April 5, 2017

Randy Bayliss
New Mexico Oil Conservation Division
1220 South Street Francis Drive
Santa Fe, New Mexico 87505

**RE: Online Submission of 2016 Annual Groundwater Report and Request for No Further Action Status**

Dear Mr. Randy Bayliss:

LT Environmental (LTE), Inc., on behalf of XTO Energy, Inc. (XTO), is electronically submitting the attached 2016 annual groundwater monitoring report covering the period from January 1, 2016, to December 31, 2016, for the Hare Gas Com F #1. Included in the report is a request for No Further Action.

If you have any questions regarding these reports please contact Ashley Ager with LTE at (970) 385-1096 or aager@ltenv.com or James McDaniel with XTO at (505) 333-3701 or James_McDaniel@xtoenergy.com.

Sincerely,

James McDaniel, CHMM #15676
XTO Energy Inc., a subsidiary of ExxonMobil
EH&S Supervisor

cc: Attachments (1)

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental, Inc.
848 East 2nd Avenue
Durango, Colorado 81301
T 970.385.1096 / F 303.433.1432

April 4, 2017

Mr. Randolph Bayliss
Environmental Bureau Chief
New Mexico Oil Conservation Division
1220 South Street Francis Drive
Santa Fe, New Mexico 87505

**RE: Groundwater Sampling Report and Request for No Further Action Status**
**Administrative/Environmental Order #3R-1036**
**XTO Energy, Inc.**
**Hare Gas Com F #1**
**Bloomfield, New Mexico**
**SWNE Section 23, Township 29N Range 11W**

Dear Mr. Bayliss:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), is providing this report to the New Mexico Oil Conservation Division (NMOCD) of groundwater sampling results for supplementary investigation and quarterly monitoring activities at the Hare Gas Com F #1, a former natural gas production well located in the southwest quarter of the northeast quarter of Section 23 in Township 29 North, Range 11 West of San Juan County, New Mexico (Figure 1). LTE installed and sampled five temporary monitoring wells according to the *Action Plan for Groundwater Investigation* dated February 22, 2016 and approved by the NMOCD. The purpose of the action plan was to obtain groundwater data downgradient of a former excavation following the removal of a below-grade tank. Groundwater sampling data collected during 2016 indicated little to no concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected in any groundwater samples. This, along with previously reported soil analytical data from subsurface boreholes and the excavation, are the basis for two requests to the NMOCD: 1) a variance to document New Mexico Water Quality Control Commission (NMWQCC) standards have been for eight consecutive quarters, and 2) final site closure.

## Background

XTO identified petroleum hydrocarbon impacted soil while removing the below-grade tank as part of production well plugging and abandonment operations in October 2014. As a result, XTO excavated approximately 3,870 cubic yards during two excavation events, but stopped once the excavation reached private property. A subsurface investigation indicated total petroleum hydrocarbon (TPH) concentrations in the vadose zone soil downgradient of the excavation exceeded the recommended remediation action levels specified in the NMOCD 1993 *Guidelines for Remediation of Leaks, Spills and Releases*. However, XTO requested to leave remaining impacted soil in place after demonstrating the impacted soil did not extend to the depth of groundwater downgradient of the excavation and that

groundwater samples from beneath the excavation were compliant with the NMWQCC standards for BTEX according to laboratory analysis by United States Environmental Protection (EPA) Method 8021.

As part of the consideration for risk-based closure, the NMOCD requested groundwater downgradient of the excavation be analyzed for volatile organic compounds (VOCs) by EPA Method 8260. XTO installed temporary monitoring well TMW-1 downgradient of the excavation and conducted multiple sampling events in January 2016. The laboratory analytical results indicated groundwater samples exceeded the NMWQCC standard for benzene as determined by EPA Method 8260. As such, the NMOCD requested XTO delineate potential downgradient and cross-gradient impacts to groundwater. LTE submitted the *Action Plan for Groundwater Investigation* on February 22, 2016, and subsequently installed temporary monitoring wells TMW-2 through TMW-5 on April 12, 2016 (Figure 2).

Temporary monitoring wells TMW-1 through TMW-5 were surveyed, developed, and sampled for VOCs per EPA Method 8260 as reported in a letter report by LTE dated May 9, 2016. Groundwater flow direction was determined to be south-southwest as depicted on Figure 2. The laboratory analytical results indicated temporary monitoring wells TMW-1 through TMW-5 exhibited concentrations of VOCs that were below the laboratory reporting limits for all analytes and in compliance with the NMWQCC standards for BTEX; therefore, XTO plugged and abandoned temporary monitoring wells TMW-2, TMW-3, and TMW-5 as approved in the *Action Plan for Groundwater Investigation*. Temporary monitoring well TMW-1 was left in place to confirm there were no impacts in the saturated zone downgradient of the former excavation via compliance with the NMWQCC standards during multiple sampling events. Temporary monitoring well TMW-4 was left in place to monitor potential downgradient groundwater migration.

**Groundwater Monitoring**

On July 28, 2016, temporary monitoring wells TMW-1 and TMW-4 were sampled and on October 20, 2016, and January 26, 2017, temporary monitoring well TMW-1 was sampled. Prior to collecting groundwater samples, the depth to groundwater and total depth of the temporary monitoring wells were measured and a minimum of three well casing volumes of groundwater was purged. As groundwater was removed, pH, electrical conductivity, and temperature were monitored. The temporary monitoring wells were purged until these parameters stabilized or until the wells were purged dry. Groundwater samples were collected by filling 40-milliliter (mL) glass vials capped with zero headspace to prevent degradation of the sample. Samples were labeled and immediately placed on ice. Samples were delivered via FedEX® Priority Overnight shipping to ESC for laboratory analysis of VOCs by EPA Method 8260. The groundwater monitoring field forms are included as Attachment 1.

## Results

No concentrations of VOCs were detected in temporary monitoring well TMW-4 during the July 2016 monitoring event and based on similar results from TMW-1, sampling was discontinued in downgradient temporary monitoring well TMW-4. Laboratory analytical results indicated temporary monitoring well TMW-1 exhibited no detectable concentrations of VOCs as analyzed by EPA Method 8260 during four consecutive quarterly monitoring events, except for 0.00267 milligrams per liter (mg/L) of benzene in July 2016. The laboratory analytical results are summarized in Table 1 for the four monitoring events, and the complete laboratory analytical reports are included as Attachment 2.

## No Further Action Request

Laboratory analytical results indicated no concentrations of BTEX or other VOCs were detected in temporary monitoring wells TMW-1 through TMW-5, except for a benzene concentration of 0.00267 milligrams per liter (mg/L) in July 2016 in temporary monitoring well TMW-1. It appears the initial detection of benzene in January 2016, and perhaps the smaller concentration detected in July 2106, was likely the result of contact with or dislodging of residual impact in vadose zone soil during installation of the monitoring well with a hand auger.

As documented by soil samples collected from the excavation sidewalls containing no concentrations of BTEX or TPH exceeding NMOCD standards, the majority of the source of impact was removed. Subsurface lithologic observations and soil sampling results from the excavation and downgradient boreholes indicated hydrocarbon impact was restricted to a clay occurring at approximately 7 feet to 11.5 feet below ground surface. Groundwater was observed in sand underlying the clay and sampling results and field observations suggested groundwater was not impacted. Analytical results of little or low (less than NMQWCC standards) BTEX concentrations in groundwater samples collected in and downgradient of the excavation supported the argument that the dense clay with minimal pore space restricted vertical migration of contaminants. Although groundwater sampled from temporary monitoring well TMW-1 contained elevated benzene concentrations immediately after well installation, subsequent monitoring with little to no benzene detections did not confirm that to be a stable condition. Impacted soil from the overlying vadose zone likely sloughed into the auger hole during boring advancement.

Therefore, LTE, on behalf of XTO, formally requests a variance from the NMOCD for the demonstration of eight consecutive quarterly sampling events documenting compliance of BTEX concentrations with NMWQCC standards in temporary monitoring well TMW-1. Four consecutive quarters of sampling has indicated BTEX concentrations are not present in downgradient groundwater except for a trace of benzene detected in TMW-1 in July of 2016. In addition to the sampling frequency variance, XTO requests the NMOCD assign a No Further Action status to Administrative/Environmental Order #3R-1036 and grant

permission to plug and abandon the remaining temporary monitoring wells TMW-1 and TMW-4.

If you have any questions or comments regarding this plan, please do not hesitate to contact me at (970) 385-1096 or via email at aager@ltenv.com.

Sincerely,

LT ENVIRONMENTAL, INC.

Michael A Wicker
Staff Geologist

Ashley L. Ager, M.S., P.G.
Senior Geologist

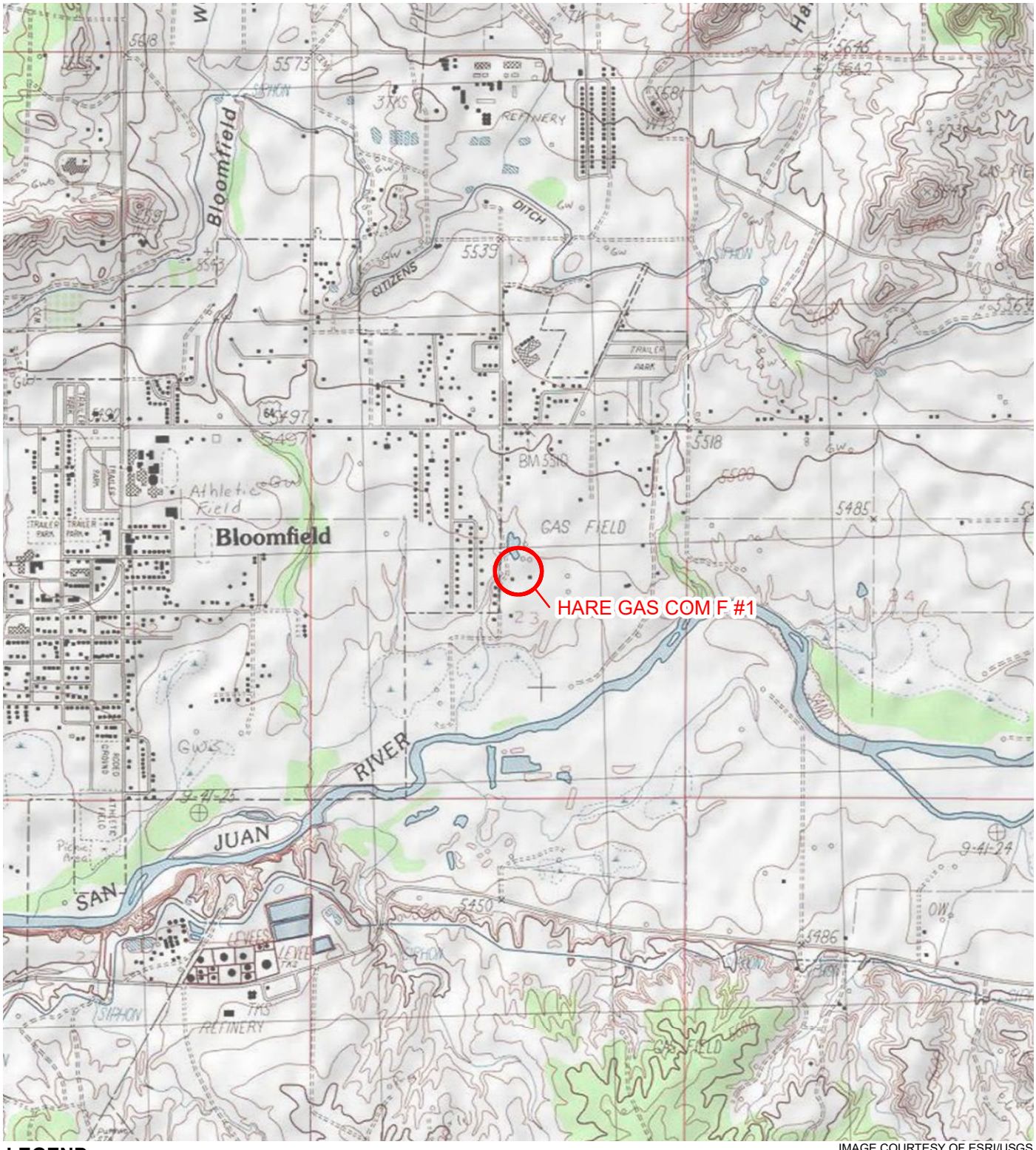
Attachments:

Figure 1 – Site Location Map
Figure 2 – Groundwater Potentiometric Surface Map

Table 1 – Groundwater Analytical Results

Attachment 1 – Groundwater Monitoring Field Forms
Attachment 2 – Laboratory Analytical Reports

**FIGURES**




**LEGEND**

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
HARE GAS COM F #1
SWNE SEC 23-T29N-R11W
SAN JUAN COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

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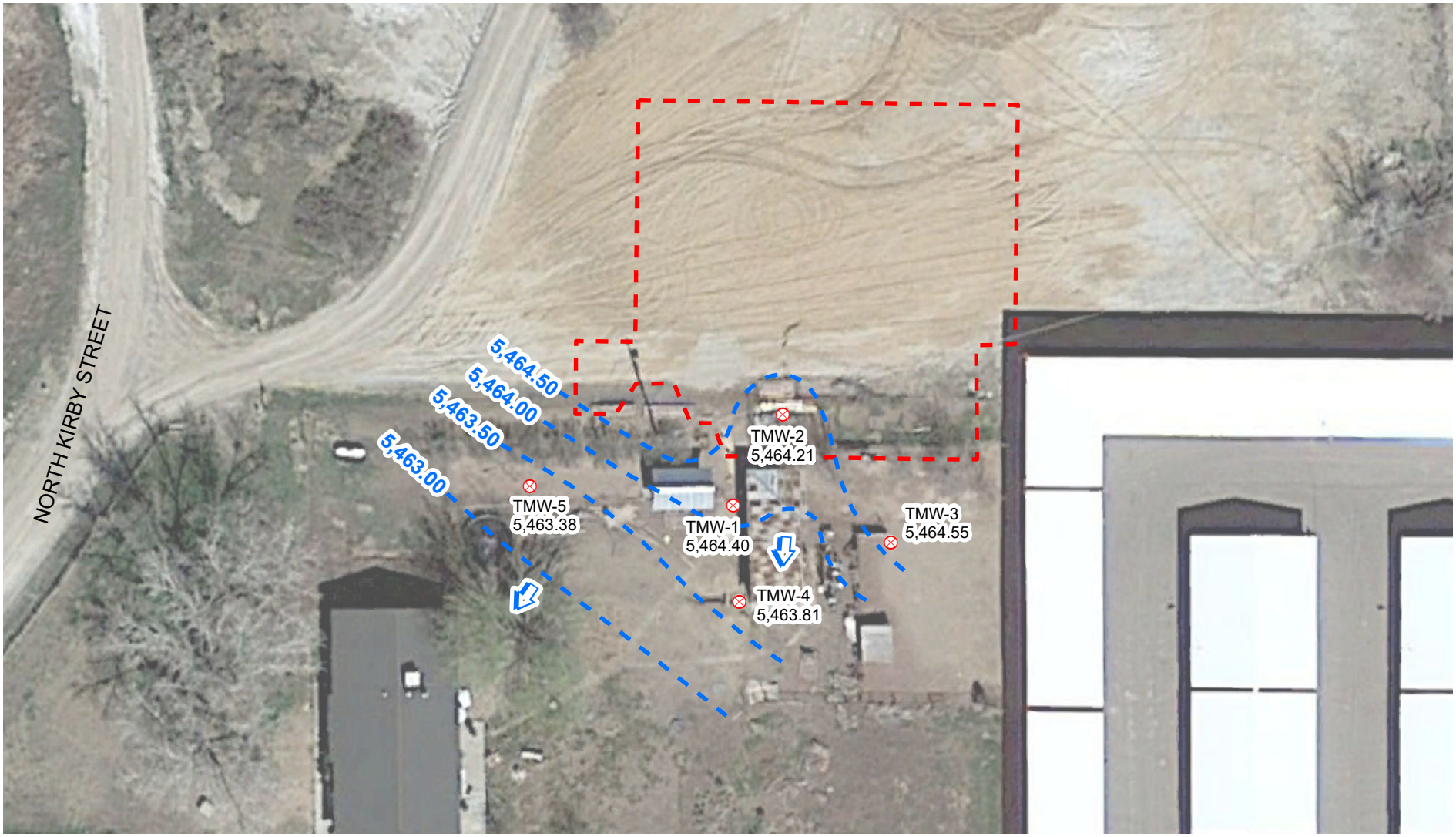


IMAGE COURTESY OF GOOGLE EARTH 2015

**LEGEND**

- ⊗ MONITORING WELL
- ⇧ ESTIMATED GROUNDWATER FLOW DIRECTION
- ESTIMATED GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 0.5 FEET
- EXCAVATION EXTENT

GROUNDWATER ELEVATIONS WERE MEASURED
IN FEET ABOVE MEAN SEA LEVEL ON APRIL 15, 2016.

0 40 80
Feet

N

FIGURE 2
GROUNDWATER POTENTIOMETRIC SURFACE MAP
HARE GAS COM F #1
SWNE SEC 23-T29N-R11W
SAN JUAN COUNTY, NEW MEXICO
**XTO ENERGY, INC.**

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**TABLES**

**TABLE 1**
**GROUNDWATER ANALYTICAL RESULTS**

**HARE GAS COM F #1**
**SAN JUAN COUNTY, NEW MEXICO**
**XTO ENERGY, INC.**

| Analyte | NMWQCC Standard | Unit | TMW-1 | TMW-1 | TMW-1 | TMW-1 | TMW-2 | TMW-3 | TMW-4 | TMW-4 | TMW-5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4/16/2016 | 7/28/2016 | 10/20/2016 | 1/26/2017 | 4/16/2016 | 4/16/2016 | 4/16/2016 | 7/28/2016 | 4/16/2016 |
| **EPA Method 8260B - Volatiles** | | | | | | | | | | | |
| benzene | 0.01 | mg/L | <0.00100 | 0.00267 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| toluene | 0.75 | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00100 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| ethylbenzene | 0.75 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| xylenes, total | 0.62 | mg/L | <0.00300 | <0.00300 | <0.00300 | <0.00300 | <0.00300 | <0.00300 | <0.00300 | <0.00300 | <0.00300 |
| methyl tert-butyl ether (MTBE) | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2,4-trimethylbenzene | 0.62 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2,3-trimethylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,3,5-trimethylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2-dichloroethane (EDC) | 0.01 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2-dibromoethane (EDB) | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| naphthalene | NE | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| acetone | NE | mg/L | <0.0500 | <0.00500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 |
| acrolein | NE | mg/L | <0.0500 | <0.00500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 |
| acrylonitrile | NE | mg/L | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 |
| bromobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| bromodichloromethane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| bromoform | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| bromomethane | NE | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| 2-butanone | NE | mg/L | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 |
| carbon tetrachloride | 0.01 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| chlorobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| chlorodibromomethane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| chloroethane | NE | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| 2-chloroethyl vinyl ether | NE | mg/L | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 | <0.0500 |
| chloroform | 0.10 | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| chloromethane | NE | mg/L | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 |
| 2-chlorotoluene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 4-chlorotoluene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| cis-1,2-Dichloroethene (DCE) | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| cis-1,3-dichloropropene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2-dibromo-3-chloropropane | NE | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| dibromomethane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2-dichlorobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,3-dichlorobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,4-dichlorobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| dichlorodifluoromethane | NE | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| 1,1-dichloroethane | 0.025 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,1-dichloroethene | 0.005 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2-dichloropropane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,3-dichloropropane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 2,2-dichloropropane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,1-dichloropropene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| di-isopropyl ether | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| hexachlorobutadiene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| isopropylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| p-isopropytoluene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 4-methyl-2-pentanone | NE | mg/L | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 | <0.0100 |
| methylene chloride | 0.10 | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| n-butylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| n-propylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| sec-butylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| styrene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| tert-butylbenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,1,1,2-tetrachloroethane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |

| Analyte | NMWQCC Standard | Unit | TMW-1 | TMW-1 | TMW-1 | TMW-1 | TMW-2 | TMW-3 | TMW-4 | TMW-4 | TMW-5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4/16/2016 | 7/28/2016 | 10/20/2016 | 1/26/2017 | 4/16/2016 | 4/16/2016 | 4/16/2016 | 7/28/2016 | 4/16/2016 |
| 1,1,2,2-tetrachloroethane | 0.01 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| tetrachloroethene (PCE) | 0.02 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| trans-1,2-Dichloroethene (DCE) | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| trans-1,3-dichloropropene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2,3-trichlorobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,2,4-trichlorobenzene | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,1,1-trichloroethane | 0.60 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,1,2-trichloroethane | 0.01 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| 1,1,2-trichlorotrifluoroethane | NE | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| trichloroethene (TCE) | 0.10 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |
| trichlorofluoromethane | NE | mg/L | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 | <0.00500 |
| 1,2,3-trichloropropane | NE | mg/L | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 | <0.00250 |
| vinyl chloride | 0.001 | mg/L | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 | <0.00100 |

**Notes:**

EPA - United States Environmental Protection Agency

mg/L - milligrams per liter

NE - not established

NMWQCC - New Mexico Water Quality Control Commission

**ATTACHMENT 1**

**GROUNDWATER MONITORING FIELD FORMS**

# Water Sample Collection Form

Sample Location: Hare GC F #1
Sample Date: 4-15-16
Sample Time: 1525
Sample ID: TMW-1
Analyses:
Matrix: GW
Turn Around Time:
Trip Blank:
Depth to Water: 9.46
Time: 1440
Vol. of H2O to purge: 2.4 gal
*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*
Method of Purging:
Method of Sampling:

Client: XTO
Project Name:
Project #:
Sampler: DH + SA
Laboratory:
Shipping Method:
Other QA/QC:
TD of Well: 14.40
Depth to Product:

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| 1440 | .25 | .25 | 7.41 | 10.7 | 3.93 | cloudy, orange hue HC odor |
| | .25 | .50 | 7.42 | 10.3 | 3.95 | " " |
| | .25 | .75 | 7.47 | 10.0 | 3.97 | " " |
| | .25 | 1.0 | 7.46 | 10.0 | 4.24 | " " more orange |
| | .25 | 1.25 | 7.49 | 10.0 | 4.08 | " " |
| | .25 | 1.50 | 7.55 | 10.1 | 3.90 | " " |
| | .25 | 1.75 | 7.66 | 10.3 | 3.74 | light orange cloudy |
| | .25 | 2.0 | 7.51 | 10.2 | 3.69 | clear |
| | .25 | 2.25 | 7.55 | 10.2 | 3.73 | clear |
| 1520 | .25 | 2.50 | 7.56 | 10.3 | 3.66 | clear |
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**Comments:**

