | µg/L  | 5    | 250             | <11.2            | 82   | 10 - 169      | 10  | 20           |
| Hexachlorobutadiene         |   | 1,2,3,4 | 265           | µg/L  | 5    | 250             | <3.80            | 106  | 47.4 - 146    | 7   | 20           |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate                    | MS<br>Result | MSD<br>Result | Units | Dil. | Spike<br>Amount | MS<br>Rec. | MSD<br>Rec. | Rec.<br>Limit |
|------------------------------|--------------|---------------|-------|------|-----------------|------------|-------------|---------------|
| Dibromofluoromethane         | 277          | 274           | µg/L  | 5    | 250             | 111        | 110         | 70 - 130      |
| Toluene-d8                   | 235          | 235           | µg/L  | 5    | 250             | 94         | 94          | 70 - 130      |
| 4-Bromofluorobenzene (4-BFB) | 274          | 274           | µg/L  | 5    | 250             | 110        | 110         | 70 - 130      |

**Matrix Spike (xMS-1)** Spiked Sample: 425047

QC Batch: 131700  
 Prep Batch: 111608

Date Analyzed: 2016-07-26  
 QC Preparation: 2016-07-25

Analyzed By: HJ  
 Prepared By: HJ

| Param | F | C     | MS<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit |
|-------|---|-------|--------------|-------|------|-----------------|------------------|------|---------------|
| DRO   |   | 1,2,3 | 42.8         | mg/L  | 1    | 50.0            | <0.890           | 86   | 70 - 130      |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Param | F | C     | MSD<br>Result | Units | Dil. | Spike<br>Amount | Matrix<br>Result | Rec. | Rec.<br>Limit | RPD | RPD<br>Limit |
|-------|---|-------|---------------|-------|------|-----------------|------------------|------|---------------|-----|--------------|
| DRO   |   | 1,2,3 | 40.9          | mg/L  | 1    | 50.0            | <0.890           | 82   | 70 - 130      | 4   | 20           |

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

| Surrogate   | MS<br>Result | MSD<br>Result | Units | Dil. | Spike<br>Amount | MS<br>Rec. | MSD<br>Rec. | Rec.<br>Limit |
|-------------|--------------|---------------|-------|------|-----------------|------------|-------------|---------------|
| n-Tricosane | 2.72         | 2.62          | mg/L  | 1    | 2.5             | 109        | 105         | 70 - 130      |

## Calibration Standards

### Standard (CCV-1)

QC Batch: 131673

Date Analyzed: 2016-07-25

Analyzed By: CF

| Param | Flag | Cert    | Units | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|-------|------|---------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| pH    |      | 1,2,3,4 | s.u.  | 7.00                  | 7.01                   | 100                         | 98.6 - 101.4                  | 2016-07-25       |

### Standard (CCV-1)

QC Batch: 131681

Date Analyzed: 2016-07-25

Analyzed By: MT

| Param | Flag | Cert  | Units | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|-------|------|-------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| GRO   |      | 1,2,3 | mg/L  | 1.00                  | 1.06                   | 106                         | 80 - 120                      | 2016-07-25       |

### Standard (CCV-2)

QC Batch: 131681

Date Analyzed: 2016-07-25

Analyzed By: MT

| Param | Flag | Cert  | Units | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|-------|------|-------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| GRO   |      | 1,2,3 | mg/L  | 1.00                  | 1.14                   | 114                         | 80 - 120                      | 2016-07-25       |

### Standard (ICV-1)

QC Batch: 131694

Date Analyzed: 2016-07-25

Analyzed By: CF

| Param    | Flag | Cert    | Units | ICVs<br>True<br>Conc. | ICVs<br>Found<br>Conc. | ICVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|----------|------|---------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| Chloride |      | 1,2,3,4 | mg/L  | 25.0                  | 25.4                   | 102                         | 90 - 110                      | 2016-07-25       |

**Standard (CCV-1)**

QC Batch: 131694

Date Analyzed: 2016-07-25

Analyzed By: CF

| Param    | Flag | Cert    | Units | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|----------|------|---------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| Chloride |      | 1,2,3,4 | mg/L  | 25.0                  | 24.4                   | 98                          | 90 - 110                      | 2016-07-25       |

