Limited Soil, Groundwater, and Soil Gas Investigation

Rider #1 Oil and Gas Well Site
Longmont, Colorado

December 18, 2017
Terracon Project No. 22177021

Prepared for:
City of Longmont
Longmont, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

December 18, 2017

City of Longmont
385 Kimbark Street
Longmont, Colorado 80501

Attn: Mr. Jason Elkins
P: (303) 651-8310
E: Jason.Elkins@longmontcolorado.gov

Re: Limited Soil, Groundwater, and Soil Gas Investigation Report
Rider #1 Oil and Gas Well Site
Longmont, Colorado
Terracon Project No. 22177021

Dear Mr. Elkins:

Terracon Consultants, Inc. (Terracon) is pleased to submit our report of Limited Soil, Groundwater, and Soil Gas Investigation activities completed at the site referenced above. Terracon conducted the investigation in general accordance with our proposal (P22177021), dated June 26, 2017.

Terracon appreciates this opportunity to provide environmental consulting services to The City of Longmont. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Michael J. Skridulis
Project Manager

John C. Graves, P.G.
Regional Manager

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EXECUTIVE SUMMARY

This Limited Soil and Soil Gas Investigation was performed in accordance with the scope of services outlined in Terracon Proposal No. P22177021, dated June 26, 2017. A total of six soil borings (SB-01 through SB-06) and three soil vapor points (SVP-01 through SVP-03) were installed at the site on September 15, 2017, to evaluate potential petroleum impacted soil and soil gas based on historical oil and gas (O&G) extraction operations at the site. Soil and soil vapor samples were collected and analyzed in accordance with the procedures outlined in Section 3.

Additionally, five soil borings (SB-07 through SB-11), which were converted to monitoring wells MW-01R through MW-06R were installed to replace the monitoring wells destroyed or abandoned by the operator during remedial activities. MW-03R was installed during the initial investigation drilling activities as requested by the client on September 15, 2017. MW-01R, MW-02R, MW-04R, MW-05R, and MW-06R were installed during a separate mobilization, on October 18, 2017, specifically to replace the monitoring wells. Two additional SVPs (SVP-04 and SVP-05) were also installed during the remobilization to assist in further delineation of soil vapor contaminants of concern in off-site locations.

The initial Site Investigation Report was prepared for the client in October 2017; this Final Investigation report includes a summary of our findings, conclusions, and recommendations for the initial and additional investigation work to date. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

Findings

The lithology encountered at the site generally consists of clayey silt with trace amounts of sand from approximately 0 to 7 feet below grade surface (bgs), underlain by soft clay to approximately 8 feet bgs. Layers of saturated sands and gravel were observed to soil boring termination at approximately 12 to 16 feet bgs. The depth to groundwater ranged from approximately 7 to 10 feet bgs observed during drilling activities.

Soil at the property is impacted by total petroleum hydrocarbons as gasoline range organics (THP-GRO) above the Colorado Oil and Gas Conservation Commission (COGCC) action levels, with a maximum concentration of 1,490 milligrams per kilogram (mg/kg) in the soil sample collected from SB-11 located on the southern property boundary. Based on field observations and reported concentrations in soil samples collected as part of this investigation, the soil in the area of the historical tank battery used during oil O&G operations is impacted with hydrocarbons typical of O&G constituents.

Groundwater at the property is impacted by ethylbenzene, naphthalene, and total xylenes above the Colorado Department of Public Health and Environment (CDPHE) Reg. 41 action levels, with

concentrations of 738 micrograms per liter (µg/L), 140 µg/L, and 5,460 µg/L, respectively reported in the groundwater sample collected from MW-01R located on the southern property boundary. Based on field observations and reported concentrations in groundwater samples collected as part of this investigation, the groundwater in the area of the historical tank battery used during oil O&G operations is impacted with hydrocarbons typical of O&G constituents.

Volatile organic compound (VOC) constituents detected in the soil gas samples were compared to the 2016 CDPHE Indoor Air Screening Concentrations (ASC) – Residential and Worker Remediation Goals, and the June 2017 United States Environmental Protection Agency (EPA) Residential and Industrial Indoor Air Regional Screening Levels (RSLs), after applying a 3% attenuation factor for subslab soil gas per the USEPA Office of Solid Waste and Emergency Response (OSWER) Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015). Reference to the OSWER guidance is not meant to imply that the scope of this soil gas investigation was designed to include the guidance's subsurface characterization criteria or that Terracon conducted a detailed vapor intrusion risk assessment. Reported concentrations are also summarized in Table 3 of Appendix B and the laboratory report is provided in Appendix D of this report.