**Describe Deviations from SOP:**

**Signature:** **Date:**

# Water Sample Collection Form

Sample Location: Hve 6c F#1
Sample Date: 4-15-16
Sample Time: 1108
Sample ID: TMW-2
Analyses:
Matrix: GW
Turn Around Time:
Trip Blank:
Depth to Water: 10.74
Time: 12:05 → time sampled

Client: XTO
Project Name:
Project #:
Sampler:
Laboratory:
Shipping Method:
Other QA/QC:
TD of Well: 13.74
Depth to Product:

Vol. of H2O to purge: *(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*

Method of Purging:
Method of Sampling:

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| 1110 | .25 | .25 | 7.14 | 12.1 | 4.56 | Brown cloudy/Turbid |
| | .25 | .5 | 7.16 | 10.4 | 4.39 | Brown cloudy/Turbid |
| | .25 | .75 | 7.36 | 10.4 | 4.21 | " " |
| | .25 | 1.0 | 7.36 | 10.3 | 3.94 | " " |
| | .25 | 1.25 | 7.35 | 10.3 | 3.63 | " " |
| | .25 | 1.50 | 7.43 | 10.3 | 3.83 | light brown cloudy |
| | .25 | 1.75 | 7.42 | 10.2 | 3.90 | light brown cloudy |
| | .25 | 2.0 | 7.47 | 10.4 | 3.71 | " " |
| | .25 | 2.25 | 7.48 | 11.0 | 3.72 | " " |
| | .25 | 2.50 | 7.44 | 10.8 | 3.72 | light brown cloudy HC odor |
| | .25 | 2.75 | 7.42 | 11.5 | 3.61 | light brown cloudy HC odor |
| | .25 | 3.0 | 7.41 | 11.7 | 3.65 | " " |
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**Comments:**

**Describe Deviations from SOP:**

**Signature:** **Date:**

# Water Sample Collection Form

Sample Location: Hare GC F#1
Sample Date: 4-15-16
Sample Time: 1230
Sample ID: TMW-3
Analyses:
Matrix: GW
Turn Around Time:
Trip Blank:
Depth to Water: 9.74
Time: 1300 time sampled
Vol. of H2O to purge: 2.0 gal
*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*
Method of Purging:
Method of Sampling:

Client: XTO
Project Name:
Project #:
Sampler:
Laboratory:
Shipping Method:
Other QA/QC:
TD of Well: 13.84
Depth to Product:

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| 1230 | .25 | .25 | 7.30 | 12.3 | 2.46 | light brown, slightly cloudy |
| | .25 | .50 | 7.45 | 11.4 | 2.44 | " " |
| | .25 | .75 | 7.52 | 11.1 | 2.45 | " " |
| | .25 | 1.0 | 7.59 | 10.9 | 2.45 | " " |
| | .25 | 1.25 | 7.54 | 10.9 | 2.46 | " " |
| | .25 | 1.50 | 7.53 | 10.8 | 2.46 | " " |
| | .25 | 1.75 | 7.52 | 10A | 2.46 | " " |
| | .25 | 2.0 | 7.57 | 10.9 | 2.47 | " " |
| | 1.0 | 3.0 | - | - | - | mostly clear, slight turbitit |
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**Comments:**

**Describe Deviations from SOP:**

**Signature:** **Date:**

# Water Sample Collection Form

Sample Location: Hare GC F#1
Sample Date: 4-15-16
Sample Time: 1315
Sample ID: TMW-4
Analyses:
Matrix: GW
Turn Around Time:
Trip Blank:
Depth to Water: 9.63
Time: 1417 time sampled
Vol. of H2O to purge: 2.8 gal
*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*
Method of Purging:
Method of Sampling:

Client: XTO
Project Name:
Project #:
Sampler:
Laboratory:
Shipping Method:
Other QA/QC:
TD of Well: 15.40
Depth to Product:

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| ~~1315~~ | ~~.25~~ | ~~.25~~ | | | | |
| 1315 | .50 | .50 | 7.25 | 12.6 | 2.60 | mostly clear, slight brown tint |
| | .25 | .75 | 7.45 | 12.1 | 2.60 | " " |
| | .25 | 1.0 | 7.50 | 12.0 | 2.59 | " " |
| | .25 | 1.25 | 7.60 | 12.0 | 2.58 | " " |
| | .25 | 1.50 | 7.71 | 12.0 | 2.59 | " " |
| | .25 | 1.75 | 7.70 | 11.7 | 2.58 | clear |
| 1401 | .5 | 2.25 | 7.43 | 13.1 | 2.88 | clear |
| | .25 | 2.50 | 7.49 | 12.3 | 2.57 | clear |
| | .25 | 2.75 | 7.55 | 12.3 | 2.56 | clear |
| 1415 | .25 | 3.0 | 7.64 | 11.9 | 2.54 | clear |
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**Comments:** bailed dry @ 2.0 gal, will return to bail more after recharge

**Describe Deviations from SOP:**

**Signature:** **Date:**

## Water Sample Collection Form

Sample Location: Hare GC F#1
Sample Date: 4-15-2016
Sample Time: 1500
Sample ID: JMW-5
Analyses:
Matrix: GW
Turn Around Time:
Trip Blank:
Depth to Water: 9.10
Time: 1345
Vol. of H2O to purge: 3.1
*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*
Method of Purging:
Method of Sampling:

Client: XTO
Project Name:
Project #:
Sampler: JA
Laboratory:
Shipping Method:
Other QA/QC:
TD of Well: 15.40
Depth to Product:

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (µs or ms) | Comments |
|---|---|---|---|---|---|---|
| 1345 | .25 | .25 | 7.28 | 12.7 | 1850us | mostly clear, slight tint |
| | .25 | .50 | 7.37 | 11.9 | 3.63ms | " " |
| | .25 | .75 | 7.38 | 11.4 | 3.74 | " " |
| | .25 | 1.0 | 7.36 | 11.6 | 3.67 | " " |
| | .25 | 1.25 | 7.42 | 11.7 | 3.66 | " " |
| | .25 | 1.50 | 7.48 | 12.0 | 3.63 | light brown, cloudy " |
| 1409 | .25 | 1.75 | 7.53 | 11.7 | 3.52 | " " |
| 1410 | .25 | 2.0 | 7.57 | 11.7 | 3.55 | " " |
| 1430 | .25 | 2.25 | 7.54 | 11.4 | 3.50 | mostly clear, slight turbide |
| | .25 | 2.50 | 7.55 | 11.3 | 3.51 | " " |
| 1458 | .50 | 3.0 | ~~7.62~~ 7.58 | 11.6 | 3.45 | clear |
| | .25 | 3.25 | 7.53 | 11.5 | 3.48 | clear |
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**Comments:** bailed dry @ 1.50 gal, will return after recharge

**Describe Deviations from SOP:**

**Signature:** **Date:**

# Water Sample Collection Form

Sample Location: Hare GC F#1
Sample Date: 7-28-16
Sample Time: 1325
Sample ID: tMW-1
Analyses: 8260 VOC
Matrix: GW
Turn Around Time: Standard
Trip Blank: NO
Depth to Water: 11.65
Time: 12:50
Vol. of H2O to purge: 2.55 x .1631 x 3 = (1.25 gallons)
(height of water column * 0.1631 for 2" well or ~~0.6524 for 4" well~~) * 3 well vols
Method of Purging: PVC bailer
Method of Sampling: bailer

Client: XTO
Project Name:
Project #:
Sampler: Josh Adams
Laboratory: ESC
Shipping Method: Fedex Ground
Other QA/QC: N/A
TD of Well: 14.40
Depth to Product: N/A

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ~~ms~~) | Comments |
|---|---|---|---|---|---|---|
| 1250 | .25 | .25 | 7.37 | 16.1 | 3.43 | clear |
| 1255 | .25 | .50 | 7.12 | 18.7 | 3.34 | light brown, cloudy, bailing dry |
| 1257 | .25 | .75 | 7.10 | 17.8 | 3.24 | " " bailed dry |

Comments: bailed dry @ .75 gallons, waiting for recharge to sample ~~1/2~~ sampled @ .75 due to draw down
1325 - sample collected, 1/2 bailer recovered

Describe Deviations from SOP:

Signature: Date:

# Water Sample Collection Form

Sample Location: Hare GC F#1
Sample Date: 7-28-16
Sample Time: 1310
Sample ID: TMW-4
Analyses: 8260 VOC
Matrix: GW
Turn Around Time: Standard
Trip Blank: no
Depth to Water: 12.02
Time: 12.310
Vol. of H2O to purge: 3.38 x .1631 x 3 = 1.65 gallons
*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*
Method of Purging: PVC bailer
Method of Sampling: bailer

Client: XTO
Project Name:
Project #:
Sampler: Josh Adams
Laboratory: ESC
Shipping Method: Fedex Ground
Other QA/QC: NA
TD of Well: 13.40
Depth to Product: NA

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| 1230 | .25 | .25 | 7.11 | 22.2 | 2.86 | clear |
| 1235 | .25 | .50 | 7.09 | 21.3 | 2.74 | clear, bailing dry |
| 1240 | .25 | .75 | 7.10 | 21.4 | 2.75 | clear, dry, |
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**Comments:** bailed dry @ .75 gallons, waiting for recharge to sample
~1310 - sample collected, 1/2 of bailer recovered

**Describe Deviations from SOP:**

**Signature:** **Date:**

# Water Sample Collection Form

| | | | |
|---|---|---|---|
| Sample Location | ~~GBR~~ Hare GC | Client | ~~Western Refining~~ XTO |
| Sample Date | ~~10/18/2016~~ 10/20/16 | Project Name | ~~Giant Former Refinery~~ Hare GC |
| Sample Time | 0930 | Project # | ~~029515005~~ |
| Sample ID | TMW-1 | Sampler | ~~Michael A Wicker~~ Alex Crook |
| Analyses | ~~BTEX, TPH-GRO/DRO, Chloride~~ 8260B | | |
| Matrix | Groundwater | Laboratory | ~~Hall Environmental~~ ESC |
| Turn Around Time | Standard | Shipping Method | ~~Hand delivery~~ FedEx |
| Depth to Water | 12.20 | TD of Well | 14.40 |
| Time | 0845 | Depth to Product | ~~NA~~ |

Vol. of H2O to purge: 12.20 - 14.40 = 2.20 x .1631 = .35 x 3 = 1.08

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*

Method of Purging: PVC Bailer

Method of Sampling: PVC Bailer

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) F° | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| 855 | .15 | .15 | 6.68 | 59.2 | 1.51 | Yellow/cloudy/No odor |
| 857 | .20 | .35 | 6.68 | 60.4 | 3.16 | Yellow brown/cloudy/ |
| 859 | .10 | .45 | 6.71 | 59.9 | 3.10 | Sediment |
| 901 | .05 | .50 | 6.72 | 59.5 | 3.12 | NO Change/Bailed dow |
| 930 | | | | | | Toole Sample |

**Comments:**

**Describe Deviations from SOP:** Insufficient Water - Toole Grab Sample

**Signature:** Alex Crook **Date:** 10/21/16

18 Oct 16

# Water Sample Collection Form

| | | | |
|---|---|---|---|
| Sample Location | Hare GC F#1 | Client | XTO |
| Sample Date | 1-26-2017 | Project Name | Hare GC F#1 |
| Sample Time | 1315 | Project # | 012714018 |
| Sample ID | FARSA-012617 | Sampler | Josh Adams |
| Analyses | 8260B | | |
| Matrix | GW | Laboratory | ESC |
| Turn Around Time | Standard | Shipping Method | Fedex |
| Trip Blank | ~~Yes~~ NA | Other QA/QC | |
| Depth to Water | 10.70 | TD of Well | 14.42 |
| Time | 1235 | Depth to Product | N/A |
| Vol. of H2O to purge | 1.8 gallons | | |

*(height of water column * 0.1631 for 2" well or 0.6524 for 4" well) * 3 well vols*

Method of Purging: PVC bailer

Method of Sampling: PVC bailer

| Time | Vol. Removed (gal.) | Total Vol H2O removed (gal.) | pH (std. units) | Temp. (C) | Conductivity (us or ms) | Comments |
|---|---|---|---|---|---|---|
| 1254 | 0.25 | 0.25 | 6.53 | 12.2 | 3.36 | Orange + turbid |
| 1257 | 0.25 | 0.50 | 6.69 | 12.4 | 3.38 | Orange + turbid |
| 1300 | 0.25 | 0.75 | 6.70 | 12.3 | 3.38 | Orange + turbid |
| 1304 | 0.25 | 1.00 | 6.77 | 11.8 | 3.38 | light brown/gray + Turbid |
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**Comments:**

**Describe Deviations from SOP:** Sampled after 1.0 gallons purged due to draw down, well bailed dry, waiting for recharged @ 1315

**Signature:** John Adams **Date:** 1-26-17

LTE

**ATTACHMENT 2**

**LABORATORY ANALYTICAL REPORTS**

# ANALYTICAL REPORT

April 21, 2016

## XTO Energy - San Juan Division

| | |
|---|---|
| Sample Delivery Group: | L830055 |
| Samples Received: | 04/16/2016 |
| Project Number: | |
| Description: | |
| Site: | HARE GC F#1 |
| Report To: | James McDaniel<br>382 County Road 3100<br>Aztec, NM 87410 |

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative



## TMW-1 L830055-01 GW

Collected by: Devin Hencmann
Collected date/time: 04/15/16 15:25
Received date/time: 04/16/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG865506 | 1 | 04/21/16 06:10 | 04/21/16 06:10 | BMB |

## TMW-2 L830055-02 GW

Collected by: Devin Hencmann
Collected date/time: 04/15/16 12:05
Received date/time: 04/16/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG865506 | 1 | 04/21/16 06:33 | 04/21/16 06:33 | BMB |

## TMW-3 L830055-03 GW

Collected by: Devin Hencmann
Collected date/time: 04/15/16 13:00
Received date/time: 04/16/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG865506 | 1 | 04/21/16 06:56 | 04/21/16 06:56 | BMB |

## TMW-4 L830055-04 GW

Collected by: Devin Hencmann
Collected date/time: 04/15/16 14:17
Received date/time: 04/16/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG865506 | 1 | 04/21/16 07:18 | 04/21/16 07:18 | BMB |

## TMW-5 L830055-05 GW

Collected by: Devin Hencmann
Collected date/time: 04/15/16 15:00
Received date/time: 04/16/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG865506 | 1 | 04/21/16 07:42 | 04/21/16 07:42 | BMB |

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 04/21/2016 06:10 | WG865506 |
| Acrolein | ND | | 0.0500 | 1 | 04/21/2016 06:10 | WG865506 |
| Acrylonitrile | ND | | 0.0100 | 1 | 04/21/2016 06:10 | WG865506 |
| Benzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Bromobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Bromoform | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Bromomethane | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Chlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Chloroethane | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| 2-Chloroethyl vinyl ether | ND | J4 | 0.0500 | 1 | 04/21/2016 06:10 | WG865506 |
| Chloroform | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| Chloromethane | ND | | 0.00250 | 1 | 04/21/2016 06:10 | WG865506 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Dibromomethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Ethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 04/21/2016 06:10 | WG865506 |
| Methylene Chloride | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 04/21/2016 06:10 | WG865506 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Naphthalene | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Styrene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Toluene | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Trichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Vinyl chloride | ND | | 0.00100 | 1 | 04/21/2016 06:10 | WG865506 |
| Xylenes, Total | ND | | 0.00300 | 1 | 04/21/2016 06:10 | WG865506 |
| *(S) Toluene-d8* | *103* | | *90.0-115* | | *04/21/2016 06:10* | WG865506 |
| *(S) Dibromofluoromethane* | *90.9* | | *79.0-121* | | *04/21/2016 06:10* | WG865506 |
| *(S) 4-Bromofluorobenzene* | *100* | | *80.1-120* | | *04/21/2016 06:10* | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 04/21/2016 06:33 | WG865506 |
| Acrolein | ND | | 0.0500 | 1 | 04/21/2016 06:33 | WG865506 |
| Acrylonitrile | ND | | 0.0100 | 1 | 04/21/2016 06:33 | WG865506 |
| Benzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Bromobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Bromoform | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Bromomethane | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Chlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Chloroethane | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| 2-Chloroethyl vinyl ether | ND | J4 | 0.0500 | 1 | 04/21/2016 06:33 | WG865506 |
| Chloroform | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| Chloromethane | ND | | 0.00250 | 1 | 04/21/2016 06:33 | WG865506 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Dibromomethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Ethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 04/21/2016 06:33 | WG865506 |
| Methylene Chloride | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 04/21/2016 06:33 | WG865506 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Naphthalene | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Styrene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Toluene | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Trichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Vinyl chloride | ND | | 0.00100 | 1 | 04/21/2016 06:33 | WG865506 |
| Xylenes, Total | ND | | 0.00300 | 1 | 04/21/2016 06:33 | WG865506 |
| *(S) Toluene-d8* | *103* | | *90.0-115* | | *04/21/2016 06:33* | WG865506 |
| *(S) Dibromofluoromethane* | *92.6* | | *79.0-121* | | *04/21/2016 06:33* | WG865506 |
| *(S) 4-Bromofluorobenzene* | *101* | | *80.1-120* | | *04/21/2016 06:33* | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 04/21/2016 06:56 | WG865506 |
| Acrolein | ND | | 0.0500 | 1 | 04/21/2016 06:56 | WG865506 |
| Acrylonitrile | ND | | 0.0100 | 1 | 04/21/2016 06:56 | WG865506 |
| Benzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Bromobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Bromoform | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Bromomethane | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Chlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Chloroethane | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| 2-Chloroethyl vinyl ether | ND | J4 | 0.0500 | 1 | 04/21/2016 06:56 | WG865506 |
| Chloroform | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| Chloromethane | ND | | 0.00250 | 1 | 04/21/2016 06:56 | WG865506 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Dibromomethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Ethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 04/21/2016 06:56 | WG865506 |
| Methylene Chloride | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 04/21/2016 06:56 | WG865506 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Naphthalene | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Styrene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Toluene | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Trichloroethene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Vinyl chloride | ND | | 0.00100 | 1 | 04/21/2016 06:56 | WG865506 |
| Xylenes, Total | ND | | 0.00300 | 1 | 04/21/2016 06:56 | WG865506 |
| *(S) Toluene-d8* | *103* | | *90.0-115* | | *04/21/2016 06:56* | WG865506 |
| *(S) Dibromofluoromethane* | *92.8* | | *79.0-121* | | *04/21/2016 06:56* | WG865506 |
| *(S) 4-Bromofluorobenzene* | *97.7* | | *80.1-120* | | *04/21/2016 06:56* | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 04/21/2016 07:18 | WG865506 |
| Acrolein | ND | | 0.0500 | 1 | 04/21/2016 07:18 | WG865506 |
| Acrylonitrile | ND | | 0.0100 | 1 | 04/21/2016 07:18 | WG865506 |
| Benzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Bromobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Bromoform | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Bromomethane | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Chlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Chloroethane | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| 2-Chloroethyl vinyl ether | ND | J4 | 0.0500 | 1 | 04/21/2016 07:18 | WG865506 |
| Chloroform | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| Chloromethane | ND | | 0.00250 | 1 | 04/21/2016 07:18 | WG865506 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Dibromomethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Ethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 04/21/2016 07:18 | WG865506 |
| Methylene Chloride | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 04/21/2016 07:18 | WG865506 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Naphthalene | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Styrene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Toluene | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Trichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Vinyl chloride | ND | | 0.00100 | 1 | 04/21/2016 07:18 | WG865506 |
| Xylenes, Total | ND | | 0.00300 | 1 | 04/21/2016 07:18 | WG865506 |
| *(S) Toluene-d8* | *103* | | *90.0-115* | | *04/21/2016 07:18* | WG865506 |
| *(S) Dibromofluoromethane* | *92.2* | | *79.0-121* | | *04/21/2016 07:18* | WG865506 |
| *(S) 4-Bromofluorobenzene* | *103* | | *80.1-120* | | *04/21/2016 07:18* | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result | Qualifier | RDL | Dilution | Analysis | Batch |
|---|---|---|---|---|---|---|
| | mg/l | | mg/l | | date / time | |
| Acetone | ND | | 0.0500 | 1 | 04/21/2016 07:42 | WG865506 |
| Acrolein | ND | | 0.0500 | 1 | 04/21/2016 07:42 | WG865506 |
| Acrylonitrile | ND | | 0.0100 | 1 | 04/21/2016 07:42 | WG865506 |
| Benzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Bromobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Bromoform | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Bromomethane | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Chlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Chloroethane | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| 2-Chloroethyl vinyl ether | ND | J4 | 0.0500 | 1 | 04/21/2016 07:42 | WG865506 |
| Chloroform | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| Chloromethane | ND | | 0.00250 | 1 | 04/21/2016 07:42 | WG865506 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Dibromomethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Ethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 04/21/2016 07:42 | WG865506 |
| Methylene Chloride | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 04/21/2016 07:42 | WG865506 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Naphthalene | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Styrene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Toluene | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Trichloroethene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Vinyl chloride | ND | | 0.00100 | 1 | 04/21/2016 07:42 | WG865506 |
| Xylenes, Total | ND | | 0.00300 | 1 | 04/21/2016 07:42 | WG865506 |
| *(S) Toluene-d8* | *103* | | *90.0-115* | | *04/21/2016 07:42* | WG865506 |
| *(S) Dibromofluoromethane* | *93.7* | | *79.0-121* | | *04/21/2016 07:42* | WG865506 |
| *(S) 4-Bromofluorobenzene* | *101* | | *80.1-120* | | *04/21/2016 07:42* | WG865506 |