**Standard (CCV-1)**

QC Batch: 131696

Date Analyzed: 2016-07-25

Analyzed By: KB

| Param                           | Flag | Cert    | Units   | CCVs          | CCVs           | CCVs                | Percent            | Date       |
|---------------------------------|------|---------|---------|---------------|----------------|---------------------|--------------------|------------|
|                                 |      |         |         | True<br>Conc. | Found<br>Conc. | Percent<br>Recovery | Recovery<br>Limits |            |
| Bromochloromethane              |      | 1,2,3,4 | µg/L    | 50.0          | 46.4           | 93                  | 80 - 120           | 2016-07-25 |
| Dichlorodifluoromethane         |      | 1,2,3,4 | µg/L    | 50.0          | 45.9           | 92                  | 80 - 120           | 2016-07-25 |
| Chloromethane (methyl chloride) |      | 1,2,3,4 | µg/L    | 50.0          | 50.5           | 101                 | 80 - 120           | 2016-07-25 |
| Vinyl Chloride                  |      | 1,2,3,4 | µg/L    | 50.0          | 55.4           | 111                 | 80 - 120           | 2016-07-25 |
| Bromomethane (methyl bromide)   |      | 1,2,3,4 | µg/L    | 50.0          | 59.3           | 119                 | 80 - 120           | 2016-07-25 |
| Chloroethane                    | Qc   | Qc      | 1,2,3,4 | µg/L          | 50.0           | 62.7                | 125                | 2016-07-25 |
| Trichlorofluoromethane          |      | 1,2,3,4 | µg/L    | 50.0          | 58.2           | 116                 | 80 - 120           | 2016-07-25 |
| Acetone                         |      | 1,2,3,4 | µg/L    | 50.0          | 41.1           | 82                  | 80 - 120           | 2016-07-25 |
| Iodomethane (methyl iodide)     |      | 1,2,3,4 | µg/L    | 50.0          | 48.8           | 98                  | 80 - 120           | 2016-07-25 |
| Carbon Disulfide                |      | 1,2,3,4 | µg/L    | 50.0          | 48.9           | 98                  | 80 - 120           | 2016-07-25 |
| Acrylonitrile                   |      | 1,2,3,4 | µg/L    | 50.0          | 40.2           | 80                  | 80 - 120           | 2016-07-25 |
| 2-Butanone (MEK)                | Qc   | Qc      | 1,2,3,4 | µg/L          | 50.0           | 33.3                | 67                 | 2016-07-25 |
| 4-Methyl-2-pentanone (MIBK)     | Qc   | Qc      | 1,2,3,4 | µg/L          | 50.0           | 36.0                | 72                 | 2016-07-25 |
| 2-Hexanone                      | Qc   | Qc      | 1,2,3,4 | µg/L          | 50.0           | 35.0                | 70                 | 2016-07-25 |
| trans 1,4-Dichloro-2-butene     | Qc   | Qc      | 1,2,3,4 | µg/L          | 50.0           | 29.8                | 60                 | 2016-07-25 |
| 1,1-Dichloroethene              |      | 1,2,3,4 | µg/L    | 50.0          | 48.7           | 97                  | 80 - 120           | 2016-07-25 |
| Methylene chloride              |      | 1,2,3,4 | µg/L    | 50.0          | 56.1           | 112                 | 80 - 120           | 2016-07-25 |
| MTBE                            |      | 1,2,3,4 | µg/L    | 50.0          | 46.7           | 93                  | 80 - 120           | 2016-07-25 |
| trans-1,2-Dichloroethene        |      | 1,2,3,4 | µg/L    | 50.0          | 50.3           | 101                 | 80 - 120           | 2016-07-25 |
| 1,1-Dichloroethane              |      | 1,2,3,4 | µg/L    | 50.0          | 52.0           | 104                 | 80 - 120           | 2016-07-25 |
| cis-1,2-Dichloroethene          |      | 1,2,3,4 | µg/L    | 50.0          | 51.2           | 102                 | 80 - 120           | 2016-07-25 |
| 2,2-Dichloropropane             |      | 1,2,3,4 | µg/L    | 50.0          | 56.9           | 114                 | 80 - 120           | 2016-07-25 |
| 1,2-Dichloroethane (EDC)        |      | 1,2,3,4 | µg/L    | 50.0          | 50.9           | 102                 | 80 - 120           | 2016-07-25 |
| Chloroform                      |      | 1,2,3,4 | µg/L    | 50.0          | 52.5           | 105                 | 80 - 120           | 2016-07-25 |
| 1,1,1-Trichloroethane           |      | 1,2,3,4 | µg/L    | 50.0          | 57.7           | 115                 | 80 - 120           | 2016-07-25 |
| 1,1-Dichloropropene             |      | 1,2,3,4 | µg/L    | 50.0          | 53.3           | 107                 | 80 - 120           | 2016-07-25 |
| Benzene                         |      | 1,2,3,4 | µg/L    | 50.0          | 51.0           | 102                 | 80 - 120           | 2016-07-25 |
| Carbon Tetrachloride            |      | 1,2,3,4 | µg/L    | 50.0          | 57.7           | 115                 | 80 - 120           | 2016-07-25 |
| 1,2-Dichloropropane             |      | 1,2,3,4 | µg/L    | 50.0          | 52.1           | 104                 | 80 - 120           | 2016-07-25 |