A number of VOCs were reported across the site above Residential and Industrial RSLs. After applying the 3% attenuation factor, ethylbenzene and 2-propanol (isopropyl) alcohol were reported in soil gas at concentrations exceeding EPA Residential RSLs. Ethylbenzene is a hydrocarbon typically associated with O&G constituents. Isopropyl alcohol can be used as a cleaner for drilling equipment used in O&G production. Methane was not reported above its respective laboratory detection limit in any of the soil gas samples collected as part of this investigation. Based on laboratory analytical detections, the site soil gas is impacted with VOCs above regulatory limits.

Conclusions

Soil, groundwater, and soil gas at the site has been impacted by a potential release characteristic of a release associated with O&G operations. The source of the potential spills is believed to be in the location of the former tank battery and separator areas. Based on the proximity of the southern property line of the site to the historical tank battery location, there is a high potential for contaminated soil and groundwater and soil vapor to be impacting the off-site property to the south.

Recommendations

Terracon recommends additional soil and groundwater investigation activities on the southern off-site property to assess the extent of petroleum contaminated soil and groundwater.

Terracon also recommends consultation with CDPHE and COGCC regarding potential regulatory involvement driven by the findings of VOCs in soil, groundwater, and soil gas related to O&G

production during this investigation. It is recommended, based on reported levels of VOCs in soil and groundwater, that a potential spill is reported to CDPHE and seek recommendations from the regulatory body on requirements for future investigation and potential remediation at the site.

Terracon recommends consultation with an environmental attorney regarding clarification of potential reporting obligations and potential environmental risk or liability in connection with constituents of concern detected in the on-site groundwater during this investigation.

1.0 SITE DESCRIPTION

Site Name	Rider #1 O&G Well Site
Site Location	11159 East County Line Road, Longmont, Colorado

A Topographic Map showing the site location is included as Exhibit 1 and a Site Diagram is included as Exhibit 2 in Appendix A.

2.0 SCOPE OF SERVICES

In 2012, Terracon was retained by the City of Longmont (COL) to assess seventeen plugged and abandoned oil and gas wells located within the City of Longmont limits. The objective of the 2012 assessment was to provide information concerning the plugging and abandoning of 17 O&G wellheads located within the City of Longmont and to assess the potential presence of surficial soil impacts, methane and other gasses in the subsurface near the surveyed well locations.

On May 2, 2017, the Colorado Oil and Gas Conservation Commission (COGCC) issued a statewide Notice to Operators (NTO) directing operators to inspect their inventory of existing flowlines and verify that any existing flowline not in active use, regardless of when it was installed or taken out of service, is abandoned pursuant to COGCC Rule 1103. Terracon understands that the City of Longmont would like to expand the scope of work from the 2012 project to include assessing the condition of soil, ground water, and soil gas at select locations.

The objective of the environmental services was to provide information concerning the Rider #1 O&G well located within the City of Longmont and to assess the potential presence of surficial/subsurface soil impacts and presence of methane and other gasses in the subsurface near the reported well location.

It should be noted that on the day of initial field work (September 15, 2017) was scheduled for this investigation, upon arrival to the site Terracon personnel observed that existing monitoring well abandonment had taken place prior to Terracon arriving on the site by an unknown party. A stop work protocol was issued and this information was relayed to the client. A client representative arrived at the site to observe the recently disturbed soil and abandoned monitoring wells. It was decided at this time, based on limited supplies, to continue with the proposed scope of work and replace one of the former site monitoring wells (MW-03R) at the site. Five additional monitoring wells were installed to replace the abandoned monitoring wells during a separate mobilization on October 18, 2017.

2.1 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, express or implied, regarding the findings, conclusions, or recommendations. Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These Investigation services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not intended to be in strict conformance with ASTM E1903-11.