## Method Blank (MB)

(MB) R3130707-3 04/21/16 01:36

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Acetone | U | | 0.0100 | 0.0500 |
| Acrolein | U | | 0.00887 | 0.0500 |
| Acrylonitrile | U | | 0.00187 | 0.0100 |
| Benzene | U | | 0.000331 | 0.00100 |
| Bromobenzene | U | | 0.000352 | 0.00100 |
| Bromodichloromethane | U | | 0.000380 | 0.00100 |
| Bromoform | U | | 0.000469 | 0.00100 |
| Bromomethane | U | | 0.000866 | 0.00500 |
| n-Butylbenzene | U | | 0.000361 | 0.00100 |
| sec-Butylbenzene | U | | 0.000365 | 0.00100 |
| tert-Butylbenzene | U | | 0.000399 | 0.00100 |
| Carbon tetrachloride | U | | 0.000379 | 0.00100 |
| Chlorobenzene | U | | 0.000348 | 0.00100 |
| Chlorodibromomethane | U | | 0.000327 | 0.00100 |
| Chloroethane | U | | 0.000453 | 0.00500 |
| 2-Chloroethyl vinyl ether | U | | 0.00301 | 0.0500 |
| Chloroform | U | | 0.000324 | 0.00500 |
| Chloromethane | U | | 0.000276 | 0.00250 |
| 2-Chlorotoluene | U | | 0.000375 | 0.00100 |
| 4-Chlorotoluene | U | | 0.000351 | 0.00100 |
| 1,2-Dibromo-3-Chloropropane | U | | 0.00133 | 0.00500 |
| 1,2-Dibromoethane | U | | 0.000381 | 0.00100 |
| Dibromomethane | U | | 0.000346 | 0.00100 |
| 1,2-Dichlorobenzene | U | | 0.000349 | 0.00100 |
| 1,3-Dichlorobenzene | U | | 0.000220 | 0.00100 |
| 1,4-Dichlorobenzene | U | | 0.000274 | 0.00100 |
| Dichlorodifluoromethane | U | | 0.000551 | 0.00500 |
| 1,1-Dichloroethane | U | | 0.000259 | 0.00100 |
| 1,2-Dichloroethane | U | | 0.000361 | 0.00100 |
| 1,1-Dichloroethene | U | | 0.000398 | 0.00100 |
| cis-1,2-Dichloroethene | U | | 0.000260 | 0.00100 |
| trans-1,2-Dichloroethene | U | | 0.000396 | 0.00100 |
| 1,2-Dichloropropane | U | | 0.000306 | 0.00100 |
| 1,1-Dichloropropene | U | | 0.000352 | 0.00100 |
| 1,3-Dichloropropane | U | | 0.000366 | 0.00100 |
| cis-1,3-Dichloropropene | U | | 0.000418 | 0.00100 |

## Method Blank (MB)

(MB) R3130707-3 04/21/16 01:36

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| trans-1,3-Dichloropropene | U | | 0.000419 | 0.00100 |
| 2,2-Dichloropropane | U | | 0.000321 | 0.00100 |
| Di-isopropyl ether | U | | 0.000320 | 0.00100 |
| Ethylbenzene | U | | 0.000384 | 0.00100 |
| Hexachloro-1,3-butadiene | U | | 0.000256 | 0.00100 |
| Isopropylbenzene | U | | 0.000326 | 0.00100 |
| p-Isopropyltoluene | U | | 0.000350 | 0.00100 |
| 2-Butanone (MEK) | U | | 0.00393 | 0.0100 |
| Methylene Chloride | U | | 0.00100 | 0.00500 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00214 | 0.0100 |
| Methyl tert-butyl ether | U | | 0.000367 | 0.00100 |
| Naphthalene | U | | 0.00100 | 0.00500 |
| n-Propylbenzene | U | | 0.000349 | 0.00100 |
| Styrene | U | | 0.000307 | 0.00100 |
| 1,1,1,2-Tetrachloroethane | U | | 0.000385 | 0.00100 |
| 1,1,2,2-Tetrachloroethane | U | | 0.000130 | 0.00100 |
| Tetrachloroethene | U | | 0.000372 | 0.00100 |
| Toluene | U | | 0.000780 | 0.00500 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.000303 | 0.00100 |
| 1,2,3-Trichlorobenzene | U | | 0.000230 | 0.00100 |
| 1,2,4-Trichlorobenzene | U | | 0.000355 | 0.00100 |
| 1,1,1-Trichloroethane | U | | 0.000319 | 0.00100 |
| 1,1,2-Trichloroethane | U | | 0.000383 | 0.00100 |
| Trichloroethene | U | | 0.000398 | 0.00100 |
| Trichlorofluoromethane | U | | 0.00120 | 0.00500 |
| 1,2,3-Trichloropropane | U | | 0.000807 | 0.00250 |
| 1,2,3-Trimethylbenzene | U | | 0.000321 | 0.00100 |
| 1,2,4-Trimethylbenzene | U | | 0.000373 | 0.00100 |
| 1,3,5-Trimethylbenzene | U | | 0.000387 | 0.00100 |
| Vinyl chloride | U | | 0.000259 | 0.00100 |
| Xylenes, Total | U | | 0.00106 | 0.00300 |
| *(S) Toluene-d8* | *104* | | | *90.0-115* |
| *(S) Dibromofluoromethane* | *92.5* | | | *79.0-121* |
| *(S) 4-Bromofluorobenzene* | *101* | | | *80.1-120* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3130707-1 04/20/16 23:42 • (LCSD) R3130707-2 04/21/16 00:05

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | 0.0946 | 0.0918 | 75.7 | 73.5 | 28.7-175 | | | 2.95 | 20.9 |
| Acrolein | 0.125 | 0.193 | 0.200 | 155 | 160 | 40.4-172 | | | 3.41 | 20 |
| Acrylonitrile | 0.125 | 0.127 | 0.133 | 101 | 107 | 58.2-145 | | | 4.90 | 20 |
| Benzene | 0.0250 | 0.0243 | 0.0239 | 97.1 | 95.5 | 73.0-122 | | | 1.67 | 20 |
| Bromobenzene | 0.0250 | 0.0236 | 0.0238 | 94.5 | 95.3 | 81.5-115 | | | 0.860 | 20 |
| Bromodichloromethane | 0.0250 | 0.0243 | 0.0247 | 97.2 | 98.8 | 75.5-121 | | | 1.57 | 20 |
| Bromoform | 0.0250 | 0.0228 | 0.0219 | 91.1 | 87.8 | 71.5-131 | | | 3.77 | 20 |
| Bromomethane | 0.0250 | 0.0123 | 0.0131 | 49.3 | 52.5 | 22.4-187 | | | 6.13 | 20 |
| n-Butylbenzene | 0.0250 | 0.0268 | 0.0251 | 107 | 101 | 75.9-134 | | | 6.35 | 20 |
| sec-Butylbenzene | 0.0250 | 0.0234 | 0.0231 | 93.7 | 92.4 | 80.6-126 | | | 1.38 | 20 |
| tert-Butylbenzene | 0.0250 | 0.0228 | 0.0223 | 91.3 | 89.2 | 79.3-127 | | | 2.29 | 20 |
| Carbon tetrachloride | 0.0250 | 0.0212 | 0.0216 | 84.7 | 86.4 | 70.9-129 | | | 2.01 | 20 |
| Chlorobenzene | 0.0250 | 0.0235 | 0.0225 | 94.1 | 89.9 | 79.7-122 | | | 4.53 | 20 |
| Chlorodibromomethane | 0.0250 | 0.0231 | 0.0216 | 92.3 | 86.3 | 78.2-124 | | | 6.65 | 20 |
| Chloroethane | 0.0250 | 0.0256 | 0.0257 | 102 | 103 | 41.2-153 | | | 0.350 | 20 |
| 2-Chloroethyl vinyl ether | 0.125 | 0.0253 | 0.0271 | 20.2 | 21.7 | 23.4-162 | J4 | J4 | 7.13 | 23.5 |
| Chloroform | 0.0250 | 0.0248 | 0.0251 | 99.1 | 100 | 73.2-125 | | | 1.25 | 20 |
| Chloromethane | 0.0250 | 0.0234 | 0.0239 | 93.6 | 95.5 | 55.8-134 | | | 2.04 | 20 |
| 2-Chlorotoluene | 0.0250 | 0.0234 | 0.0225 | 93.5 | 89.9 | 76.4-125 | | | 3.92 | 20 |
| 4-Chlorotoluene | 0.0250 | 0.0244 | 0.0243 | 97.4 | 97.2 | 81.5-121 | | | 0.200 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | 0.0214 | 0.0230 | 85.4 | 92.1 | 64.8-131 | | | 7.56 | 20 |
| 1,2-Dibromoethane | 0.0250 | 0.0249 | 0.0230 | 99.5 | 92.1 | 79.8-122 | | | 7.67 | 20 |
| Dibromomethane | 0.0250 | 0.0246 | 0.0242 | 98.3 | 97.0 | 79.5-118 | | | 1.30 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | 0.0247 | 0.0246 | 98.9 | 98.3 | 84.7-118 | | | 0.550 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | 0.0236 | 0.0226 | 94.6 | 90.3 | 77.6-127 | | | 4.66 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | 0.0247 | 0.0236 | 98.7 | 94.4 | 82.2-114 | | | 4.51 | 20 |
| Dichlorodifluoromethane | 0.0250 | 0.0297 | 0.0279 | 119 | 112 | 56.0-134 | | | 6.14 | 20 |
| 1,1-Dichloroethane | 0.0250 | 0.0254 | 0.0251 | 101 | 101 | 71.7-127 | | | 0.880 | 20 |
| 1,2-Dichloroethane | 0.0250 | 0.0265 | 0.0263 | 106 | 105 | 65.3-126 | | | 0.530 | 20 |
| 1,1-Dichloroethene | 0.0250 | 0.0247 | 0.0242 | 98.8 | 96.8 | 59.9-137 | | | 1.98 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | 0.0222 | 0.0230 | 89.0 | 91.9 | 77.3-122 | | | 3.26 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | 0.0221 | 0.0225 | 88.3 | 90.0 | 72.6-125 | | | 1.94 | 20 |
| 1,2-Dichloropropane | 0.0250 | 0.0270 | 0.0265 | 108 | 106 | 77.4-125 | | | 1.96 | 20 |
| 1,1-Dichloropropene | 0.0250 | 0.0237 | 0.0243 | 94.9 | 97.3 | 72.5-127 | | | 2.50 | 20 |
| 1,3-Dichloropropane | 0.0250 | 0.0265 | 0.0251 | 106 | 101 | 80.6-115 | | | 5.28 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | 0.0269 | 0.0258 | 107 | 103 | 77.7-124 | | | 3.99 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3130707-1 04/20/16 23:42 • (LCSD) R3130707-2 04/21/16 00:05

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 0.0250 | 0.0280 | 0.0282 | 112 | 113 | 73.5-127 | | | 0.590 | 20 |
| 2,2-Dichloropropane | 0.0250 | 0.0249 | 0.0236 | 99.4 | 94.4 | 61.3-134 | | | 5.13 | 20 |
| Di-isopropyl ether | 0.0250 | 0.0269 | 0.0274 | 108 | 109 | 65.1-135 | | | 1.49 | 20 |
| Ethylbenzene | 0.0250 | 0.0235 | 0.0222 | 94.1 | 88.7 | 80.9-121 | | | 5.85 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | 0.0207 | 0.0216 | 82.6 | 86.2 | 73.7-133 | | | 4.26 | 20 |
| Isopropylbenzene | 0.0250 | 0.0241 | 0.0232 | 96.5 | 92.6 | 81.6-124 | | | 4.12 | 20 |
| p-Isopropyltoluene | 0.0250 | 0.0233 | 0.0224 | 93.3 | 89.4 | 77.6-129 | | | 4.23 | 20 |
| 2-Butanone (MEK) | 0.125 | 0.131 | 0.137 | 105 | 109 | 46.4-155 | | | 4.39 | 20 |
| Methylene Chloride | 0.0250 | 0.0236 | 0.0240 | 94.3 | 96.0 | 69.5-120 | | | 1.75 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.125 | 0.148 | 0.152 | 118 | 121 | 63.3-138 | | | 2.50 | 20 |
| Methyl tert-butyl ether | 0.0250 | 0.0250 | 0.0247 | 99.9 | 99.0 | 70.1-125 | | | 0.930 | 20 |
| Naphthalene | 0.0250 | 0.0223 | 0.0242 | 89.1 | 97.0 | 69.7-134 | | | 8.44 | 20 |
| n-Propylbenzene | 0.0250 | 0.0239 | 0.0236 | 95.5 | 94.5 | 81.9-122 | | | 1.08 | 20 |
| Styrene | 0.0250 | 0.0254 | 0.0239 | 102 | 95.8 | 79.9-124 | | | 5.88 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | 0.0228 | 0.0213 | 91.1 | 85.0 | 78.5-125 | | | 6.91 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | 0.0255 | 0.0258 | 102 | 103 | 79.3-123 | | | 1.45 | 20 |
| Tetrachloroethene | 0.0250 | 0.0218 | 0.0197 | 87.4 | 78.7 | 73.5-130 | | | 10.4 | 20 |
| Toluene | 0.0250 | 0.0243 | 0.0238 | 97.4 | 95.4 | 77.9-116 | | | 2.07 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | 0.0231 | 0.0234 | 92.2 | 93.5 | 62.0-141 | | | 1.35 | 20 |
| 1,2,3-Trichlorobenzene | 0.0250 | 0.0217 | 0.0221 | 86.7 | 88.5 | 75.7-134 | | | 2.01 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | 0.0221 | 0.0223 | 88.4 | 89.0 | 76.1-136 | | | 0.700 | 20 |
| 1,1,1-Trichloroethane | 0.0250 | 0.0216 | 0.0222 | 86.3 | 88.9 | 71.1-129 | | | 2.97 | 20 |
| 1,1,2-Trichloroethane | 0.0250 | 0.0241 | 0.0232 | 96.3 | 92.9 | 81.6-120 | | | 3.60 | 20 |
| Trichloroethene | 0.0250 | 0.0225 | 0.0216 | 89.9 | 86.5 | 79.5-121 | | | 3.78 | 20 |
| Trichlorofluoromethane | 0.0250 | 0.0218 | 0.0216 | 87.3 | 86.4 | 49.1-157 | | | 1.02 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | 0.0217 | 0.0224 | 87.0 | 89.8 | 74.9-124 | | | 3.17 | 20 |
| 1,2,3-Trimethylbenzene | 0.0250 | 0.0236 | 0.0236 | 94.2 | 94.3 | 79.9-118 | | | 0.0400 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | 0.0227 | 0.0222 | 90.7 | 88.8 | 79.0-122 | | | 2.12 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | 0.0232 | 0.0227 | 92.8 | 90.8 | 81.0-123 | | | 2.19 | 20 |
| Vinyl chloride | 0.0250 | 0.0258 | 0.0249 | 103 | 99.8 | 61.5-134 | | | 3.33 | 20 |
| Xylenes, Total | 0.0750 | 0.0719 | 0.0674 | 95.8 | 89.8 | 79.2-122 | | | 6.47 | 20 |
| *(S) Toluene-d8* | | | | *106* | *104* | *90.0-115* | | | | |
| *(S) Dibromofluoromethane* | | | | *98.7* | *105* | *79.0-121* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *99.0* | *100* | *80.1-120* | | | | |

## Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L830048-01 04/21/16 03:08 • (MS) R3130707-4 04/21/16 01:59 • (MSD) R3130707-5 04/21/16 02:22

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | ND | 0.0683 | 0.0710 | 54.7 | 56.8 | 1 | 25.0-156 | | | 3.82 | 21.5 |
| Acrolein | 0.125 | ND | 0.161 | 0.168 | 129 | 134 | 1 | 34.0-194 | | | 4.01 | 21.5 |
| Acrylonitrile | 0.125 | ND | 0.117 | 0.119 | 93.7 | 95.6 | 1 | 55.9-161 | | | 2.00 | 20 |
| Benzene | 0.0250 | 0.000459 | 0.0205 | 0.0211 | 80.3 | 82.5 | 1 | 58.6-133 | | | 2.56 | 20 |
| Bromobenzene | 0.0250 | ND | 0.0231 | 0.0234 | 92.5 | 93.7 | 1 | 70.6-125 | | | 1.23 | 20 |
| Bromodichloromethane | 0.0250 | ND | 0.0234 | 0.0237 | 93.7 | 94.9 | 1 | 69.2-127 | | | 1.20 | 20 |
| Bromoform | 0.0250 | ND | 0.0239 | 0.0247 | 95.4 | 98.7 | 1 | 66.3-140 | | | 3.42 | 20 |
| Bromomethane | 0.0250 | ND | 0.00931 | 0.00956 | 37.2 | 38.2 | 1 | 16.6-183 | | | 2.65 | 20.5 |
| n-Butylbenzene | 0.0250 | ND | 0.0263 | 0.0275 | 105 | 110 | 1 | 64.8-145 | | | 4.26 | 20 |
| sec-Butylbenzene | 0.0250 | ND | 0.0240 | 0.0246 | 95.9 | 98.6 | 1 | 66.8-139 | | | 2.77 | 20 |
| tert-Butylbenzene | 0.0250 | ND | 0.0227 | 0.0236 | 90.7 | 94.5 | 1 | 67.1-138 | | | 4.10 | 20 |
| Carbon tetrachloride | 0.0250 | ND | 0.0173 | 0.0181 | 69.2 | 72.2 | 1 | 60.6-139 | | | 4.33 | 20 |
| Chlorobenzene | 0.0250 | ND | 0.0225 | 0.0231 | 89.8 | 92.2 | 1 | 70.1-130 | | | 2.66 | 20 |
| Chlorodibromomethane | 0.0250 | ND | 0.0220 | 0.0226 | 88.0 | 90.3 | 1 | 71.6-132 | | | 2.57 | 20 |
| Chloroethane | 0.0250 | ND | 0.0162 | 0.0172 | 64.8 | 68.6 | 1 | 33.3-155 | | | 5.78 | 20 |
| 2-Chloroethyl vinyl ether | 0.125 | ND | ND | ND | 0.000 | 0.000 | 1 | 5.00-149 | J6 | J6 | 0.000 | 40 |
| Chloroform | 0.0250 | ND | 0.0214 | 0.0217 | 85.6 | 86.8 | 1 | 66.1-133 | | | 1.35 | 20 |
| Chloromethane | 0.0250 | ND | 0.0139 | 0.0143 | 55.6 | 57.2 | 1 | 40.7-139 | | | 2.75 | 20 |
| 2-Chlorotoluene | 0.0250 | ND | 0.0224 | 0.0231 | 89.4 | 92.4 | 1 | 66.9-134 | | | 3.27 | 20 |
| 4-Chlorotoluene | 0.0250 | ND | 0.0235 | 0.0242 | 93.9 | 96.7 | 1 | 66.8-134 | | | 2.93 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | ND | 0.0234 | 0.0234 | 93.5 | 93.7 | 1 | 63.9-142 | | | 0.240 | 20.2 |
| 1,2-Dibromoethane | 0.0250 | ND | 0.0228 | 0.0239 | 91.1 | 95.5 | 1 | 73.8-131 | | | 4.69 | 20 |
| Dibromomethane | 0.0250 | ND | 0.0214 | 0.0220 | 85.6 | 88.1 | 1 | 72.8-127 | | | 2.97 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | ND | 0.0250 | 0.0256 | 100 | 103 | 1 | 77.4-127 | | | 2.53 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | ND | 0.0245 | 0.0253 | 98.0 | 101 | 1 | 67.9-136 | | | 3.37 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | ND | 0.0243 | 0.0255 | 97.4 | 102 | 1 | 74.4-123 | | | 4.66 | 20 |
| Dichlorodifluoromethane | 0.0250 | ND | 0.0158 | 0.0161 | 63.1 | 64.3 | 1 | 42.2-146 | | | 1.87 | 20 |
| 1,1-Dichloroethane | 0.0250 | ND | 0.0210 | 0.0218 | 83.9 | 87.1 | 1 | 64.0-134 | | | 3.78 | 20 |
| 1,2-Dichloroethane | 0.0250 | ND | 0.0203 | 0.0205 | 81.4 | 82.1 | 1 | 60.7-132 | | | 0.870 | 20 |
| 1,1-Dichloroethene | 0.0250 | ND | 0.0171 | 0.0177 | 68.4 | 71.0 | 1 | 48.8-144 | | | 3.62 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | 0.0141 | 0.0320 | 0.0330 | 71.5 | 75.7 | 1 | 60.6-136 | | | 3.27 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | 0.00111 | 0.0179 | 0.0178 | 67.3 | 66.6 | 1 | 61.0-132 | | | 1.03 | 20 |
| 1,2-Dichloropropane | 0.0250 | ND | 0.0250 | 0.0253 | 100 | 101 | 1 | 69.7-130 | | | 1.08 | 20 |
| 1,1-Dichloropropene | 0.0250 | ND | 0.0174 | 0.0178 | 69.5 | 71.1 | 1 | 61.5-136 | | | 2.36 | 20 |
| 1,3-Dichloropropane | 0.0250 | ND | 0.0248 | 0.0253 | 99.3 | 101 | 1 | 74.3-123 | | | 2.02 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | ND | 0.0228 | 0.0236 | 91.3 | 94.3 | 1 | 71.1-129 | | | 3.24 | 20 |

## Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L830048-01 04/21/16 03:08 • (MS) R3130707-4 04/21/16 01:59 • (MSD) R3130707-5 04/21/16 02:22