*continued ...*

standard continued ...

| Param                              | Flag | Cert    | Units   | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |            |
|------------------------------------|------|---------|---------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|------------|
| Trichloroethene (TCE)              |      | 1,2,3,4 | µg/L    | 50.0                  | 50.8                   | 102                         | 80 - 120                      | 2016-07-25       |            |
| Dibromomethane (methylene bromide) |      | 1,2,3,4 | µg/L    | 50.0                  | 47.3                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| Bromodichloromethane               |      | 1,2,3,4 | µg/L    | 50.0                  | 52.8                   | 106                         | 80 - 120                      | 2016-07-25       |            |
| 2-Chloroethyl vinyl ether          |      | 1,2,3,4 | µg/L    | 50.0                  | 45.6                   | 91                          | 80 - 120                      | 2016-07-25       |            |
| cis-1,3-Dichloropropene            |      | 1,2,3,4 | µg/L    | 50.0                  | 50.5                   | 101                         | 80 - 120                      | 2016-07-25       |            |
| trans-1,3-Dichloropropene          |      | 1,2,3,4 | µg/L    | 50.0                  | 47.8                   | 96                          | 80 - 120                      | 2016-07-25       |            |
| Toluene                            |      | 1,2,3,4 | µg/L    | 50.0                  | 51.6                   | 103                         | 80 - 120                      | 2016-07-25       |            |
| 1,1,2-Trichloroethane              |      | 1,2,3,4 | µg/L    | 50.0                  | 40.9                   | 82                          | 80 - 120                      | 2016-07-25       |            |
| 1,3-Dichloropropane                |      | 1,2,3,4 | µg/L    | 50.0                  | 41.4                   | 83                          | 80 - 120                      | 2016-07-25       |            |
| Dibromochloromethane               |      | 1,3,4   | µg/L    | 50.0                  | 41.2                   | 82                          | 80 - 120                      | 2016-07-25       |            |
| 1,2-Dibromoethane (EDB)            | Qc   | Qc      | 1,2,3,4 | µg/L                  | 50.0                   | 38.9                        | 78                            | 80 - 120         | 2016-07-25 |
| Tetrachloroethene (PCE)            |      | 1,2,3,4 | µg/L    | 50.0                  | 45.5                   | 91                          | 80 - 120                      | 2016-07-25       |            |
| Chlorobenzene                      |      | 1,2,3,4 | µg/L    | 50.0                  | 43.6                   | 87                          | 80 - 120                      | 2016-07-25       |            |
| 1,1,1,2-Tetrachloroethane          |      | 1,2,3,4 | µg/L    | 50.0                  | 46.9                   | 94                          | 80 - 120                      | 2016-07-25       |            |
| Ethylbenzene                       |      | 1,2,3,4 | µg/L    | 50.0                  | 47.4                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| m,p-Xylene                         |      | 1,2,3,4 | µg/L    | 100                   | 96.6                   | 97                          | 80 - 120                      | 2016-07-25       |            |
| Bromoform                          | Qc   | Qc      | 1,2,3,4 | µg/L                  | 50.0                   | 36.6                        | 73                            | 80 - 120         | 2016-07-25 |
| Styrene                            |      | 1,2,3,4 | µg/L    | 50.0                  | 45.0                   | 90                          | 80 - 120                      | 2016-07-25       |            |
| o-Xylene                           |      | 1,2,3,4 | µg/L    | 50.0                  | 47.5                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| 1,1,2,2-Tetrachloroethane          | Qc   | Qc      | 1,2,3,4 | µg/L                  | 50.0                   | 35.0                        | 70                            | 80 - 120         | 2016-07-25 |