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | 0.0250 | ND | 0.0259 | 0.0262 | 103 | 105 | 1 | 66.3-136 | | | 1.16 | 20 |
| 2,2-Dichloropropane | 0.0250 | ND | 0.0210 | 0.0204 | 84.0 | 81.5 | 1 | 54.9-142 | | | 3.02 | 20 |
| Di-isopropyl ether | 0.0250 | ND | 0.0245 | 0.0252 | 98.2 | 101 | 1 | 59.9-140 | | | 2.82 | 20 |
| Ethylbenzene | 0.0250 | ND | 0.0226 | 0.0238 | 90.2 | 95.0 | 1 | 62.7-136 | | | 5.18 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | ND | 0.0236 | 0.0248 | 94.3 | 99.2 | 1 | 61.1-144 | | | 5.05 | 20.1 |
| Isopropylbenzene | 0.0250 | ND | 0.0233 | 0.0241 | 93.2 | 96.4 | 1 | 67.4-136 | | | 3.43 | 20 |
| p-Isopropyltoluene | 0.0250 | ND | 0.0232 | 0.0237 | 92.6 | 94.8 | 1 | 62.8-143 | | | 2.35 | 20 |
| 2-Butanone (MEK) | 0.125 | ND | 0.113 | 0.116 | 90.1 | 93.2 | 1 | 45.0-156 | | | 3.39 | 20.8 |
| Methylene Chloride | 0.0250 | ND | 0.0188 | 0.0194 | 75.1 | 77.5 | 1 | 61.5-125 | | | 3.18 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.125 | ND | 0.144 | 0.150 | 115 | 120 | 1 | 60.7-150 | | | 3.94 | 20 |
| Methyl tert-butyl ether | 0.0250 | ND | 0.0223 | 0.0232 | 89.4 | 92.9 | 1 | 61.4-136 | | | 3.86 | 20 |
| Naphthalene | 0.0250 | ND | 0.0238 | 0.0253 | 95.2 | 101 | 1 | 61.8-143 | | | 6.10 | 20 |
| n-Propylbenzene | 0.0250 | ND | 0.0233 | 0.0241 | 93.0 | 96.6 | 1 | 63.2-139 | | | 3.72 | 20 |
| Styrene | 0.0250 | ND | 0.0239 | 0.0240 | 95.5 | 96.1 | 1 | 68.2-133 | | | 0.670 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | ND | 0.0225 | 0.0232 | 90.0 | 92.7 | 1 | 70.5-132 | | | 2.94 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | ND | 0.0274 | 0.0282 | 109 | 113 | 1 | 64.9-145 | | | 3.09 | 20 |
| Tetrachloroethene | 0.0250 | ND | 0.0200 | 0.0206 | 80.2 | 82.3 | 1 | 57.4-141 | | | 2.66 | 20 |
| Toluene | 0.0250 | 0.00185 | 0.0235 | 0.0242 | 86.5 | 89.2 | 1 | 67.8-124 | | | 2.90 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | ND | 0.0187 | 0.0194 | 74.9 | 77.5 | 1 | 53.7-150 | | | 3.37 | 20 |
| 1,2,3-Trichlorobenzene | 0.0250 | ND | 0.0242 | 0.0258 | 96.8 | 103 | 1 | 65.7-143 | | | 6.38 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | ND | 0.0251 | 0.0263 | 101 | 105 | 1 | 67.0-146 | | | 4.52 | 20 |
| 1,1,1-Trichloroethane | 0.0250 | ND | 0.0185 | 0.0190 | 74.1 | 75.8 | 1 | 58.7-134 | | | 2.28 | 20 |
| 1,1,2-Trichloroethane | 0.0250 | ND | 0.0243 | 0.0250 | 97.2 | 99.9 | 1 | 74.1-130 | | | 2.70 | 20 |
| Trichloroethene | 0.0250 | ND | 0.0197 | 0.0207 | 78.9 | 82.9 | 1 | 48.9-148 | | | 4.97 | 20 |
| Trichlorofluoromethane | 0.0250 | ND | 0.0167 | 0.0168 | 66.7 | 67.4 | 1 | 39.9-165 | | | 0.990 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | ND | 0.0225 | 0.0230 | 90.1 | 92.2 | 1 | 71.5-134 | | | 2.27 | 20 |
| 1,2,3-Trimethylbenzene | 0.0250 | ND | 0.0225 | 0.0234 | 89.8 | 93.4 | 1 | 62.7-133 | | | 3.93 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | ND | 0.0225 | 0.0231 | 89.8 | 92.4 | 1 | 60.5-137 | | | 2.81 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | ND | 0.0231 | 0.0233 | 92.2 | 93.2 | 1 | 67.9-134 | | | 1.05 | 20 |
| Vinyl chloride | 0.0250 | 0.182 | 0.160 | 0.176 | 0.000 | 0.000 | 1 | 44.3-143 | V | V | 9.38 | 20 |
| Xylenes, Total | 0.0750 | 0.00220 | 0.0688 | 0.0713 | 88.8 | 92.1 | 1 | 65.6-133 | | | 3.53 | 20 |
| *(S) Toluene-d8* | | | | | *102* | *101* | | *90.0-115* | | | | |
| *(S) Dibromofluoromethane* | | | | | *92.3* | *92.1* | | *79.0-121* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | | *100* | *101* | | *80.1-120* | | | | |

## Abbreviations and Definitions

| | |
|---|---|
| SDG | Sample Delivery Group. |
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| ND,U | Not detected at the Reporting Limit (or MDL where applicable). |
| RPD | Relative Percent Difference. |
| (dry) | Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils]. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| Rec. | Recovery. |
| SDL | Sample Detection Limit. |
| MQL | Method Quantitation Limit. |
| Unadj. MQL | Unadjusted Method Quantitation Limit. |

| Qualifier | Description |
|---|---|
| J4 | The associated batch QC was outside the established quality control range for accuracy. |
| J6 | The sample matrix interfered with the ability to make any accurate determination; spike value is low. |
| V | The sample concentration is too high to evaluate accurate spike recoveries. |

# ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.



## State Accreditations

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nevada | TN-03-2002-34 |
| Alaska | UST-080 | New Hampshire | 2975 |
| Arizona | AZ0612 | New Jersey–NELAP | TN002 |
| Arkansas | 88-0469 | New Mexico | TN00003 |
| California | 01157CA | New York | 11742 |
| Colorado | TN00003 | North Carolina | Env375 |
| Conneticut | PH-0197 | North Carolina [1] | DW21704 |
| Florida | E87487 | North Carolina [2] | 41 |
| Georgia | NELAP | North Dakota | R-140 |
| Georgia [1] | 923 | Ohio–VAP | CL0069 |
| Idaho | TN00003 | Oklahoma | 9915 |
| Illinois | 200008 | Oregon | TN200002 |
| Indiana | C-TN-01 | Pennsylvania | 68-02979 |
| Iowa | 364 | Rhode Island | 221 |
| Kansas | E-10277 | South Carolina | 84004 |
| Kentucky [1] | 90010 | South Dakota | n/a |
| Kentucky [2] | 16 | Tennessee [14] | 2006 |
| Louisiana | AI30792 | Texas | T 104704245-07-TX |
| Maine | TN0002 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | 6157585858 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 109 |
| Minnesota | 047-999-395 | Washington | C1915 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 9980939910 |
| Montana | CERT0086 | Wyoming | A2LA |
| Nebraska | NE-OS-15-05 | | |

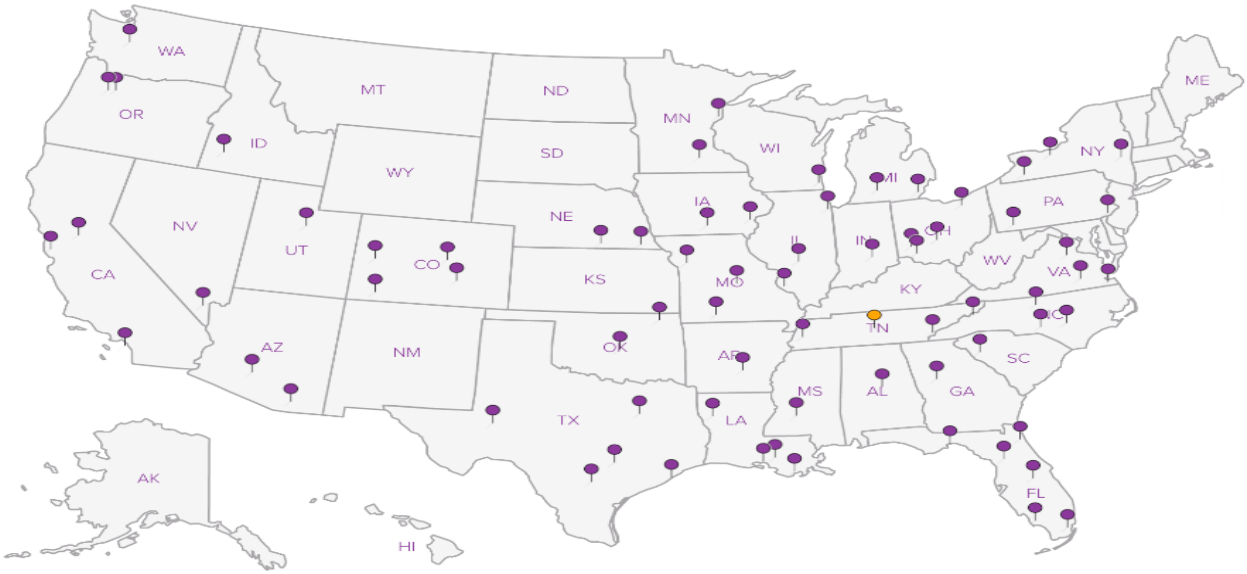
## Third Party & Federal Accreditations

| | | | |
|---|---|---|---|
| A2LA – ISO 17025 | 1461.01 | AIHA | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | S-67674 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



B001

XTO ENERGY
Western Division

| | | |
|---|---|---|
| Quote Number | | Page 1 of 1 |
| XTO Contact: James Mcdaniel | | XTO Contact Phone #: |
| Email Results to: James.mcdaniel@xtoenergy.com | | |
| Well Site/Location: Hare GC F#1 | API Number: | Test Reason: |
| Collected By: Devin Hencmann | Samples on Ice (Y/N): | Turnaround: ___ Standard ___ Next Day ___ Two Day ___ Three Day ___ Std. 5 Bus. Days (by contract) |
| Company: LTE | QA/QC Requested: | |
| Signature: | Gray Areas for Lab Use Only! | Date Needed: |

Analysis: 8260 VOC

Lab Information

Office Abbreviations
Farmington = FAR
Durango = DUR
Bakken = BAK
Raton = RAT
Piceance = PC
Roosevelt = RSV
La Barge = LB
Orangeville = OV

| Sample ID | Sample Name | Media | Date | Time | Preservative | No. of Conts. | Sample Number |
|---|---|---|---|---|---|---|---|
| TMW-1 | | GW | 4/15/16 | 1525 | HCL | 3 | LB30055-01 |
| TMW-2 | | GW | 4/15/16 | 1205 | HCL | 3 | 02 |
| TMW-3 | | GW | 4/15/16 | 1300 | HCL | 3 | 03 |
| TMW-4 | | GW | 4/15/16 | 1417 | HCL | 3 | 04 |
| TMW-5 | | GW | 4/15/16 | 1500 | HCL | 3 | 05 |

Media: Filter = F Soil = S Wastewater = WW Groundwater = GW Drinking Waster = DW Sludge = SG Surface Water = SW Air = A Drill Mud = DM Other = OT

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: (Signature) | Date: 4/15/16 | Time: 1610 | Received By: (Signature) | Number of Bottles: 15=VP | Sample Condition |
| Relinquished By: (Signature) | Date: | Time: | Received By: (Signature) | Temperature: 3.1 | Other Information |
| Relinquished By: (Signature) | Date: | Time: | Received for Lab by: (Signature) | Date: 4-16-16 Time: 910 | |

Comments: Please forward Results to dhencmann@ltenv.com

OK

* Sample ID will be the office and sampler-date-military time FARJM-MMDDYY-1200

8754 3693 9143

GOW

0200

# ANALYTICAL REPORT

August 08, 2016

## XTO Energy - San Juan Division

| | |
|---|---|
| Sample Delivery Group: | L850126 |
| Samples Received: | 07/29/2016 |
| Project Number: | |
| Description: | Hare Gas Com F#1 |

Report To: James McDaniel
382 County Road 3100
Aztec, NM 87410

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative



## TMW-1 L850126-01 GW

Collected by: Josh Adams
Collected date/time: 07/28/16 13:25
Received date/time: 07/29/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG896241 | 1 | 08/06/16 22:16 | 08/06/16 22:16 | JHH |

## TMW-4 L850126-02 GW

Collected by: Josh Adams
Collected date/time: 07/28/16 13:10
Received date/time: 07/29/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG896241 | 1 | 08/06/16 22:37 | 08/06/16 22:37 | JHH |

All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

## Sample Handling and Receiving

**The analysis for 2-Chloroethyl Vinyl Ether was conducted from a chemically preserved container.**

| ESC Sample ID | Project Sample ID | Method |
|---|---|---|
| L850126-01 | TMW-1 | 8260B |
| L850126-02 | TMW-4 | 8260B |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 08/06/2016 22:16 | WG896241 |
| Acrolein | ND | | 0.0500 | 1 | 08/06/2016 22:16 | WG896241 |
| Acrylonitrile | ND | | 0.0100 | 1 | 08/06/2016 22:16 | WG896241 |
| Benzene | 0.00267 | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Bromobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Bromoform | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Bromomethane | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Chlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Chloroethane | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| 2-Chloroethyl vinyl ether | ND | | 0.0500 | 1 | 08/06/2016 22:16 | WG896241 |
| Chloroform | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| Chloromethane | ND | | 0.00250 | 1 | 08/06/2016 22:16 | WG896241 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Dibromomethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Ethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 08/06/2016 22:16 | WG896241 |
| Methylene Chloride | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 08/06/2016 22:16 | WG896241 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Naphthalene | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Styrene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Toluene | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Trichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Vinyl chloride | ND | | 0.00100 | 1 | 08/06/2016 22:16 | WG896241 |
| Xylenes, Total | ND | | 0.00300 | 1 | 08/06/2016 22:16 | WG896241 |
| *(S) Toluene-d8* | *108* | | *90.0-115* | | *08/06/2016 22:16* | WG896241 |
| *(S) Dibromofluoromethane* | *108* | | *79.0-121* | | *08/06/2016 22:16* | WG896241 |
| *(S) 4-Bromofluorobenzene* | *91.3* | | *80.1-120* | | *08/06/2016 22:16* | WG896241 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 08/06/2016 22:37 | WG896241 |
| Acrolein | ND | | 0.0500 | 1 | 08/06/2016 22:37 | WG896241 |
| Acrylonitrile | ND | | 0.0100 | 1 | 08/06/2016 22:37 | WG896241 |
| Benzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Bromobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Bromoform | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Bromomethane | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Chlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Chloroethane | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| 2-Chloroethyl vinyl ether | ND | | 0.0500 | 1 | 08/06/2016 22:37 | WG896241 |
| Chloroform | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| Chloromethane | ND | | 0.00250 | 1 | 08/06/2016 22:37 | WG896241 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Dibromomethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Ethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 08/06/2016 22:37 | WG896241 |
| Methylene Chloride | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 08/06/2016 22:37 | WG896241 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Naphthalene | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Styrene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Toluene | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Trichloroethene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Vinyl chloride | ND | | 0.00100 | 1 | 08/06/2016 22:37 | WG896241 |
| Xylenes, Total | ND | | 0.00300 | 1 | 08/06/2016 22:37 | WG896241 |
| *(S) Toluene-d8* | *108* | | *90.0-115* | | *08/06/2016 22:37* | WG896241 |
| *(S) Dibromofluoromethane* | *110* | | *79.0-121* | | *08/06/2016 22:37* | WG896241 |
| *(S) 4-Bromofluorobenzene* | *89.2* | | *80.1-120* | | *08/06/2016 22:37* | WG896241 |

## Method Blank (MB)

(MB) R3155089-3 08/06/16 16:27

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Acetone | U | | 0.0100 | 0.0500 |
| Acrolein | U | | 0.00887 | 0.0500 |
| Acrylonitrile | U | | 0.00187 | 0.0100 |
| Benzene | U | | 0.000331 | 0.00100 |
| Bromobenzene | U | | 0.000352 | 0.00100 |
| Bromodichloromethane | U | | 0.000380 | 0.00100 |
| Bromoform | U | | 0.000469 | 0.00100 |
| Bromomethane | U | | 0.000866 | 0.00500 |
| n-Butylbenzene | U | | 0.000361 | 0.00100 |
| sec-Butylbenzene | U | | 0.000365 | 0.00100 |
| tert-Butylbenzene | U | | 0.000399 | 0.00100 |
| Carbon tetrachloride | U | | 0.000379 | 0.00100 |
| Chlorobenzene | U | | 0.000348 | 0.00100 |
| Chlorodibromomethane | U | | 0.000327 | 0.00100 |
| Chloroethane | U | | 0.000453 | 0.00500 |
| 2-Chloroethyl vinyl ether | U | | 0.00301 | 0.0500 |
| Chloroform | U | | 0.000324 | 0.00500 |
| Chloromethane | U | | 0.000276 | 0.00250 |
| 2-Chlorotoluene | U | | 0.000375 | 0.00100 |
| 4-Chlorotoluene | U | | 0.000351 | 0.00100 |
| 1,2-Dibromo-3-Chloropropane | U | | 0.00133 | 0.00500 |
| 1,2-Dibromoethane | U | | 0.000381 | 0.00100 |
| Dibromomethane | U | | 0.000346 | 0.00100 |
| 1,2-Dichlorobenzene | U | | 0.000349 | 0.00100 |
| 1,3-Dichlorobenzene | U | | 0.000220 | 0.00100 |
| 1,4-Dichlorobenzene | U | | 0.000274 | 0.00100 |
| Dichlorodifluoromethane | U | | 0.000551 | 0.00500 |
| 1,1-Dichloroethane | U | | 0.000259 | 0.00100 |
| 1,2-Dichloroethane | U | | 0.000361 | 0.00100 |
| 1,1-Dichloroethene | U | | 0.000398 | 0.00100 |
| cis-1,2-Dichloroethene | U | | 0.000260 | 0.00100 |
| trans-1,2-Dichloroethene | U | | 0.000396 | 0.00100 |
| 1,2-Dichloropropane | U | | 0.000306 | 0.00100 |
| 1,1-Dichloropropene | U | | 0.000352 | 0.00100 |
| 1,3-Dichloropropane | U | | 0.000366 | 0.00100 |
| cis-1,3-Dichloropropene | U | | 0.000418 | 0.00100 |
| trans-1,3-Dichloropropene | U | | 0.000419 | 0.00100 |
| 2,2-Dichloropropane | U | | 0.000321 | 0.00100 |
| Di-isopropyl ether | U | | 0.000320 | 0.00100 |
| Ethylbenzene | U | | 0.000384 | 0.00100 |

## Method Blank (MB)

(MB) R3155089-3 08/06/16 16:27

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Hexachloro-1,3-butadiene | U | | 0.000256 | 0.00100 |
| Isopropylbenzene | U | | 0.000326 | 0.00100 |
| p-Isopropyltoluene | U | | 0.000350 | 0.00100 |
| 2-Butanone (MEK) | U | | 0.00393 | 0.0100 |
| Methylene Chloride | U | | 0.00100 | 0.00500 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00214 | 0.0100 |
| Methyl tert-butyl ether | U | | 0.000367 | 0.00100 |
| Naphthalene | U | | 0.00100 | 0.00500 |
| 1,1,2,2-Tetrachloroethane | U | | 0.000130 | 0.00100 |
| n-Propylbenzene | U | | 0.000349 | 0.00100 |
| Tetrachloroethene | U | | 0.000372 | 0.00100 |
| Styrene | U | | 0.000307 | 0.00100 |
| 1,1,1,2-Tetrachloroethane | U | | 0.000385 | 0.00100 |
| Toluene | U | | 0.000780 | 0.00500 |
| 1,1,1-Trichloroethane | U | | 0.000319 | 0.00100 |
| 1,1,2-Trichloroethane | U | | 0.000383 | 0.00100 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.000303 | 0.00100 |
| 1,2,3-Trichlorobenzene | U | | 0.000230 | 0.00100 |
| Trichloroethene | U | | 0.000398 | 0.00100 |
| 1,2,4-Trichlorobenzene | U | | 0.000355 | 0.00100 |
| Trichlorofluoromethane | U | | 0.00120 | 0.00500 |
| 1,2,3-Trichloropropane | U | | 0.000807 | 0.00250 |
| 1,2,3-Trimethylbenzene | U | | 0.000321 | 0.00100 |
| 1,2,4-Trimethylbenzene | U | | 0.000373 | 0.00100 |
| Vinyl chloride | U | | 0.000259 | 0.00100 |
| 1,3,5-Trimethylbenzene | U | | 0.000387 | 0.00100 |
| Xylenes, Total | U | | 0.00106 | 0.00300 |
| *(S) Toluene-d8* | *108* | | | *90.0-115* |
| *(S) Dibromofluoromethane* | *109* | | | *79.0-121* |
| *(S) 4-Bromofluorobenzene* | *88.7* | | | *80.1-120* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3155089-1 08/06/16 14:41 • (LCSD) R3155089-2 08/06/16 15:02

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | 0.0791 | 0.0720 | 63.3 | 57.6 | 28.7-175 | | | 9.36 | 20.9 |
| Acrolein | 0.125 | 0.143 | 0.129 | 114 | 104 | 40.4-172 | | | 9.79 | 20 |
| Acrylonitrile | 0.125 | 0.148 | 0.134 | 118 | 107 | 58.2-145 | | | 9.87 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3155089-1 08/06/16 14:41 • (LCSD) R3155089-2 08/06/16 15:02

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0250 | 0.0278 | 0.0277 | 111 | 111 | 73.0-122 | | | 0.580 | 20 |
| Bromobenzene | 0.0250 | 0.0244 | 0.0257 | 97.7 | 103 | 81.5-115 | | | 4.93 | 20 |
| Bromodichloromethane | 0.0250 | 0.0256 | 0.0251 | 102 | 100 | 75.5-121 | | | 2.15 | 20 |
| Bromoform | 0.0250 | 0.0227 | 0.0238 | 90.7 | 95.1 | 71.5-131 | | | 4.80 | 20 |
| Bromomethane | 0.0250 | 0.0454 | 0.0427 | 182 | 171 | 22.4-187 | | | 6.12 | 20 |
| n-Butylbenzene | 0.0250 | 0.0257 | 0.0258 | 103 | 103 | 75.9-134 | | | 0.250 | 20 |
| sec-Butylbenzene | 0.0250 | 0.0234 | 0.0248 | 93.6 | 99.1 | 80.6-126 | | | 5.70 | 20 |
| tert-Butylbenzene | 0.0250 | 0.0229 | 0.0245 | 91.4 | 97.9 | 79.3-127 | | | 6.87 | 20 |
| Carbon tetrachloride | 0.0250 | 0.0258 | 0.0256 | 103 | 103 | 70.9-129 | | | 0.560 | 20 |
| Chlorobenzene | 0.0250 | 0.0248 | 0.0261 | 99.1 | 105 | 79.7-122 | | | 5.31 | 20 |
| Chlorodibromomethane | 0.0250 | 0.0242 | 0.0252 | 96.6 | 101 | 78.2-124 | | | 4.23 | 20 |
| Chloroethane | 0.0250 | 0.0283 | 0.0275 | 113 | 110 | 41.2-153 | | | 2.98 | 20 |
| 2-Chloroethyl vinyl ether | 0.125 | 0.105 | 0.107 | 83.8 | 85.7 | 23.4-162 | | | 2.22 | 23.5 |
| Chloroform | 0.0250 | 0.0272 | 0.0270 | 109 | 108 | 73.2-125 | | | 0.770 | 20 |
| Chloromethane | 0.0250 | 0.0279 | 0.0267 | 112 | 107 | 55.8-134 | | | 4.21 | 20 |
| 2-Chlorotoluene | 0.0250 | 0.0243 | 0.0259 | 97.2 | 104 | 76.4-125 | | | 6.29 | 20 |
| 4-Chlorotoluene | 0.0250 | 0.0243 | 0.0255 | 97.2 | 102 | 81.5-121 | | | 4.90 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | 0.0252 | 0.0226 | 101 | 90.5 | 64.8-131 | | | 11.0 | 20 |
| 1,2-Dibromoethane | 0.0250 | 0.0241 | 0.0248 | 96.5 | 99.4 | 79.8-122 | | | 2.99 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | 0.0253 | 0.0253 | 101 | 101 | 84.7-118 | | | 0.0200 | 20 |
| Dibromomethane | 0.0250 | 0.0262 | 0.0266 | 105 | 106 | 79.5-118 | | | 1.44 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | 0.0234 | 0.0246 | 93.6 | 98.4 | 77.6-127 | | | 5.07 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | 0.0252 | 0.0253 | 101 | 101 | 82.2-114 | | | 0.390 | 20 |
| Dichlorodifluoromethane | 0.0250 | 0.0299 | 0.0292 | 120 | 117 | 56.0-134 | | | 2.31 | 20 |
| 1,1-Dichloroethane | 0.0250 | 0.0285 | 0.0279 | 114 | 112 | 71.7-127 | | | 1.94 | 20 |
| 1,2-Dichloroethane | 0.0250 | 0.0280 | 0.0274 | 112 | 110 | 65.3-126 | | | 2.29 | 20 |
| 1,1-Dichloroethene | 0.0250 | 0.0279 | 0.0268 | 112 | 107 | 59.9-137 | | | 3.98 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | 0.0272 | 0.0262 | 109 | 105 | 77.3-122 | | | 3.83 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | 0.0258 | 0.0251 | 103 | 100 | 72.6-125 | | | 2.85 | 20 |
| 1,2-Dichloropropane | 0.0250 | 0.0273 | 0.0280 | 109 | 112 | 77.4-125 | | | 2.59 | 20 |
| 1,1-Dichloropropene | 0.0250 | 0.0293 | 0.0283 | 117 | 113 | 72.5-127 | | | 3.24 | 20 |
| 1,3-Dichloropropane | 0.0250 | 0.0255 | 0.0263 | 102 | 105 | 80.6-115 | | | 3.18 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | 0.0275 | 0.0274 | 110 | 110 | 77.7-124 | | | 0.370 | 20 |
| trans-1,3-Dichloropropene | 0.0250 | 0.0267 | 0.0266 | 107 | 106 | 73.5-127 | | | 0.280 | 20 |
| 2,2-Dichloropropane | 0.0250 | 0.0231 | 0.0244 | 92.4 | 97.6 | 61.3-134 | | | 5.51 | 20 |
| Di-isopropyl ether | 0.0250 | 0.0269 | 0.0267 | 108 | 107 | 65.1-135 | | | 0.910 | 20 |
| Ethylbenzene | 0.0250 | 0.0240 | 0.0253 | 96.2 | 101 | 80.9-121 | | | 4.98 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | 0.0243 | 0.0239 | 97.4 | 95.7 | 73.7-133 | | | 1.78 | 20 |
| Isopropylbenzene | 0.0250 | 0.0225 | 0.0239 | 89.9 | 95.7 | 81.6-124 | | | 6.32 | 20 |
| p-Isopropyltoluene | 0.0250 | 0.0235 | 0.0246 | 93.9 | 98.3 | 77.6-129 | | | 4.60 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3155089-1 08/06/16 14:41 • (LCSD) R3155089-2 08/06/16 15:02

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| 2-Butanone (MEK) | 0.125 | 0.112 | 0.101 | 89.8 | 80.6 | 46.4-155 | | | 10.8 | 20 |
| Methylene Chloride | 0.0250 | 0.0285 | 0.0282 | 114 | 113 | 69.5-120 | | | 1.09 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.125 | 0.137 | 0.128 | 110 | 102 | 63.3-138 | | | 7.11 | 20 |
| Methyl tert-butyl ether | 0.0250 | 0.0259 | 0.0250 | 104 | 99.9 | 70.1-125 | | | 3.76 | 20 |
| Naphthalene | 0.0250 | 0.0238 | 0.0234 | 95.4 | 93.5 | 69.7-134 | | | 1.95 | 20 |
| n-Propylbenzene | 0.0250 | 0.0240 | 0.0252 | 96.1 | 101 | 81.9-122 | | | 4.64 | 20 |
| Styrene | 0.0250 | 0.0249 | 0.0260 | 99.6 | 104 | 79.9-124 | | | 4.33 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | 0.0232 | 0.0248 | 92.8 | 99.1 | 78.5-125 | | | 6.61 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | 0.0226 | 0.0234 | 90.5 | 93.6 | 79.3-123 | | | 3.29 | 20 |
| Tetrachloroethene | 0.0250 | 0.0233 | 0.0249 | 93.2 | 99.5 | 73.5-130 | | | 6.48 | 20 |
| Toluene | 0.0250 | 0.0257 | 0.0255 | 103 | 102 | 77.9-116 | | | 0.590 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | 0.0285 | 0.0283 | 114 | 113 | 62.0-141 | | | 0.390 | 20 |
| 1,2,3-Trichlorobenzene | 0.0250 | 0.0246 | 0.0245 | 98.4 | 98.1 | 75.7-134 | | | 0.250 | 20 |
| 1,1,1-Trichloroethane | 0.0250 | 0.0261 | 0.0256 | 104 | 102 | 71.1-129 | | | 1.83 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | 0.0252 | 0.0254 | 101 | 101 | 76.1-136 | | | 0.470 | 20 |
| 1,1,2-Trichloroethane | 0.0250 | 0.0227 | 0.0237 | 90.8 | 94.9 | 81.6-120 | | | 4.40 | 20 |
| Trichloroethene | 0.0250 | 0.0252 | 0.0252 | 101 | 101 | 79.5-121 | | | 0.0400 | 20 |
| Trichlorofluoromethane | 0.0250 | 0.0265 | 0.0249 | 106 | 99.5 | 49.1-157 | | | 6.27 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | 0.0236 | 0.0247 | 94.5 | 98.8 | 74.9-124 | | | 4.48 | 20 |
| 1,2,3-Trimethylbenzene | 0.0250 | 0.0254 | 0.0254 | 102 | 102 | 79.9-118 | | | 0.0300 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | 0.0233 | 0.0248 | 93.3 | 99.0 | 79.0-122 | | | 5.91 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | 0.0232 | 0.0246 | 92.9 | 98.6 | 81.0-123 | | | 5.90 | 20 |
| Vinyl chloride | 0.0250 | 0.0292 | 0.0284 | 117 | 114 | 61.5-134 | | | 2.86 | 20 |
| Xylenes, Total | 0.0750 | 0.0708 | 0.0746 | 94.4 | 99.4 | 79.2-122 | | | 5.17 | 20 |
| *(S) Toluene-d8* | | | | *106* | *106* | *90.0-115* | | | | |
| *(S) Dibromofluoromethane* | | | | *107* | *104* | *79.0-121* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *91.3* | *95.3* | *80.1-120* | | | | |

## L851354-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L851354-01 08/06/16 19:02 • (MS) R3155089-4 08/06/16 19:23 • (MSD) R3155089-5 08/06/16 19:45

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | U | 0.0700 | 0.0759 | 56.0 | 60.7 | 1 | 25.0-156 | | | 8.10 | 21.5 |
| Acrolein | 0.125 | U | 0.129 | 0.139 | 103 | 111 | 1 | 34.0-194 | | | 7.29 | 21.5 |
| Acrylonitrile | 0.125 | U | 0.136 | 0.144 | 109 | 116 | 1 | 55.9-161 | | | 5.98 | 20 |
| Benzene | 0.0250 | U | 0.0260 | 0.0275 | 104 | 110 | 1 | 58.6-133 | | | 5.78 | 20 |
| Bromobenzene | 0.0250 | U | 0.0239 | 0.0242 | 95.5 | 96.6 | 1 | 70.6-125 | | | 1.17 | 20 |
| Bromodichloromethane | 0.0250 | U | 0.0243 | 0.0250 | 97.3 | 100 | 1 | 69.2-127 | | | 2.78 | 20 |

## L851354-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L851354-01 08/06/16 19:02 • (MS) R3155089-4 08/06/16 19:23 • (MSD) R3155089-5 08/06/16 19:45

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bromoform | 0.0250 | U | 0.0232 | 0.0237 | 92.9 | 94.7 | 1 | 66.3-140 | | | 1.83 | 20 |
| Bromomethane | 0.0250 | U | 0.0406 | 0.0422 | 162 | 169 | 1 | 16.6-183 | | | 3.87 | 20.5 |
| n-Butylbenzene | 0.0250 | U | 0.0244 | 0.0248 | 97.6 | 99.2 | 1 | 64.8-145 | | | 1.61 | 20 |
| sec-Butylbenzene | 0.0250 | U | 0.0229 | 0.0232 | 91.4 | 92.9 | 1 | 66.8-139 | | | 1.65 | 20 |
| tert-Butylbenzene | 0.0250 | U | 0.0223 | 0.0228 | 89.1 | 91.2 | 1 | 67.1-138 | | | 2.35 | 20 |
| Carbon tetrachloride | 0.0250 | U | 0.0239 | 0.0252 | 95.5 | 101 | 1 | 60.6-139 | | | 5.20 | 20 |
| Chlorobenzene | 0.0250 | U | 0.0239 | 0.0246 | 95.5 | 98.2 | 1 | 70.1-130 | | | 2.83 | 20 |
| Chlorodibromomethane | 0.0250 | U | 0.0242 | 0.0244 | 96.7 | 97.8 | 1 | 71.6-132 | | | 1.12 | 20 |
| Chloroethane | 0.0250 | U | 0.0267 | 0.0285 | 107 | 114 | 1 | 33.3-155 | | | 6.38 | 20 |
| 2-Chloroethyl vinyl ether | 0.125 | U | 0.110 | 0.101 | 88.2 | 81.0 | 1 | 5.00-149 | | | 8.48 | 40 |
| Chloroform | 0.0250 | U | 0.0257 | 0.0266 | 103 | 107 | 1 | 66.1-133 | | | 3.50 | 20 |
| Chloromethane | 0.0250 | U | 0.0246 | 0.0264 | 98.5 | 106 | 1 | 40.7-139 | | | 7.09 | 20 |
| 2-Chlorotoluene | 0.0250 | U | 0.0241 | 0.0242 | 96.3 | 96.8 | 1 | 66.9-134 | | | 0.530 | 20 |
| 4-Chlorotoluene | 0.0250 | U | 0.0233 | 0.0239 | 93.1 | 95.4 | 1 | 66.8-134 | | | 2.47 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | U | 0.0237 | 0.0248 | 94.9 | 99.2 | 1 | 63.9-142 | | | 4.43 | 20.2 |
| 1,2-Dibromoethane | 0.0250 | U | 0.0240 | 0.0243 | 95.9 | 97.3 | 1 | 73.8-131 | | | 1.38 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | U | 0.0245 | 0.0251 | 98.0 | 100 | 1 | 77.4-127 | | | 2.48 | 20 |
| Dibromomethane | 0.0250 | U | 0.0259 | 0.0264 | 104 | 106 | 1 | 72.8-127 | | | 2.06 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | U | 0.0227 | 0.0227 | 91.0 | 91.0 | 1 | 67.9-136 | | | 0.0200 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | U | 0.0241 | 0.0248 | 96.6 | 99.0 | 1 | 74.4-123 | | | 2.52 | 20 |
| Dichlorodifluoromethane | 0.0250 | U | 0.0279 | 0.0291 | 112 | 117 | 1 | 42.2-146 | | | 4.25 | 20 |
| 1,1-Dichloroethane | 0.0250 | U | 0.0266 | 0.0275 | 106 | 110 | 1 | 64.0-134 | | | 3.56 | 20 |
| 1,2-Dichloroethane | 0.0250 | U | 0.0265 | 0.0274 | 106 | 110 | 1 | 60.7-132 | | | 3.20 | 20 |
| 1,1-Dichloroethene | 0.0250 | U | 0.0255 | 0.0268 | 102 | 107 | 1 | 48.8-144 | | | 5.19 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | U | 0.0250 | 0.0261 | 99.8 | 104 | 1 | 60.6-136 | | | 4.49 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | U | 0.0240 | 0.0247 | 96.2 | 99.0 | 1 | 61.0-132 | | | 2.83 | 20 |
| 1,2-Dichloropropane | 0.0250 | U | 0.0264 | 0.0274 | 105 | 110 | 1 | 69.7-130 | | | 3.78 | 20 |
| 1,1-Dichloropropene | 0.0250 | U | 0.0266 | 0.0280 | 106 | 112 | 1 | 61.5-136 | | | 5.07 | 20 |
| 1,3-Dichloropropane | 0.0250 | U | 0.0250 | 0.0255 | 100 | 102 | 1 | 74.3-123 | | | 1.99 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | U | 0.0262 | 0.0272 | 105 | 109 | 1 | 71.1-129 | | | 3.61 | 20 |
| trans-1,3-Dichloropropene | 0.0250 | U | 0.0256 | 0.0267 | 102 | 107 | 1 | 66.3-136 | | | 4.39 | 20 |
| 2,2-Dichloropropane | 0.0250 | U | 0.0240 | 0.0244 | 96.0 | 97.7 | 1 | 54.9-142 | | | 1.69 | 20 |
| Di-isopropyl ether | 0.0250 | U | 0.0252 | 0.0262 | 101 | 105 | 1 | 59.9-140 | | | 4.17 | 20 |
| Ethylbenzene | 0.0250 | U | 0.0227 | 0.0234 | 90.8 | 93.7 | 1 | 62.7-136 | | | 3.14 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | U | 0.0234 | 0.0238 | 93.5 | 95.1 | 1 | 61.1-144 | | | 1.68 | 20.1 |
| Isopropylbenzene | 0.0250 | U | 0.0220 | 0.0224 | 88.0 | 89.6 | 1 | 67.4-136 | | | 1.88 | 20 |
| p-Isopropyltoluene | 0.0250 | U | 0.0226 | 0.0229 | 90.4 | 91.7 | 1 | 62.8-143 | | | 1.50 | 20 |
| 2-Butanone (MEK) | 0.125 | 0.00401 | 0.107 | 0.112 | 82.6 | 86.5 | 1 | 45.0-156 | | | 4.41 | 20.8 |
| Methylene Chloride | 0.0250 | U | 0.0264 | 0.0271 | 106 | 108 | 1 | 61.5-125 | | | 2.42 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.125 | U | 0.131 | 0.137 | 105 | 109 | 1 | 60.7-150 | | | 4.09 | 20 |

## L851354-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L851354-01 08/06/16 19:02 • (MS) R3155089-4 08/06/16 19:23 • (MSD) R3155089-5 08/06/16 19:45

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methyl tert-butyl ether | 0.0250 | U | 0.0242 | 0.0254 | 96.8 | 102 | 1 | 61.4-136 | | | 4.84 | 20 |
| Naphthalene | 0.0250 | U | 0.0233 | 0.0241 | 93.1 | 96.3 | 1 | 61.8-143 | | | 3.48 | 20 |
| n-Propylbenzene | 0.0250 | U | 0.0232 | 0.0234 | 92.8 | 93.4 | 1 | 63.2-139 | | | 0.650 | 20 |
| Styrene | 0.0250 | U | 0.0247 | 0.0249 | 98.8 | 99.6 | 1 | 68.2-133 | | | 0.790 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | U | 0.0227 | 0.0235 | 90.6 | 93.9 | 1 | 70.5-132 | | | 3.55 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | U | 0.0236 | 0.0235 | 94.3 | 94.2 | 1 | 64.9-145 | | | 0.110 | 20 |
| Tetrachloroethene | 0.0250 | U | 0.0227 | 0.0227 | 90.7 | 90.9 | 1 | 57.4-141 | | | 0.270 | 20 |
| Toluene | 0.0250 | U | 0.0248 | 0.0259 | 99.0 | 104 | 1 | 67.8-124 | | | 4.69 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | U | 0.0265 | 0.0276 | 106 | 111 | 1 | 53.7-150 | | | 4.07 | 20 |
| 1,2,3-Trichlorobenzene | 0.0250 | U | 0.0234 | 0.0244 | 93.8 | 97.7 | 1 | 65.7-143 | | | 4.07 | 20 |
| 1,1,1-Trichloroethane | 0.0250 | U | 0.0249 | 0.0258 | 99.8 | 103 | 1 | 58.7-134 | | | 3.45 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | U | 0.0236 | 0.0240 | 94.4 | 96.0 | 1 | 67.0-146 | | | 1.68 | 20 |
| 1,1,2-Trichloroethane | 0.0250 | U | 0.0225 | 0.0231 | 90.2 | 92.3 | 1 | 74.1-130 | | | 2.34 | 20 |
| Trichloroethene | 0.0250 | U | 0.0235 | 0.0242 | 94.2 | 97.0 | 1 | 48.9-148 | | | 2.93 | 20 |
| Trichlorofluoromethane | 0.0250 | U | 0.0237 | 0.0250 | 95.0 | 100 | 1 | 39.9-165 | | | 5.34 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | U | 0.0246 | 0.0247 | 98.3 | 98.9 | 1 | 71.5-134 | | | 0.690 | 20 |
| 1,2,3-Trimethylbenzene | 0.0250 | U | 0.0243 | 0.0251 | 97.3 | 100 | 1 | 62.7-133 | | | 3.14 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | U | 0.0229 | 0.0231 | 91.6 | 92.5 | 1 | 60.5-137 | | | 0.980 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | U | 0.0227 | 0.0231 | 90.9 | 92.5 | 1 | 67.9-134 | | | 1.75 | 20 |
| Vinyl chloride | 0.0250 | U | 0.0269 | 0.0284 | 108 | 113 | 1 | 44.3-143 | | | 5.18 | 20 |
| Xylenes, Total | 0.0750 | U | 0.0682 | 0.0698 | 91.0 | 93.0 | 1 | 65.6-133 | | | 2.19 | 20 |
| *(S) Toluene-d8* | | | | | *106* | *106* | | *90.0-115* | | | | |
| *(S) Dibromofluoromethane* | | | | | *106* | *104* | | *79.0-121* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | | *93.7* | *92.9* | | *80.1-120* | | | | |

## Abbreviations and Definitions

| | |
|---|---|
| SDG | Sample Delivery Group. |
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| ND | Not detected at the Reporting Limit (or MDL where applicable). |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| RPD | Relative Percent Difference. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| Rec. | Recovery. |

| Qualifier | Description |
|---|---|
| | The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG. |

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

## State Accreditations

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nevada | TN-03-2002-34 |
| Alaska | UST-080 | New Hampshire | 2975 |
| Arizona | AZ0612 | New Jersey–NELAP | TN002 |
| Arkansas | 88-0469 | New Mexico | TN00003 |
| California | 01157CA | New York | 11742 |
| Colorado | TN00003 | North Carolina | Env375 |
| Conneticut | PH-0197 | North Carolina [1] | DW21704 |
| Florida | E87487 | North Carolina [2] | 41 |
| Georgia | NELAP | North Dakota | R-140 |
| Georgia [1] | 923 | Ohio–VAP | CL0069 |
| Idaho | TN00003 | Oklahoma | 9915 |
| Illinois | 200008 | Oregon | TN200002 |
| Indiana | C-TN-01 | Pennsylvania | 68-02979 |
| Iowa | 364 | Rhode Island | 221 |
| Kansas | E-10277 | South Carolina | 84004 |
| Kentucky [1] | 90010 | South Dakota | n/a |
| Kentucky [2] | 16 | Tennessee [1 4] | 2006 |
| Louisiana | AI30792 | Texas | T 104704245-07-TX |
| Maine | TN0002 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | 6157585858 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 109 |
| Minnesota | 047-999-395 | Washington | C1915 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 9980939910 |
| Montana | CERT0086 | Wyoming | A2LA |
| Nebraska | NE-OS-15-05 | | |

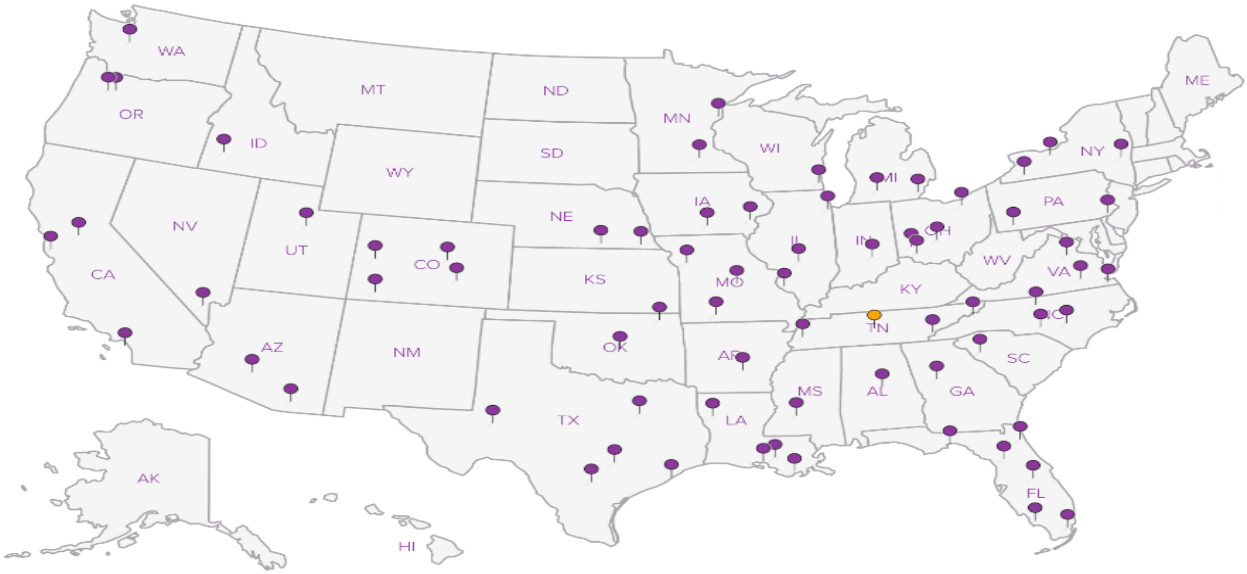
## Third Party & Federal Accreditations

| | | | |
|---|---|---|---|
| A2LA – ISO 17025 | 1461.01 | AIHA | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | S-67674 |
| EPA–Crypto | TN00003 | | |