| 2-Chlorotoluene                    |      | 1,2,3,4 | µg/L    | 50.0                  | 47.3                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| 1,2,3-Trichloropropane             |      | 1,2,3,4 | µg/L    | 50.0                  | 41.9                   | 84                          | 80 - 120                      | 2016-07-25       |            |
| Isopropylbenzene                   |      | 1,2,3,4 | µg/L    | 50.0                  | 47.9                   | 96                          | 80 - 120                      | 2016-07-25       |            |
| Bromobenzene                       |      | 1,2,3,4 | µg/L    | 50.0                  | 42.3                   | 85                          | 80 - 120                      | 2016-07-25       |            |
| n-Propylbenzene                    |      | 1,2,3,4 | µg/L    | 50.0                  | 48.8                   | 98                          | 80 - 120                      | 2016-07-25       |            |
| 1,3,5-Trimethylbenzene             |      | 1,2,3,4 | µg/L    | 50.0                  | 48.1                   | 96                          | 80 - 120                      | 2016-07-25       |            |
| tert-Butylbenzene                  |      | 1,2,3,4 | µg/L    | 50.0                  | 47.5                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| 1,2,4-Trimethylbenzene             |      | 1,2,3,4 | µg/L    | 50.0                  | 47.3                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| 1,4-Dichlorobenzene (para)         |      | 1,2,3,4 | µg/L    | 50.0                  | 41.5                   | 83                          | 80 - 120                      | 2016-07-25       |            |
| sec-Butylbenzene                   |      | 1,2,3,4 | µg/L    | 50.0                  | 47.8                   | 96                          | 80 - 120                      | 2016-07-25       |            |
| 1,3-Dichlorobenzene (meta)         |      | 1,2,3,4 | µg/L    | 50.0                  | 43.3                   | 87                          | 80 - 120                      | 2016-07-25       |            |
| p-Isopropyltoluene                 |      | 1,2,3   | µg/L    | 50.0                  | 46.1                   | 92                          | 80 - 120                      | 2016-07-25       |            |
| 4-Chlorotoluene                    |      | 1,2,3,4 | µg/L    | 50.0                  | 47.4                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| 1,2-Dichlorobenzene (ortho)        |      | 1,2,3,4 | µg/L    | 50.0                  | 41.2                   | 82                          | 80 - 120                      | 2016-07-25       |            |
| n-Butylbenzene                     |      | 1,2,3,4 | µg/L    | 50.0                  | 47.6                   | 95                          | 80 - 120                      | 2016-07-25       |            |
| 1,2-Dibromo-3-chloropropane        | Qc   | Qc      | 1,3     | µg/L                  | 50.0                   | 34.4                        | 69                            | 80 - 120         | 2016-07-25 |
| 1,2,3-Trichlorobenzene             | Qc   | Qc      | 1,2,3,4 | µg/L                  | 50.0                   | 36.7                        | 73                            | 80 - 120         | 2016-07-25 |
| 1,2,4-Trichlorobenzene             | Qc   | Qc      | 1,2,3,4 | µg/L                  | 50.0                   | 39.3                        | 79                            | 80 - 120         | 2016-07-25 |
| Naphthalene                        | Qc   | Qc      | 1,2,3,4 | µg/L                  | 50.0                   | 30.5                        | 61                            | 80 - 120         | 2016-07-25 |
| Hexachlorobutadiene                |      | 1,2,3,4 | µg/L    | 50.0                  | 51.7                   | 103                         | 80 - 120                      | 2016-07-25       |            |