[1.] Drinking Water [2.] Underground Storage Tanks [3.] Aquatic Toxicity [4.] Chemical/Microbiological [5.] Mold [n/a] Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



E103

XTO ENERGY
Western Division

| | |
|---|---|
| Quote Number | |
| Page 1 of 1 | |
| XTO Contact: James_Medaniel | XTO Contact Phone #: 505-787-0519 |
| Email Results to: James_Medaniel@xtoenergy.com | |
| Well Site/Location: Hare Gas com F #1 | API Number: |
| Test Reason: Quarterly Sampling | |
| Collected By: Josh Adams | Samples on Ice: (Y) / N |
| Turnaround: X Standard; ___ Next Day; ___ Two Day; ___ Three Day; ___ Std. 5 Bus. Days (by contract); Date Needed ___ | |
| Company: LTE | QA/QC Requested |
| Signature | Gray Areas for Lab Use Only! |

| Sample ID | Sample Name | Media | Date | Time | Preservative | No. of Conts. | Analysis: 8260 | Sample Number |
|---|---|---|---|---|---|---|---|---|
| TMW-1 | TMW-1 | GW | 7-28 | 1325 | | | X | L850126 -01 |
| TMW-2 | | GW | | | | | | |
| TMW-3 | | GW | | | | | | |
| TMW-4 | TMW-4 | GW | 7-28 | 1310 | HCl, COOL | | X | -02 |
| TMW-5 | | GW | | | | | | |

Media: Filter = F Soil = S Wastewater = WW Groundwater = GW Drinking Waster = DW Sludge = SG Surface Water = SW Air = A Drill Mud = DM Other = OT

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: (Signature) | Date: 7-28-16 | Time: 1500 | Received By: (Signature) | Number of Bottles | Sample Condition |
| Relinquished By: (Signature) | Date: | Time: | Received By: (Signature) | Temperature: | Other Information |
| Relinquished By: (Signature) | Date: | Time: | Received for Lab by: (Signature) | Date: 7-29-16 Time: 0900 | |

Comments

6503 715441.74 6vp

* Sample ID will be the office and sampler-date-military time FARJM-MMDDYY-1200

Lab Information

Office Abbreviations
Farmington = FAR
Durango = DUR
Bakken = BAK
Raton = RAT
Piceance = PC
Roosevelt = RSV
La Barge = LB
Orangeville = OV

0187

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

# Cooler Receipt Checklist

Client: XTOXNM SDG# L850126

Cooler Received/Opened On: 7-29-16 By: Dakota Busby

Temperature Upon Receipt: 2.9 °c

Dakota Busby
(Signature)

| Cooler Receipt Check List | Yes | No | N/A |
|---|---|---|---|
| Were custody seals on outside of cooler and intact? | | | ✓ |
| Were custody papers properly filled out (ink, signed, etc.)? | | ✓ | |
| Did all bottles arrive in good condition? | ✓ | | |
| Were correct bottles used for the analyses requested? | ✓ | | |
| Was sufficient amount of sample sent in each bottle? | ✓ | | |
| Were correct preservatives used? | ✓ | | |
| Were all applicable sample containers checked for preservation? | | | ✓ |
| (Any samples not in accepted pH range noted on COC .) | | | |
| If applicable, was an observable VOA headspace present? | | ✓ | |
| Non Conformance Generated? (If yes see attached NCF) | | ✓ | |

# ANALYTICAL REPORT

October 28, 2016

## XTO Energy - San Juan Division

| | |
|---|---|
| Sample Delivery Group: | L867887 |
| Samples Received: | 10/22/2016 |
| Project Number: | |
| Description: | Hare GC F #1 |

Report To: James McDaniel
382 County Road 3100
Aztec, NM 87410

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative



# TABLE OF CONTENTS

## FARAC-102016-930 L867887-01 GW

Collected by: Alex Crooks
Collected date/time: 10/20/16 09:30
Received date/time: 10/22/16 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG920040 | 1 | 10/28/16 00:42 | 10/28/16 00:42 | JHH |

All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

## Sample Handling and Receiving

**The analysis for 2-Chloroethyl Vinyl Ether was conducted from a chemically preserved container.**

| ESC Sample ID | Project Sample ID | Method |
|---|---|---|
| L867887-01 | FARAC-102016-930 | 8260B |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | J4 | 0.0500 | 1 | 10/28/2016 00:42 | WG920040 |
| Acrolein | ND | J4 | 0.0500 | 1 | 10/28/2016 00:42 | WG920040 |
| Acrylonitrile | ND | | 0.0100 | 1 | 10/28/2016 00:42 | WG920040 |
| Benzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Bromobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Bromoform | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Bromomethane | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Carbon tetrachloride | ND | J4 | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Chlorobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Chloroethane | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| 2-Chloroethyl vinyl ether | ND | | 0.0500 | 1 | 10/28/2016 00:42 | WG920040 |
| Chloroform | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| Chloromethane | ND | | 0.00250 | 1 | 10/28/2016 00:42 | WG920040 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Dibromomethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Ethylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 10/28/2016 00:42 | WG920040 |
| Methylene Chloride | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 10/28/2016 00:42 | WG920040 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Naphthalene | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Styrene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Toluene | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Trichloroethene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Vinyl chloride | ND | | 0.00100 | 1 | 10/28/2016 00:42 | WG920040 |
| Xylenes, Total | ND | | 0.00300 | 1 | 10/28/2016 00:42 | WG920040 |
| *(S) Toluene-d8* | *104* | | *90.0-115* | | *10/28/2016 00:42* | WG920040 |
| *(S) Dibromofluoromethane* | *89.4* | | *79.0-121* | | *10/28/2016 00:42* | WG920040 |
| *(S) 4-Bromofluorobenzene* | *95.6* | | *80.1-120* | | *10/28/2016 00:42* | WG920040 |

## Method Blank (MB)

(MB) R3174257-3 10/27/16 21:17

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Acetone | U | | 0.0100 | 0.0500 |
| Acrolein | U | | 0.00887 | 0.0500 |
| Acrylonitrile | U | | 0.00187 | 0.0100 |
| Benzene | U | | 0.000331 | 0.00100 |
| Bromobenzene | U | | 0.000352 | 0.00100 |
| Bromodichloromethane | U | | 0.000380 | 0.00100 |
| Bromoform | U | | 0.000469 | 0.00100 |
| Bromomethane | U | | 0.000866 | 0.00500 |
| n-Butylbenzene | U | | 0.000361 | 0.00100 |
| sec-Butylbenzene | U | | 0.000365 | 0.00100 |
| tert-Butylbenzene | U | | 0.000399 | 0.00100 |
| Carbon tetrachloride | U | | 0.000379 | 0.00100 |
| Chlorobenzene | U | | 0.000348 | 0.00100 |
| Chlorodibromomethane | U | | 0.000327 | 0.00100 |
| Chloroethane | U | | 0.000453 | 0.00500 |
| 2-Chloroethyl vinyl ether | U | | 0.00301 | 0.0500 |
| Chloroform | U | | 0.000324 | 0.00500 |
| Chloromethane | U | | 0.000276 | 0.00250 |
| 2-Chlorotoluene | U | | 0.000375 | 0.00100 |
| 4-Chlorotoluene | U | | 0.000351 | 0.00100 |
| 1,2-Dibromo-3-Chloropropane | U | | 0.00133 | 0.00500 |
| 1,2-Dibromoethane | U | | 0.000381 | 0.00100 |
| Dibromomethane | U | | 0.000346 | 0.00100 |
| 1,2-Dichlorobenzene | U | | 0.000349 | 0.00100 |
| 1,3-Dichlorobenzene | U | | 0.000220 | 0.00100 |
| 1,4-Dichlorobenzene | U | | 0.000274 | 0.00100 |
| Dichlorodifluoromethane | U | | 0.000551 | 0.00500 |
| 1,1-Dichloroethane | U | | 0.000259 | 0.00100 |
| 1,2-Dichloroethane | U | | 0.000361 | 0.00100 |
| 1,1-Dichloroethene | U | | 0.000398 | 0.00100 |
| cis-1,2-Dichloroethene | U | | 0.000260 | 0.00100 |
| trans-1,2-Dichloroethene | U | | 0.000396 | 0.00100 |
| 1,2-Dichloropropane | U | | 0.000306 | 0.00100 |
| 1,1-Dichloropropene | U | | 0.000352 | 0.00100 |
| 1,3-Dichloropropane | U | | 0.000366 | 0.00100 |
| cis-1,3-Dichloropropene | U | | 0.000418 | 0.00100 |
| trans-1,3-Dichloropropene | U | | 0.000419 | 0.00100 |
| 2,2-Dichloropropane | U | | 0.000321 | 0.00100 |
| Di-isopropyl ether | U | | 0.000320 | 0.00100 |
| Ethylbenzene | U | | 0.000384 | 0.00100 |

## Method Blank (MB)

(MB) R3174257-3 10/27/16 21:17

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Hexachloro-1,3-butadiene | U | | 0.000256 | 0.00100 |
| Isopropylbenzene | U | | 0.000326 | 0.00100 |
| p-Isopropyltoluene | U | | 0.000350 | 0.00100 |
| 2-Butanone (MEK) | U | | 0.00393 | 0.0100 |
| Methylene Chloride | U | | 0.00100 | 0.00500 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00214 | 0.0100 |
| Methyl tert-butyl ether | U | | 0.000367 | 0.00100 |
| Naphthalene | U | | 0.00100 | 0.00500 |
| n-Propylbenzene | U | | 0.000349 | 0.00100 |
| Styrene | U | | 0.000307 | 0.00100 |
| 1,1,1,2-Tetrachloroethane | U | | 0.000385 | 0.00100 |
| 1,1,2,2-Tetrachloroethane | U | | 0.000130 | 0.00100 |
| Tetrachloroethene | U | | 0.000372 | 0.00100 |
| Toluene | U | | 0.000780 | 0.00500 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.000303 | 0.00100 |
| 1,2,3-Trichlorobenzene | U | | 0.000230 | 0.00100 |
| 1,2,4-Trichlorobenzene | U | | 0.000355 | 0.00100 |
| 1,1,1-Trichloroethane | U | | 0.000319 | 0.00100 |
| 1,1,2-Trichloroethane | U | | 0.000383 | 0.00100 |
| Trichloroethene | U | | 0.000398 | 0.00100 |
| Trichlorofluoromethane | U | | 0.00120 | 0.00500 |
| 1,2,3-Trichloropropane | U | | 0.000807 | 0.00250 |
| 1,2,3-Trimethylbenzene | U | | 0.000321 | 0.00100 |
| 1,2,4-Trimethylbenzene | U | | 0.000373 | 0.00100 |
| 1,3,5-Trimethylbenzene | U | | 0.000387 | 0.00100 |
| Vinyl chloride | U | | 0.000259 | 0.00100 |
| Xylenes, Total | U | | 0.00106 | 0.00300 |
| *(S) Toluene-d8* | *103* | | | *90.0-115* |
| *(S) Dibromofluoromethane* | *89.5* | | | *79.0-121* |
| *(S) 4-Bromofluorobenzene* | *94.9* | | | *80.1-120* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174257-1 10/27/16 20:16 • (LCSD) R3174257-2 10/27/16 20:37

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | 0.222 | 0.231 | 178 | 185 | 28.7-175 | J4 | J4 | 3.92 | 20.9 |
| Acrolein | 0.125 | 3.38 | 3.49 | 2710 | 2790 | 40.4-172 | E J4 | E J4 | 3.08 | 20 |
| Acrylonitrile | 0.125 | 0.163 | 0.172 | 130 | 138 | 58.2-145 | | | 5.83 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174257-1 10/27/16 20:16 • (LCSD) R3174257-2 10/27/16 20:37

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.0250 | 0.0246 | 0.0260 | 98.5 | 104 | 73.0-122 | | | 5.37 | 20 |
| Bromobenzene | 0.0250 | 0.0221 | 0.0239 | 88.2 | 95.8 | 81.5-115 | | | 8.17 | 20 |
| Bromodichloromethane | 0.0250 | 0.0209 | 0.0228 | 83.7 | 91.1 | 75.5-121 | | | 8.49 | 20 |
| Bromoform | 0.0250 | 0.0212 | 0.0233 | 84.7 | 93.3 | 71.5-131 | | | 9.60 | 20 |
| Bromomethane | 0.0250 | 0.00993 | 0.0108 | 39.7 | 43.2 | 22.4-187 | | | 8.39 | 20 |
| n-Butylbenzene | 0.0250 | 0.0254 | 0.0280 | 102 | 112 | 75.9-134 | | | 9.85 | 20 |
| sec-Butylbenzene | 0.0250 | 0.0210 | 0.0227 | 83.9 | 91.0 | 80.6-126 | | | 8.09 | 20 |
| tert-Butylbenzene | 0.0250 | 0.0204 | 0.0221 | 81.4 | 88.4 | 79.3-127 | | | 8.18 | 20 |
| Carbon tetrachloride | 0.0250 | 0.0176 | 0.0190 | 70.4 | 76.0 | 70.9-129 | J4 | | 7.71 | 20 |
| Chlorobenzene | 0.0250 | 0.0217 | 0.0234 | 86.8 | 93.5 | 79.7-122 | | | 7.47 | 20 |
| Chlorodibromomethane | 0.0250 | 0.0206 | 0.0224 | 82.2 | 89.5 | 78.2-124 | | | 8.48 | 20 |
| Chloroethane | 0.0250 | 0.0153 | 0.0161 | 61.4 | 64.3 | 41.2-153 | | | 4.69 | 20 |
| 2-Chloroethyl vinyl ether | 0.125 | 0.146 | 0.159 | 117 | 127 | 23.4-162 | | | 8.83 | 23.5 |
| Chloroform | 0.0250 | 0.0213 | 0.0227 | 85.4 | 90.7 | 73.2-125 | | | 6.08 | 20 |
| Chloromethane | 0.0250 | 0.0311 | 0.0330 | 124 | 132 | 55.8-134 | | | 5.95 | 20 |
| 2-Chlorotoluene | 0.0250 | 0.0225 | 0.0241 | 90.1 | 96.4 | 76.4-125 | | | 6.76 | 20 |
| 4-Chlorotoluene | 0.0250 | 0.0225 | 0.0244 | 90.1 | 97.5 | 81.5-121 | | | 7.83 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | 0.0231 | 0.0253 | 92.5 | 101 | 64.8-131 | | | 9.07 | 20 |
| 1,2-Dibromoethane | 0.0250 | 0.0206 | 0.0225 | 82.3 | 90.0 | 79.8-122 | | | 8.99 | 20 |
| Dibromomethane | 0.0250 | 0.0205 | 0.0222 | 81.9 | 88.7 | 79.5-118 | | | 7.93 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | 0.0242 | 0.0267 | 96.8 | 107 | 84.7-118 | | | 9.91 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | 0.0202 | 0.0218 | 80.7 | 87.2 | 77.6-127 | | | 7.71 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | 0.0230 | 0.0251 | 92.0 | 100 | 82.2-114 | | | 8.71 | 20 |
| Dichlorodifluoromethane | 0.0250 | 0.0188 | 0.0196 | 75.2 | 78.3 | 56.0-134 | | | 4.04 | 20 |
| 1,1-Dichloroethane | 0.0250 | 0.0256 | 0.0271 | 103 | 109 | 71.7-127 | | | 5.69 | 20 |
| 1,2-Dichloroethane | 0.0250 | 0.0193 | 0.0207 | 77.1 | 82.9 | 65.3-126 | | | 7.31 | 20 |
| 1,1-Dichloroethene | 0.0250 | 0.0211 | 0.0240 | 84.5 | 96.0 | 59.9-137 | | | 12.8 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | 0.0227 | 0.0242 | 90.8 | 96.7 | 77.3-122 | | | 6.31 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | 0.0229 | 0.0244 | 91.7 | 97.5 | 72.6-125 | | | 6.09 | 20 |
| 1,2-Dichloropropane | 0.0250 | 0.0275 | 0.0300 | 110 | 120 | 77.4-125 | | | 8.75 | 20 |
| 1,1-Dichloropropene | 0.0250 | 0.0247 | 0.0262 | 98.8 | 105 | 72.5-127 | | | 5.82 | 20 |
| 1,3-Dichloropropane | 0.0250 | 0.0238 | 0.0261 | 95.3 | 104 | 80.6-115 | | | 8.97 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | 0.0248 | 0.0269 | 99.0 | 107 | 77.7-124 | | | 8.17 | 20 |
| trans-1,3-Dichloropropene | 0.0250 | 0.0205 | 0.0223 | 82.0 | 89.1 | 73.5-127 | | | 8.30 | 20 |
| 2,2-Dichloropropane | 0.0250 | 0.0189 | 0.0207 | 75.6 | 82.6 | 61.3-134 | | | 8.95 | 20 |
| Di-isopropyl ether | 0.0250 | 0.0297 | 0.0320 | 119 | 128 | 65.1-135 | | | 7.45 | 20 |
| Ethylbenzene | 0.0250 | 0.0218 | 0.0234 | 87.2 | 93.8 | 80.9-121 | | | 7.28 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | 0.0278 | 0.0309 | 111 | 124 | 73.7-133 | | | 10.5 | 20 |
| Isopropylbenzene | 0.0250 | 0.0212 | 0.0231 | 84.6 | 92.4 | 81.6-124 | | | 8.79 | 20 |
| p-Isopropyltoluene | 0.0250 | 0.0211 | 0.0230 | 84.4 | 92.1 | 77.6-129 | | | 8.71 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174257-1 10/27/16 20:16 • (LCSD) R3174257-2 10/27/16 20:37

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| 2-Butanone (MEK) | 0.125 | 0.140 | 0.151 | 112 | 121 | 46.4-155 | | | 7.32 | 20 |
| Methylene Chloride | 0.0250 | 0.0223 | 0.0237 | 89.1 | 94.7 | 69.5-120 | | | 6.10 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.125 | 0.136 | 0.148 | 109 | 119 | 63.3-138 | | | 8.94 | 20 |
| Methyl tert-butyl ether | 0.0250 | 0.0203 | 0.0219 | 81.1 | 87.7 | 70.1-125 | | | 7.85 | 20 |
| Naphthalene | 0.0250 | 0.0215 | 0.0237 | 85.9 | 94.9 | 69.7-134 | | | 9.91 | 20 |
| n-Propylbenzene | 0.0250 | 0.0224 | 0.0243 | 89.7 | 97.4 | 81.9-122 | | | 8.18 | 20 |
| Styrene | 0.0250 | 0.0226 | 0.0246 | 90.5 | 98.3 | 79.9-124 | | | 8.28 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | 0.0197 | 0.0217 | 78.9 | 86.7 | 78.5-125 | | | 9.42 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | 0.0213 | 0.0231 | 85.3 | 92.2 | 79.3-123 | | | 7.77 | 20 |
| Tetrachloroethene | 0.0250 | 0.0212 | 0.0228 | 84.7 | 91.3 | 73.5-130 | | | 7.52 | 20 |
| Toluene | 0.0250 | 0.0227 | 0.0245 | 90.8 | 98.0 | 77.9-116 | | | 7.61 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | 0.0202 | 0.0224 | 80.8 | 89.7 | 62.0-141 | | | 10.5 | 20 |
| 1,2,3-Trichlorobenzene | 0.0250 | 0.0235 | 0.0256 | 93.8 | 103 | 75.7-134 | | | 8.85 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | 0.0250 | 0.0277 | 100 | 111 | 76.1-136 | | | 10.1 | 20 |
| 1,1,1-Trichloroethane | 0.0250 | 0.0194 | 0.0209 | 77.5 | 83.4 | 71.1-129 | | | 7.33 | 20 |
| 1,1,2-Trichloroethane | 0.0250 | 0.0211 | 0.0230 | 84.6 | 92.1 | 81.6-120 | | | 8.52 | 20 |
| Trichloroethene | 0.0250 | 0.0221 | 0.0236 | 88.4 | 94.5 | 79.5-121 | | | 6.63 | 20 |
| Trichlorofluoromethane | 0.0250 | 0.0125 | 0.0133 | 50.2 | 53.2 | 49.1-157 | | | 5.84 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | 0.0193 | 0.0211 | 77.3 | 84.4 | 74.9-124 | | | 8.79 | 20 |
| 1,2,3-Trimethylbenzene | 0.0250 | 0.0233 | 0.0255 | 93.2 | 102 | 79.9-118 | | | 9.07 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | 0.0210 | 0.0228 | 83.8 | 91.2 | 79.0-122 | | | 8.45 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | 0.0204 | 0.0222 | 81.7 | 88.6 | 81.0-123 | | | 8.13 | 20 |
| Vinyl chloride | 0.0250 | 0.0219 | 0.0231 | 87.5 | 92.4 | 61.5-134 | | | 5.39 | 20 |
| Xylenes, Total | 0.0750 | 0.0639 | 0.0692 | 85.2 | 92.3 | 79.2-122 | | | 7.94 | 20 |
| *(S) Toluene-d8* | | | | *103* | *103* | *90.0-115* | | | | |
| *(S) Dibromofluoromethane* | | | | *91.6* | *91.2* | *79.0-121* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *94.3* | *94.1* | *80.1-120* | | | | |

## Abbreviations and Definitions

| | |
|---|---|
| SDG | Sample Delivery Group. |
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| ND | Not detected at the Reporting Limit (or MDL where applicable). |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| RPD | Relative Percent Difference. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| Rec. | Recovery. |

| Qualifier | Description |
|---|---|
| E | The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL). |
| J4 | The associated batch QC was outside the established quality control range for accuracy. |

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

## State Accreditations

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nevada | TN-03-2002-34 |
| Alaska | UST-080 | New Hampshire | 2975 |
| Arizona | AZ0612 | New Jersey–NELAP | TN002 |
| Arkansas | 88-0469 | New Mexico | TN00003 |
| California | 01157CA | New York | 11742 |
| Colorado | TN00003 | North Carolina | Env375 |
| Conneticut | PH-0197 | North Carolina [1] | DW21704 |
| Florida | E87487 | North Carolina [2] | 41 |
| Georgia | NELAP | North Dakota | R-140 |
| Georgia [1] | 923 | Ohio–VAP | CL0069 |
| Idaho | TN00003 | Oklahoma | 9915 |
| Illinois | 200008 | Oregon | TN200002 |
| Indiana | C-TN-01 | Pennsylvania | 68-02979 |
| Iowa | 364 | Rhode Island | 221 |
| Kansas | E-10277 | South Carolina | 84004 |
| Kentucky [1] | 90010 | South Dakota | n/a |
| Kentucky [2] | 16 | Tennessee [1 4] | 2006 |
| Louisiana | AI30792 | Texas | T 104704245-07-TX |
| Maine | TN0002 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | 6157585858 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 109 |
| Minnesota | 047-999-395 | Washington | C1915 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 9980939910 |
| Montana | CERT0086 | Wyoming | A2LA |
| Nebraska | NE-OS-15-05 | | |

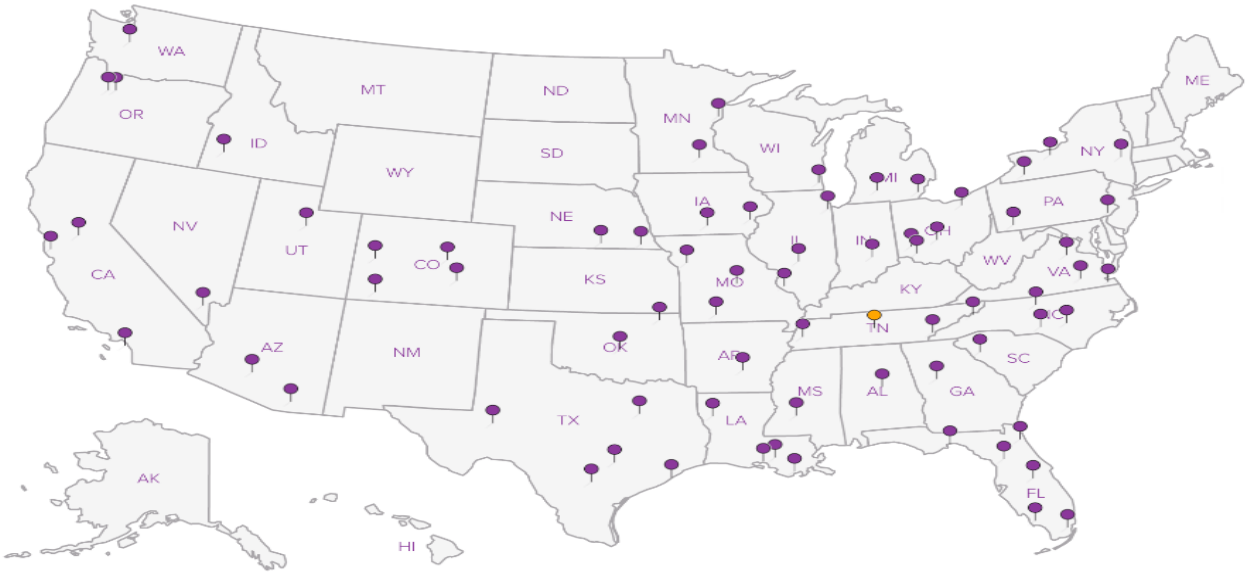
## Third Party & Federal Accreditations

| | | | |
|---|---|---|---|
| A2LA – ISO 17025 | 1461.01 | AIHA | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | S-67674 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



XTO ENERGY
Western Division

| | | |
|---|---|---|
| Quote Number | | Page 1 of 1 |
| XTO Contact: James McDaniel | | XTO Contact Phone #: 505-787-0519 |
| Email Results to: dhencmann@ft.envi; JamesMcdaniel@xtoenergy.com | | |
| Well Site/Location: Hare GC F #1 | API Number | Test Reason |
| Collected By: Alex Crooks | Samples on Ice (Y)/N | Turnaround: X Standard; ___ Next Day; ___ Two Day; ___ Three Day; ___ Std. 5 Bus. Days (by contract); Date Needed ___ |
| Company: LTE | QA/QC Requested | |
| Signature: AC | Gray Areas for Lab Use Only! | |

Analysis: 8260B

Lab Information

Office Abbreviations
Farmington = FAR
Durango = DUR
Bakken = BAK
Raton = RAT
Piceance = PC
Roosevelt = RSV
La Barge = LB
Orangeville = OV

E057

| Sample ID | Sample Name | Media | Date | Time | Preservative | No. of Conts. | Sample Number |
|---|---|---|---|---|---|---|---|
| ~~FARAC-102016-930~~ | | | | | | | |
| FARAC-102016-930 | TMW-1 | GW | 10/20 | 930 | HCl | 3 | X L8467887-01 |

Media: Filter = F Soil = S Wastewater = WW Groundwater = GW Drinking Waster = DW Sludge = SG Surface Water = SW Air = A Drill Mud = DM Other = OT

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: (Signature) Alex Crooks | Date: 10/20 | Time: 1630 | Received By: (Signature) | Number of Bottles: 3 | Sample Condition |
| Relinquished By: (Signature) | Date: | Time: | Received By: (Signature) | Temperature: 3.1 | Other Information |
| Relinquished By: (Signature) | Date: | Time: | Received for Lab by: (Signature) | Date: 10.22.16 Time: 900 | |

Comments: 5547 0240 3110

GW

* Sample ID will be the office and sampler-date-military time FARJM-MMDDYY-1200

0282

ESC
LAB SCIENCES
YOUR LAB OF CHOICE

# Cooler Receipt Form

| | | | |
|---|---|---|---|
| Client: XTO SMT | | SDG# | L607687 |
| Cooler Received/Opened On: 10.22.16 | | Temperature Upon Receipt: | 3.1 °c |
| Received By: Jasmine Ingle | | | |
| Signature: JIngle | | | |

| Receipt Check List | Yes | No | N/A |
|---|---|---|---|
| Were custody seals on outside of cooler and intact? | | | ✓ |
| Were custody papers properly filled out? | ✓ | | |
| Did all bottles arrive in good condition? | ✓ | | |
| Were correct bottles used for the analyses requested? | ✓ | | |
| Was sufficient amount of sample sent in each bottle? | ✓ | | |
| Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC) | | | ✓ |
| If applicable, was an observable VOA headspace present? | | ✓ | |
| Non Conformance Generated. (If yes see attached NCF) | | | |

# ANALYTICAL REPORT

January 30, 2017

## XTO Energy - San Juan Division

| | |
|---|---|
| Sample Delivery Group: | L886471 |
| Samples Received: | 01/27/2017 |
| Project Number: | |
| Description: | Hare GC F#1 |

Report To: James McDaniel
382 County Road 3100
Aztec, NM 87410

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative



# TABLE OF CONTENTS

## FARJA-012617-1315 L886471-01 GW

Collected by: Josh Adams
Collected date/time: 01/26/17 13:15
Received date/time: 01/27/17 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|---|---|---|---|---|---|
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG947619 | 1 | 01/29/17 19:20 | 01/29/17 19:20 | ACG |

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne R Richards

Daphne Richards
Technical Service Representative

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| Acetone | ND | | 0.0500 | 1 | 01/29/2017 19:20 | WG947619 |
| Acrolein | ND | J4 | 0.0500 | 1 | 01/29/2017 19:20 | WG947619 |
| Acrylonitrile | ND | | 0.0100 | 1 | 01/29/2017 19:20 | WG947619 |
| Benzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Bromobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Bromodichloromethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Bromoform | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Bromomethane | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| n-Butylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| sec-Butylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| tert-Butylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Carbon tetrachloride | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Chlorobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Chlorodibromomethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Chloroethane | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| Chloroform | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| Chloromethane | ND | | 0.00250 | 1 | 01/29/2017 19:20 | WG947619 |
| 2-Chlorotoluene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 4-Chlorotoluene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2-Dibromo-3-Chloropropane | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2-Dibromoethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Dibromomethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2-Dichlorobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,3-Dichlorobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,4-Dichlorobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Dichlorodifluoromethane | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1-Dichloroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2-Dichloroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1-Dichloroethene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| cis-1,2-Dichloroethene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| trans-1,2-Dichloroethene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2-Dichloropropane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1-Dichloropropene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,3-Dichloropropane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| cis-1,3-Dichloropropene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| trans-1,3-Dichloropropene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 2,2-Dichloropropane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Di-isopropyl ether | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Ethylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Hexachloro-1,3-butadiene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Isopropylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| p-Isopropyltoluene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 2-Butanone (MEK) | ND | | 0.0100 | 1 | 01/29/2017 19:20 | WG947619 |
| Methylene Chloride | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| 4-Methyl-2-pentanone (MIBK) | ND | | 0.0100 | 1 | 01/29/2017 19:20 | WG947619 |
| Methyl tert-butyl ether | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Naphthalene | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| n-Propylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Styrene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1,1,2-Tetrachloroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1,2,2-Tetrachloroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1,2-Trichlorotrifluoroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Tetrachloroethene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Toluene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2,3-Trichlorobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2,4-Trichlorobenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |

## Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result mg/l | Qualifier | RDL mg/l | Dilution | Analysis date / time | Batch |
|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,1,2-Trichloroethane | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Trichloroethene | ND | J4 | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Trichlorofluoromethane | ND | | 0.00500 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2,3-Trichloropropane | ND | | 0.00250 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2,4-Trimethylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,2,3-Trimethylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| 1,3,5-Trimethylbenzene | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Vinyl chloride | ND | | 0.00100 | 1 | 01/29/2017 19:20 | WG947619 |
| Xylenes, Total | ND | | 0.00300 | 1 | 01/29/2017 19:20 | WG947619 |
| *(S) Toluene-d8* | *103* | | *80.0-120* | | *01/29/2017 19:20* | WG947619 |
| *(S) Dibromofluoromethane* | *93.4* | | *76.0-123* | | *01/29/2017 19:20* | WG947619 |
| *(S) 4-Bromofluorobenzene* | *103* | | *80.0-120* | | *01/29/2017 19:20* | WG947619 |

## Method Blank (MB)

(MB) R3193512-3 01/29/17 12:43

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Acetone | U | | 0.0100 | 0.0500 |
| Acrolein | U | | 0.00887 | 0.0500 |
| Acrylonitrile | U | | 0.00187 | 0.0100 |
| Benzene | U | | 0.000331 | 0.00100 |
| Bromobenzene | U | | 0.000352 | 0.00100 |
| Bromodichloromethane | U | | 0.000380 | 0.00100 |
| Bromoform | U | | 0.000469 | 0.00100 |
| Bromomethane | U | | 0.000866 | 0.00500 |
| n-Butylbenzene | U | | 0.000361 | 0.00100 |
| sec-Butylbenzene | U | | 0.000365 | 0.00100 |
| tert-Butylbenzene | U | | 0.000399 | 0.00100 |
| Carbon tetrachloride | U | | 0.000379 | 0.00100 |
| Chlorobenzene | U | | 0.000348 | 0.00100 |
| Chlorodibromomethane | U | | 0.000327 | 0.00100 |
| Chloroethane | U | | 0.000453 | 0.00500 |
| Chloroform | U | | 0.000324 | 0.00500 |
| Chloromethane | U | | 0.000276 | 0.00250 |
| 2-Chlorotoluene | U | | 0.000375 | 0.00100 |
| 4-Chlorotoluene | U | | 0.000351 | 0.00100 |
| 1,2-Dibromo-3-Chloropropane | U | | 0.00133 | 0.00500 |
| 1,2-Dibromoethane | U | | 0.000381 | 0.00100 |
| Dibromomethane | U | | 0.000346 | 0.00100 |
| 1,2-Dichlorobenzene | U | | 0.000349 | 0.00100 |
| 1,3-Dichlorobenzene | U | | 0.000220 | 0.00100 |
| 1,4-Dichlorobenzene | U | | 0.000274 | 0.00100 |
| Dichlorodifluoromethane | U | | 0.000551 | 0.00500 |
| 1,1-Dichloroethane | U | | 0.000259 | 0.00100 |
| 1,2-Dichloroethane | U | | 0.000361 | 0.00100 |
| 1,1-Dichloroethene | U | | 0.000398 | 0.00100 |
| cis-1,2-Dichloroethene | U | | 0.000260 | 0.00100 |
| trans-1,2-Dichloroethene | U | | 0.000396 | 0.00100 |
| 1,2-Dichloropropane | U | | 0.000306 | 0.00100 |
| 1,1-Dichloropropene | U | | 0.000352 | 0.00100 |
| 1,3-Dichloropropane | U | | 0.000366 | 0.00100 |
| cis-1,3-Dichloropropene | U | | 0.000418 | 0.00100 |
| trans-1,3-Dichloropropene | U | | 0.000419 | 0.00100 |
| 2,2-Dichloropropane | U | | 0.000321 | 0.00100 |
| Di-isopropyl ether | U | | 0.000320 | 0.00100 |
| Ethylbenzene | U | | 0.000384 | 0.00100 |
| Hexachloro-1,3-butadiene | U | | 0.000256 | 0.00100 |

## Method Blank (MB)

(MB) R3193512-3 01/29/17 12:43

| Analyte | MB Result mg/l | MB Qualifier | MB MDL mg/l | MB RDL mg/l |
|---|---|---|---|---|
| Isopropylbenzene | U | | 0.000326 | 0.00100 |
| p-Isopropyltoluene | U | | 0.000350 | 0.00100 |
| 2-Butanone (MEK) | U | | 0.00393 | 0.0100 |
| Methylene Chloride | U | | 0.00100 | 0.00500 |
| Methyl tert-butyl ether | U | | 0.000367 | 0.00100 |
| 4-Methyl-2-pentanone (MIBK) | U | | 0.00214 | 0.0100 |
| Naphthalene | U | | 0.00100 | 0.00500 |
| 1,1,2,2-Tetrachloroethane | U | | 0.000130 | 0.00100 |
| n-Propylbenzene | U | | 0.000349 | 0.00100 |
| Tetrachloroethene | U | | 0.000372 | 0.00100 |
| Styrene | U | | 0.000307 | 0.00100 |
| 1,1,1,2-Tetrachloroethane | U | | 0.000385 | 0.00100 |
| Toluene | U | | 0.000412 | 0.00100 |
| 1,1,1-Trichloroethane | U | | 0.000319 | 0.00100 |
| 1,1,2-Trichloroethane | U | | 0.000383 | 0.00100 |
| 1,1,2-Trichlorotrifluoroethane | U | | 0.000303 | 0.00100 |
| 1,2,3-Trichlorobenzene | U | | 0.000230 | 0.00100 |
| Trichloroethene | U | | 0.000398 | 0.00100 |
| 1,2,4-Trichlorobenzene | U | | 0.000355 | 0.00100 |
| Trichlorofluoromethane | U | | 0.00120 | 0.00500 |
| 1,2,3-Trichloropropane | U | | 0.000807 | 0.00250 |
| 1,2,3-Trimethylbenzene | U | | 0.000321 | 0.00100 |
| 1,2,4-Trimethylbenzene | U | | 0.000373 | 0.00100 |
| Vinyl chloride | U | | 0.000259 | 0.00100 |
| 1,3,5-Trimethylbenzene | U | | 0.000387 | 0.00100 |
| Xylenes, Total | U | | 0.00106 | 0.00300 |
| *(S) Toluene-d8* | *104* | | | *80.0-120* |
| *(S) Dibromofluoromethane* | *97.6* | | | *76.0-123* |
| *(S) 4-Bromofluorobenzene* | *103* | | | *80.0-120* |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3193512-1 01/29/17 11:34 • (LCSD) R3193512-2 01/29/17 11:57

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | 0.118 | 0.120 | 94.1 | 95.6 | 10.0-160 | | | 1.55 | 23 |
| Acrolein | 0.125 | 0.415 | 0.417 | 332 | 333 | 10.0-160 | J4 | J4 | 0.490 | 20 |
| Acrylonitrile | 0.125 | 0.113 | 0.115 | 90.6 | 91.9 | 60.0-142 | | | 1.35 | 20 |
| Benzene | 0.0250 | 0.0257 | 0.0265 | 103 | 106 | 69.0-123 | | | 3.08 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3193512-1 01/29/17 11:34 • (LCSD) R3193512-2 01/29/17 11:57

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| Bromobenzene | 0.0250 | 0.0240 | 0.0252 | 96.2 | 101 | 79.0-120 | | | 4.75 | 20 |
| Bromodichloromethane | 0.0250 | 0.0251 | 0.0258 | 100 | 103 | 76.0-120 | | | 3.02 | 20 |
| Bromoform | 0.0250 | 0.0244 | 0.0248 | 97.8 | 99.1 | 67.0-132 | | | 1.35 | 20 |
| Bromomethane | 0.0250 | 0.0246 | 0.0252 | 98.5 | 101 | 18.0-160 | | | 2.21 | 20 |
| n-Butylbenzene | 0.0250 | 0.0230 | 0.0237 | 91.8 | 94.6 | 72.0-126 | | | 3.01 | 20 |
| sec-Butylbenzene | 0.0250 | 0.0243 | 0.0248 | 97.1 | 99.3 | 74.0-121 | | | 2.15 | 20 |
| tert-Butylbenzene | 0.0250 | 0.0253 | 0.0262 | 101 | 105 | 75.0-122 | | | 3.50 | 20 |
| Carbon tetrachloride | 0.0250 | 0.0228 | 0.0240 | 91.1 | 96.1 | 63.0-122 | | | 5.39 | 20 |
| Chlorobenzene | 0.0250 | 0.0265 | 0.0276 | 106 | 110 | 79.0-121 | | | 4.24 | 20 |
| Chlorodibromomethane | 0.0250 | 0.0260 | 0.0272 | 104 | 109 | 75.0-125 | | | 4.49 | 20 |
| Chloroethane | 0.0250 | 0.0283 | 0.0287 | 113 | 115 | 47.0-152 | | | 1.36 | 20 |
| Chloroform | 0.0250 | 0.0253 | 0.0263 | 101 | 105 | 72.0-121 | | | 4.11 | 20 |
| Chloromethane | 0.0250 | 0.0226 | 0.0230 | 90.6 | 92.1 | 48.0-139 | | | 1.64 | 20 |
| 2-Chlorotoluene | 0.0250 | 0.0252 | 0.0261 | 101 | 105 | 74.0-122 | | | 3.69 | 20 |
| 4-Chlorotoluene | 0.0250 | 0.0260 | 0.0265 | 104 | 106 | 79.0-120 | | | 1.83 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | 0.0193 | 0.0201 | 77.3 | 80.5 | 64.0-127 | | | 4.02 | 20 |
| 1,2-Dibromoethane | 0.0250 | 0.0250 | 0.0259 | 99.9 | 103 | 77.0-123 | | | 3.51 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | 0.0242 | 0.0252 | 96.8 | 101 | 80.0-120 | | | 4.00 | 20 |
| Dibromomethane | 0.0250 | 0.0246 | 0.0245 | 98.5 | 98.2 | 78.0-120 | | | 0.350 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | 0.0247 | 0.0256 | 99.0 | 102 | 72.0-123 | | | 3.32 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | 0.0228 | 0.0234 | 91.3 | 93.7 | 77.0-120 | | | 2.60 | 20 |
| Dichlorodifluoromethane | 0.0250 | 0.0267 | 0.0275 | 107 | 110 | 49.0-155 | | | 3.00 | 20 |
| 1,1-Dichloroethane | 0.0250 | 0.0252 | 0.0261 | 101 | 105 | 70.0-126 | | | 3.74 | 20 |
| 1,2-Dichloroethane | 0.0250 | 0.0221 | 0.0233 | 88.2 | 93.0 | 67.0-126 | | | 5.31 | 20 |
| 1,1-Dichloroethene | 0.0250 | 0.0278 | 0.0288 | 111 | 115 | 64.0-129 | | | 3.44 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | 0.0276 | 0.0282 | 111 | 113 | 73.0-120 | | | 1.93 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | 0.0277 | 0.0285 | 111 | 114 | 71.0-121 | | | 3.02 | 20 |
| 1,2-Dichloropropane | 0.0250 | 0.0260 | 0.0264 | 104 | 106 | 75.0-125 | | | 1.71 | 20 |
| 1,1-Dichloropropene | 0.0250 | 0.0270 | 0.0279 | 108 | 111 | 71.0-129 | | | 3.13 | 20 |
| 1,3-Dichloropropane | 0.0250 | 0.0246 | 0.0253 | 98.6 | 101 | 80.0-121 | | | 2.55 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | 0.0255 | 0.0263 | 102 | 105 | 79.0-123 | | | 3.19 | 20 |
| trans-1,3-Dichloropropene | 0.0250 | 0.0265 | 0.0270 | 106 | 108 | 74.0-127 | | | 1.97 | 20 |
| 2,2-Dichloropropane | 0.0250 | 0.0222 | 0.0229 | 89.0 | 91.5 | 60.0-125 | | | 2.82 | 20 |
| Di-isopropyl ether | 0.0250 | 0.0215 | 0.0223 | 86.2 | 89.0 | 59.0-133 | | | 3.24 | 20 |
| Ethylbenzene | 0.0250 | 0.0267 | 0.0275 | 107 | 110 | 77.0-120 | | | 2.95 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | 0.0200 | 0.0204 | 80.1 | 81.8 | 64.0-131 | | | 2.08 | 20 |
| Isopropylbenzene | 0.0250 | 0.0253 | 0.0261 | 101 | 104 | 75.0-120 | | | 3.29 | 20 |
| p-Isopropyltoluene | 0.0250 | 0.0257 | 0.0265 | 103 | 106 | 74.0-126 | | | 3.22 | 20 |
| 2-Butanone (MEK) | 0.125 | 0.107 | 0.109 | 85.5 | 87.0 | 37.0-158 | | | 1.75 | 20 |
| Methylene Chloride | 0.0250 | 0.0242 | 0.0256 | 96.8 | 102 | 66.0-121 | | | 5.57 | 20 |