Report Date: July 26, 2016  
Lovington Leak

Work Order: 16072501  
Lovington Leak

Page Number: 25 of 27

---

**Standard (CCV-1)**

QC Batch: 131700

Date Analyzed: 2016-07-26

Analyzed By: HJ

| Param | Flag | Cert  | Units | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|-------|------|-------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| DRO   |      | 1,2,3 | mg/L  | 500                   | 551                    | 110                         | 80 - 120                      | 2016-07-26       |

**Standard (CCV-2)**

QC Batch: 131700

Date Analyzed: 2016-07-26

Analyzed By: HJ

| Param | Flag | Cert  | Units | CCVs<br>True<br>Conc. | CCVs<br>Found<br>Conc. | CCVs<br>Percent<br>Recovery | Percent<br>Recovery<br>Limits | Date<br>Analyzed |
|-------|------|-------|-------|-----------------------|------------------------|-----------------------------|-------------------------------|------------------|
| DRO   |      | 1,2,3 | mg/L  | 500                   | 518                    | 104                         | 80 - 120                      | 2016-07-26       |

## Appendix

### Report Definitions

| Name | Definition                 |
|------|----------------------------|
| MDL  | Method Detection Limit     |
| MQL  | Minimum Quantitation Limit |
| SDL  | Sample Detection Limit     |

### Laboratory Certifications

| C | Certifying Authority | Certification Number | Laboratory Location |
|---|----------------------|----------------------|---------------------|
| - | NCTRCA               | WFWB384444Y0909      | TraceAnalysis       |
| - | DBE                  | VN 20657             | TraceAnalysis       |
| - | HUB                  | 1752439743100-86536  | TraceAnalysis       |
| - | WBE                  | 237019               | TraceAnalysis       |
| 1 | L-A-B                | L2418                | Lubbock             |
| 2 | Kansas               | Kansas E-10317       | Lubbock             |
| 3 | NELAP                | T104704219-16-12     | Lubbock             |
| 4 |                      | 2015-066             | Lubbock             |

### Standard Flags

| F   | Description                                                                                                                                                                                                                         |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B   | Analyte detected in the corresponding method blank above the method detection limit                                                                                                                                                 |
| H   | Analyzed out of hold time                                                                                                                                                                                                           |
| J   | Estimated concentration                                                                                                                                                                                                             |
| Jb  | The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL. |
| Je  | Estimated concentration exceeding calibration range.                                                                                                                                                                                |
| MI1 | Split peak or shoulder peak                                                                                                                                                                                                         |
| MI2 | Instrument software did not integrate                                                                                                                                                                                               |
| MI3 | Instrument software misidentified the peak                                                                                                                                                                                          |
| MI4 | Instrument software integrated improperly                                                                                                                                                                                           |
| MI5 | Baseline correction                                                                                                                                                                                                                 |
| Qc  | Calibration check outside of laboratory limits.                                                                                                                                                                                     |
| Qr  | RPD outside of laboratory limits                                                                                                                                                                                                    |
| Qs  | Spike recovery outside of laboratory limits.                                                                                                                                                                                        |
| Qsr | Surrogate recovery outside of laboratory limits.                                                                                                                                                                                    |
| U   | The analyte is not detected above the SDL                                                                                                                                                                                           |

## Result Comments

- 1 Sample dilution due to hydrocarbons.

## Attachments

The scanned attachments will follow this page.  
Please note, each attachment may consist of more than one page.

**Brandon & Clark**  
3403 Industrial Blvd.  
**Hobbs, NM 88240**  
Tel (575) 392-7561  
Fax (575) 392-4508

Peak Up

EPNG LINE 3031 HYDROTEST  
LEA COUNTY, NEW MEXICO

Rupture #3  
(7/28/2016)  
Lat: 33.132511  
Lon: -103.111687

Rupture #6  
(8/5/2016)  
Lat: 33.127563  
Lon: -103.115090

Rupture #5  
(8/4/2016)  
Lat: 33.097587  
Lon: -103.136577

Rupture #2  
(7/25/2016)  
Lat: 33.108137  
Lon: -103.128895

Rupture #4  
(8/2/2016)  
Lat: 33.097587  
Lon: -103.136577

Rupture #1  
(7/22/2016)  
Lat: 33.057840  
Lon: -103.164042