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3193512-1 01/29/17 11:34 • (LCSD) R3193512-2 01/29/17 11:57

| Analyte | Spike Amount mg/l | LCS Result mg/l | LCSD Result mg/l | LCS Rec. % | LCSD Rec. % | Rec. Limits % | LCS Qualifier | LCSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|
| 4-Methyl-2-pentanone (MIBK) | 0.125 | 0.107 | 0.107 | 85.5 | 86.0 | 59.0-143 | | | 0.510 | 20 |
| Methyl tert-butyl ether | 0.0250 | 0.0231 | 0.0239 | 92.3 | 95.4 | 64.0-123 | | | 3.39 | 20 |
| Naphthalene | 0.0250 | 0.0189 | 0.0197 | 75.7 | 78.8 | 62.0-128 | | | 4.04 | 20 |
| n-Propylbenzene | 0.0250 | 0.0257 | 0.0263 | 103 | 105 | 79.0-120 | | | 2.48 | 20 |
| Styrene | 0.0250 | 0.0267 | 0.0288 | 107 | 115 | 78.0-124 | | | 7.51 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | 0.0251 | 0.0262 | 100 | 105 | 75.0-122 | | | 4.39 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | 0.0203 | 0.0202 | 81.1 | 80.7 | 71.0-122 | | | 0.460 | 20 |
| Tetrachloroethene | 0.0250 | 0.0266 | 0.0266 | 106 | 106 | 70.0-127 | | | 0.0100 | 20 |
| Toluene | 0.0250 | 0.0269 | 0.0275 | 108 | 110 | 77.0-120 | | | 2.32 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | 0.0261 | 0.0271 | 104 | 108 | 61.0-136 | | | 3.98 | 20 |
| 1,2,3-Trichlorobenzene | 0.0250 | 0.0188 | 0.0196 | 75.1 | 78.5 | 61.0-133 | | | 4.44 | 20 |
| 1,1,1-Trichloroethane | 0.0250 | 0.0251 | 0.0252 | 100 | 101 | 68.0-122 | | | 0.230 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | 0.0217 | 0.0222 | 86.7 | 88.8 | 69.0-129 | | | 2.34 | 20 |
| 1,1,2-Trichloroethane | 0.0250 | 0.0250 | 0.0257 | 100 | 103 | 78.0-120 | | | 2.89 | 20 |
| Trichloroethene | 0.0250 | 0.0298 | 0.0313 | 119 | 125 | 78.0-120 | | J4 | 4.92 | 20 |
| Trichlorofluoromethane | 0.0250 | 0.0257 | 0.0267 | 103 | 107 | 56.0-137 | | | 4.14 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | 0.0239 | 0.0243 | 95.6 | 97.1 | 72.0-124 | | | 1.61 | 20 |
| 1,2,3-Trimethylbenzene | 0.0250 | 0.0234 | 0.0245 | 93.7 | 98.0 | 75.0-120 | | | 4.47 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | 0.0250 | 0.0259 | 100 | 104 | 75.0-120 | | | 3.43 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | 0.0242 | 0.0250 | 96.9 | 99.8 | 75.0-120 | | | 2.97 | 20 |
| Vinyl chloride | 0.0250 | 0.0275 | 0.0281 | 110 | 112 | 64.0-133 | | | 2.04 | 20 |
| Xylenes, Total | 0.0750 | 0.0793 | 0.0819 | 106 | 109 | 77.0-120 | | | 3.23 | 20 |
| *(S) Toluene-d8* | | | | *105* | *103* | *80.0-120* | | | | |
| *(S) Dibromofluoromethane* | | | | *96.4* | *98.1* | *76.0-123* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | *104* | *104* | *80.0-120* | | | | |

## L886314-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L886314-02 01/29/17 15:24 • (MS) R3193512-4 01/29/17 15:47 • (MSD) R3193512-5 01/29/17 16:16

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 0.125 | ND | 4.26 | 4.25 | 68.2 | 68.0 | 50 | 10.0-139 | | | 0.250 | 25 |
| Acrolein | 0.125 | 2.15 | 34.8 | 35.4 | 522 | 532 | 50 | 10.0-160 | J5 | J5 | 1.84 | 25 |
| Acrylonitrile | 0.125 | ND | 7.08 | 7.39 | 113 | 118 | 50 | 46.0-159 | | | 4.38 | 23 |
| Benzene | 0.0250 | 0.277 | 1.75 | 1.76 | 118 | 119 | 50 | 34.0-147 | | | 0.500 | 20 |
| Bromobenzene | 0.0250 | ND | 1.44 | 1.42 | 115 | 114 | 50 | 51.0-137 | | | 1.31 | 20 |
| Bromodichloromethane | 0.0250 | ND | 1.50 | 1.52 | 120 | 122 | 50 | 52.0-135 | | | 1.22 | 20 |
| Bromoform | 0.0250 | ND | 1.49 | 1.49 | 119 | 119 | 50 | 50.0-146 | | | 0.130 | 20 |
| Bromomethane | 0.0250 | ND | 1.19 | 1.25 | 95.2 | 100 | 50 | 10.0-160 | | | 5.16 | 23 |

## L886314-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L886314-02 01/29/17 15:24 • (MS) R3193512-4 01/29/17 15:47 • (MSD) R3193512-5 01/29/17 16:16

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n-Butylbenzene | 0.0250 | ND | 1.45 | 1.36 | 116 | 109 | 50 | 50.0-144 | | | 6.30 | 20 |
| sec-Butylbenzene | 0.0250 | ND | 1.47 | 1.40 | 118 | 112 | 50 | 48.0-143 | | | 5.40 | 20 |
| tert-Butylbenzene | 0.0250 | ND | 1.52 | 1.45 | 121 | 116 | 50 | 50.0-142 | | | 4.25 | 20 |
| Carbon tetrachloride | 0.0250 | ND | 1.35 | 1.32 | 108 | 105 | 50 | 41.0-138 | | | 2.89 | 20 |
| Chlorobenzene | 0.0250 | ND | 1.59 | 1.55 | 127 | 124 | 50 | 52.0-141 | | | 2.13 | 20 |
| Chlorodibromomethane | 0.0250 | ND | 1.58 | 1.57 | 126 | 126 | 50 | 54.0-142 | | | 0.380 | 20 |
| Chloroethane | 0.0250 | ND | 1.50 | 1.48 | 120 | 119 | 50 | 23.0-160 | | | 1.16 | 20 |
| Chloroform | 0.0250 | ND | 1.50 | 1.53 | 120 | 122 | 50 | 50.0-139 | | | 1.73 | 20 |
| Chloromethane | 0.0250 | ND | 1.13 | 1.14 | 89.1 | 90.0 | 50 | 14.0-151 | | | 1.06 | 20 |
| 2-Chlorotoluene | 0.0250 | ND | 1.53 | 1.47 | 121 | 116 | 50 | 48.0-142 | | | 3.68 | 20 |
| 4-Chlorotoluene | 0.0250 | ND | 1.53 | 1.49 | 122 | 119 | 50 | 52.0-139 | | | 2.93 | 20 |
| 1,2-Dibromo-3-Chloropropane | 0.0250 | ND | 1.32 | 1.32 | 106 | 105 | 50 | 49.0-144 | | | 0.380 | 24 |
| 1,2-Dibromoethane | 0.0250 | ND | 1.50 | 1.48 | 120 | 118 | 50 | 54.0-140 | | | 1.28 | 20 |
| 1,2-Dichlorobenzene | 0.0250 | ND | 1.48 | 1.48 | 118 | 118 | 50 | 56.0-139 | | | 0.180 | 20 |
| Dibromomethane | 0.0250 | ND | 1.42 | 1.44 | 113 | 115 | 50 | 53.0-138 | | | 1.55 | 20 |
| 1,3-Dichlorobenzene | 0.0250 | ND | 1.50 | 1.48 | 120 | 118 | 50 | 50.0-141 | | | 1.20 | 20 |
| 1,4-Dichlorobenzene | 0.0250 | ND | 1.41 | 1.37 | 112 | 110 | 50 | 53.0-136 | | | 2.24 | 20 |
| Dichlorodifluoromethane | 0.0250 | ND | 1.27 | 1.24 | 101 | 98.8 | 50 | 20.0-160 | | | 2.59 | 21 |
| 1,1-Dichloroethane | 0.0250 | ND | 1.50 | 1.46 | 120 | 117 | 50 | 47.0-143 | | | 2.68 | 20 |
| 1,2-Dichloroethane | 0.0250 | ND | 1.30 | 1.34 | 104 | 107 | 50 | 47.0-141 | | | 3.14 | 20 |
| 1,1-Dichloroethene | 0.0250 | ND | 1.49 | 1.44 | 119 | 115 | 50 | 31.0-148 | | | 3.01 | 20 |
| cis-1,2-Dichloroethene | 0.0250 | ND | 1.55 | 1.54 | 124 | 123 | 50 | 43.0-142 | | | 0.820 | 20 |
| trans-1,2-Dichloroethene | 0.0250 | ND | 1.55 | 1.53 | 124 | 122 | 50 | 36.0-141 | | | 1.60 | 20 |
| 1,2-Dichloropropane | 0.0250 | 0.101 | 1.50 | 1.49 | 112 | 111 | 50 | 51.0-141 | | | 0.210 | 20 |
| 1,1-Dichloropropene | 0.0250 | ND | 1.51 | 1.48 | 121 | 119 | 50 | 42.0-146 | | | 1.99 | 20 |
| 1,3-Dichloropropane | 0.0250 | ND | 1.45 | 1.46 | 116 | 117 | 50 | 58.0-139 | | | 0.670 | 20 |
| cis-1,3-Dichloropropene | 0.0250 | ND | 1.52 | 1.54 | 121 | 123 | 50 | 53.0-139 | | | 1.35 | 20 |
| trans-1,3-Dichloropropene | 0.0250 | ND | 1.56 | 1.60 | 121 | 124 | 50 | 51.0-143 | | | 2.87 | 20 |
| 2,2-Dichloropropane | 0.0250 | ND | 1.59 | 1.56 | 127 | 125 | 50 | 43.0-139 | | | 1.86 | 20 |
| Di-isopropyl ether | 0.0250 | ND | 1.28 | 1.28 | 102 | 102 | 50 | 44.0-144 | | | 0.0200 | 20 |
| Ethylbenzene | 0.0250 | 0.706 | 2.34 | 2.28 | 131 | 126 | 50 | 42.0-147 | | | 2.77 | 20 |
| Hexachloro-1,3-butadiene | 0.0250 | ND | 1.20 | 1.13 | 96.2 | 90.2 | 50 | 44.0-146 | | | 6.49 | 21 |
| Isopropylbenzene | 0.0250 | 0.190 | 1.73 | 1.66 | 123 | 117 | 50 | 48.0-141 | | | 4.45 | 20 |
| p-Isopropyltoluene | 0.0250 | ND | 1.55 | 1.49 | 124 | 119 | 50 | 49.0-146 | | | 3.52 | 20 |
| 2-Butanone (MEK) | 0.125 | ND | 5.42 | 5.40 | 86.7 | 86.4 | 50 | 12.0-149 | | | 0.410 | 24 |
| Methylene Chloride | 0.0250 | ND | 1.40 | 1.40 | 112 | 112 | 50 | 42.0-135 | | | 0.510 | 20 |
| 4-Methyl-2-pentanone (MIBK) | 0.125 | ND | 6.59 | 6.62 | 105 | 106 | 50 | 44.0-160 | | | 0.520 | 22 |
| Methyl tert-butyl ether | 0.0250 | ND | 1.38 | 1.41 | 110 | 112 | 50 | 42.0-142 | | | 1.89 | 20 |
| Naphthalene | 0.0250 | ND | 1.58 | 1.56 | 108 | 107 | 50 | 42.0-146 | | | 0.830 | 24 |
| n-Propylbenzene | 0.0250 | 0.106 | 1.64 | 1.58 | 123 | 118 | 50 | 47.0-144 | | | 3.59 | 20 |

## L886314-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L886314-02 01/29/17 15:24 • (MS) R3193512-4 01/29/17 15:47 • (MSD) R3193512-5 01/29/17 16:16

| Analyte | Spike Amount mg/l | Original Result mg/l | MS Result mg/l | MSD Result mg/l | MS Rec. % | MSD Rec. % | Dilution | Rec. Limits % | MS Qualifier | MSD Qualifier | RPD % | RPD Limits % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Styrene | 0.0250 | ND | 1.59 | 1.63 | 127 | 130 | 50 | 47.0-147 | | | 2.36 | 20 |
| 1,1,1,2-Tetrachloroethane | 0.0250 | ND | 1.54 | 1.51 | 123 | 121 | 50 | 52.0-140 | | | 1.80 | 20 |
| 1,1,2,2-Tetrachloroethane | 0.0250 | ND | 1.58 | 1.56 | 127 | 125 | 50 | 46.0-149 | | | 1.41 | 20 |
| Tetrachloroethene | 0.0250 | ND | 1.51 | 1.45 | 121 | 116 | 50 | 38.0-147 | | | 4.13 | 20 |
| Toluene | 0.0250 | ND | 1.58 | 1.56 | 124 | 122 | 50 | 42.0-141 | | | 1.53 | 20 |
| 1,1,2-Trichlorotrifluoroethane | 0.0250 | ND | 1.55 | 1.52 | 124 | 121 | 50 | 40.0-151 | | | 2.45 | 21 |
| 1,2,3-Trichlorobenzene | 0.0250 | ND | 1.26 | 1.22 | 101 | 97.4 | 50 | 45.0-145 | | | 3.57 | 22 |
| 1,1,1-Trichloroethane | 0.0250 | ND | 1.50 | 1.48 | 120 | 118 | 50 | 46.0-140 | | | 1.63 | 20 |
| 1,2,4-Trichlorobenzene | 0.0250 | ND | 1.40 | 1.37 | 112 | 110 | 50 | 49.0-147 | | | 1.77 | 21 |
| 1,1,2-Trichloroethane | 0.0250 | ND | 1.54 | 1.53 | 123 | 122 | 50 | 54.0-139 | | | 0.700 | 20 |
| Trichloroethene | 0.0250 | ND | 1.49 | 1.48 | 119 | 119 | 50 | 32.0-156 | | | 0.670 | 20 |
| Trichlorofluoromethane | 0.0250 | ND | 1.45 | 1.43 | 116 | 114 | 50 | 32.0-152 | | | 1.69 | 20 |
| 1,2,3-Trichloropropane | 0.0250 | ND | 1.51 | 1.49 | 121 | 119 | 50 | 54.0-143 | | | 1.31 | 21 |
| 1,2,3-Trimethylbenzene | 0.0250 | 0.196 | 1.64 | 1.61 | 115 | 113 | 50 | 48.0-138 | | | 1.95 | 20 |
| 1,2,4-Trimethylbenzene | 0.0250 | 1.04 | 2.61 | 2.56 | 125 | 122 | 50 | 41.0-146 | | | 1.85 | 20 |
| 1,3,5-Trimethylbenzene | 0.0250 | 0.171 | 1.63 | 1.57 | 117 | 112 | 50 | 44.0-143 | | | 3.63 | 20 |
| Vinyl chloride | 0.0250 | ND | 1.31 | 1.34 | 105 | 108 | 50 | 24.0-153 | | | 2.30 | 20 |
| Xylenes, Total | 0.0750 | 1.11 | 5.81 | 5.66 | 125 | 121 | 50 | 41.0-148 | | | 2.61 | 20 |
| *(S) Toluene-d8* | | | | | *103* | *104* | | *80.0-120* | | | | |
| *(S) Dibromofluoromethane* | | | | | *96.7* | *98.6* | | *76.0-123* | | | | |
| *(S) 4-Bromofluorobenzene* | | | | | *103* | *102* | | *80.0-120* | | | | |

## Abbreviations and Definitions

| | |
|---|---|
| SDG | Sample Delivery Group. |
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| ND | Not detected at the Reporting Limit (or MDL where applicable). |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| RPD | Relative Percent Difference. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| Rec. | Recovery. |

| Qualifier | Description |
|---|---|
| J4 | The associated batch QC was outside the established quality control range for accuracy. |
| J5 | The sample matrix interfered with the ability to make any accurate determination; spike value is high. |

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE.**
***** Not all certifications held by the laboratory are applicable to the results reported in the attached report.

## State Accreditations

| | | | |
|---|---|---|---|
| Alabama | 40660 | Nevada | TN-03-2002-34 |
| Alaska | UST-080 | New Hampshire | 2975 |
| Arizona | AZ0612 | New Jersey–NELAP | TN002 |
| Arkansas | 88-0469 | New Mexico | TN00003 |
| California | 01157CA | New York | 11742 |
| Colorado | TN00003 | North Carolina | Env375 |
| Conneticut | PH-0197 | North Carolina [1] | DW21704 |
| Florida | E87487 | North Carolina [2] | 41 |
| Georgia | NELAP | North Dakota | R-140 |
| Georgia [1] | 923 | Ohio–VAP | CL0069 |
| Idaho | TN00003 | Oklahoma | 9915 |
| Illinois | 200008 | Oregon | TN200002 |
| Indiana | C-TN-01 | Pennsylvania | 68-02979 |
| Iowa | 364 | Rhode Island | 221 |
| Kansas | E-10277 | South Carolina | 84004 |
| Kentucky [1] | 90010 | South Dakota | n/a |
| Kentucky [2] | 16 | Tennessee [1 4] | 2006 |
| Louisiana | AI30792 | Texas | T 104704245-07-TX |
| Maine | TN0002 | Texas [5] | LAB0152 |
| Maryland | 324 | Utah | 6157585858 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 109 |
| Minnesota | 047-999-395 | Washington | C1915 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 9980939910 |
| Montana | CERT0086 | Wyoming | A2LA |
| Nebraska | NE-OS-15-05 | | |

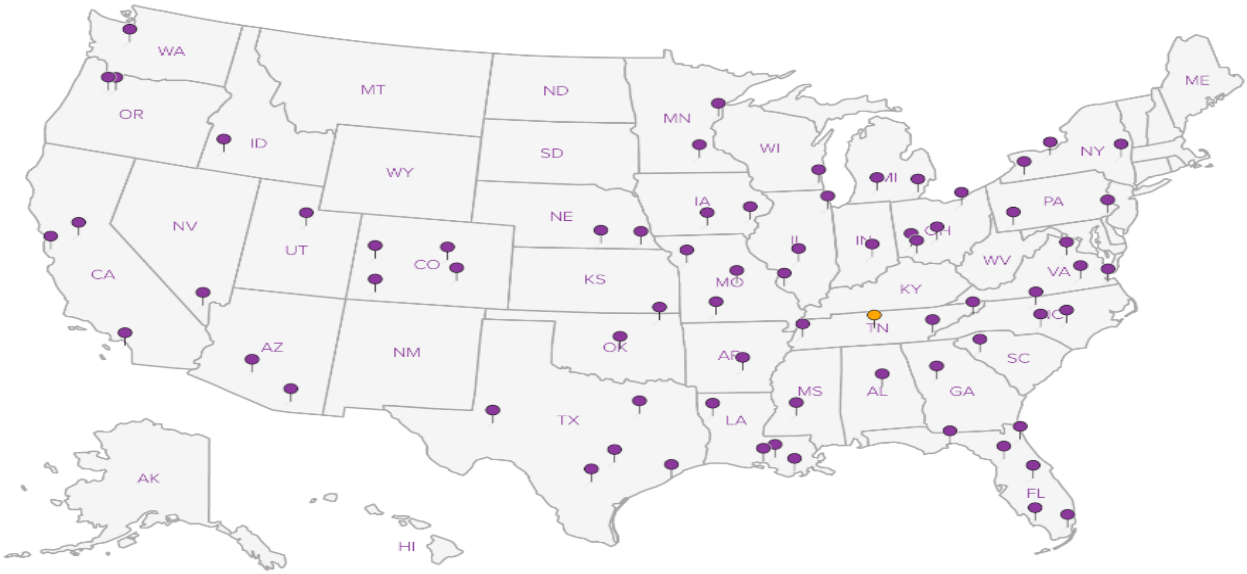
## Third Party & Federal Accreditations

| | | | |
|---|---|---|---|
| A2LA – ISO 17025 | 1461.01 | AIHA | 100789 |
| A2LA – ISO 17025 [5] | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | S-67674 |
| EPA–Crypto | TN00003 | | |

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [n/a] Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



XTO ENERGY
Western Division

| | | |
|---|---|---|
| Quote Number | Page 1 of 1 | |
| XTO Contact: James McDaniel | XTO Contact Phone #: 505-787 | |
| Email Results to: dhermann@ltenv.com jamesmcdaniel@xtoenergy.com | | |
| Well Site/Location: Hare GC F#1 | API Number | Test Reason |
| Collected By: Josh Adams | Samples on Ice (Y / N) | Turnaround: X Standard; ___ Next Day; ___ Two Day; ___ Three Day; ___ Std. 5 Bus. Days (by contract); Date Needed ___ |
| Company: LTE | QA/QC Requested | |
| Signature: Josh Adams | Gray Areas for Lab Use Only! | |

Analysis: 8260B

Lab Information: B085

Office Abbreviations
Farmington = FAR
Durango = DUR
Bakken = BAK
Raton = RAT
Piceance = PC
Roosevelt = RSV
La Barge = LB
Orangeville = OV

| Sample ID | Sample Name | Media | Date | Time | Preservative | No. of Conts. | 8260B | Sample Number |
|---|---|---|---|---|---|---|---|---|
| FARJA-012617-1315 | TMW-1 | GW | 01/26 | 1315 | HCL | 3 | X | 386471-01 |

Media: Filter = F Soil = S Wastewater = WW Groundwater = GW Drinking Waster = DW Sludge = SG Surface Water = SW Air = A Drill Mud = DM Other = OT

| | | | | | |
|---|---|---|---|---|---|
| Relinquished By: (Signature) Josh Adams | Date: 1-26-17 | Time: 1600 | Received By: (Signature) | Number of Bottles: 3 = VP | Sample Condition |
| Relinquished By: (Signature) | Date: | Time: | Received By: (Signature) 5433 5511 4473 | Temperature: 3.6 | Other Information |
| Relinquished By: (Signature) | Date: | Time: | Received for Lab by: (Signature) | Date: 1/27/17 Time: 900 | |

Comments: 5547 0240 3110

Cools GOW

* Sample ID will be the office and sampler-date-military time FARJM-MMDDYY-1200

# ESC LAB SCIENCES
## Cooler Receipt Form

| | | | |
|---|---|---|---|
| Client: XTORNM | | SDG# | 386471 |
| Cooler Received/Opened On: 01/27/17 | | Temperature: | 3.6 |
| Received By: Don Wright | | | |
| Signature: | | | |

| Receipt Check List | NP | Yes | No |
|---|---|---|---|
| COC Seal Present / Intact? | X | | |
| COC Signed / Accurate? | | X | |
| Bottles arrive intact? | | X | |
| Correct bottles used? | | X | |
| Sufficient volume sent? | | X | |
| If Applicable | | | |
| VOA Zero headspace? | | X | |
| Preservation Correct / Checked? | | | |