2.2 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this Investigation. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

2.3 Reliance

This report has been prepared for the exclusive use of the City of Longmont, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the City of Longmont and Terracon. Any unauthorized distribution or reuse is at the City of Longmont's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, Investigation report, and Terracon's Master Services Agreement (MSA) with the City of Longmont. The limitation of liability defined in the terms and conditions of the MSA is the aggregate limit of Terracon's liability to the City of Longmont and all relying parties unless otherwise agreed in writing.

3.0 FIELD INVESTIGATION

3.1 Safety and Subsurface Utilities

Terracon is committed to the safety of all its employees. As such, and in accordance with our Incident and Injury Free® safety goals, Terracon conducted the fieldwork under a site-specific

health and safety plan. The plan identified site-specific job hazards and proper pre-task planning procedures. Work was performed using Occupational Safety & Health Administration (OSHA) Level D work attire consisting of hard hats, high-visibility attire, safety glasses, protective gloves, and protective boots. Terracon contacted Colorado 811 and requested location and markings for subsurface utilities that the service was responsible for before commencing intrusive activities at the site. Terracon also had the site located by a private utility locating company.

3.2 Sampling and Analytical Program Summary

A total of six soil borings (SB-01 through SB-06), three soil vapor points (SVP-01 through SVP-03), and one replacement monitoring well (monitoring well was not sampled) were installed at the site during the initial investigation on September 15, 2017. During additional investigation activities on October 18, 2017, a total of five soil borings (SB-07 through SB-11) and two SVPs (SVP-04 and SVP-05) were installed at the site. The five additional soil borings were converted to monitoring wells MW-04R, MW-06R, MW-05R, MW-02R, and MW-01R, respectively. The sample locations were selected to generally represent the area with the highest potential for detecting constituents of concern based on the historical locations of equipment used in previous oil and gas production at the site and initial investigation laboratory analytical results. Refer to the attached Site Diagram (Exhibit 2, Appendix A) for a depiction of the sample locations and pertinent site features. The sampling and analytical program is outlined below.

SAMPLING AND ANALYTICAL PROGRAM	
Area of Concern	**Rider #1 O&G Well Site**
Soil Borings (Total Depth)	SB-01 through SB-11 (12 to 16 feet)
Groundwater	MW-01R through MW-06R
Soil Vapor Points	SVP-01 through SVP-05
Soil Analysis	VOCs/TPH-GRO – EPA 8260 TPH-DRO/ORO – EPA 8015
Groundwater Analysis	VOCs – EPA 8260 Dissolved Gasses – RSK 175 Major Cations, Dissolved – EPA 6010B Nitrite, Nitrate, Bromide, Chloride, Sulfate – EPA 300.0 Alkalinity/ Strontium – SM 2320B/ EPA 6020
Soil Gas Analysis	VOCs – EPA TO-15 Methane – EPA D1946

EPA = Environmental Protection Agency; SW-846 analytical methods
VOCs = volatile organic compounds
TPH = total petroleum hydrocarbons
G/D/ORO = gasoline, diesel, and oil range organics

3.3 Field Procedures

3.3.1 Soil Boring Advancement

Drilling services were performed using a direct-push technology (DPT) Geoprobe® drilling rig. Oversight of the drilling activities was conducted by a Terracon field professional. Soil samples were collected using 4-foot direct-push sampling tubes lined with dedicated PVC liners. Drilling equipment was cleaned using a high-pressure washer prior to beginning the project. Non-dedicated sampling equipment was cleaned using an Alconox® wash and potable water rinse prior to the beginning of the project and before collecting each soil sample.

Soil samples were collected continuously and observed to document soil lithology, color, moisture content and sensory evidence of impairment. The soil samples were field-screened at 2-foot intervals using a photoionization detector (PID) equipped with a 10.6 electron volt ultraviolet lamp source to qualitatively evaluate the potential volatile organic vapors to indicate the presence of VOCs. Terracon calibrated the PID in accordance with the manufacturer's recommendations before the field activities. The boring logs in Appendix C include the lithology and field screening results for each soil boring completed as part of this investigation.

Terracon's soil sampling program involved assigning one soil sample from each soil boring for laboratory analysis, with the exception of SB-03 in which two soil samples were submitted. The soil sample selected for laboratory analysis was collected from the interval exhibiting the highest PID reading and/or highest likelihood of a release based on the field professional's judgment. The soil samples were collected using Terracon standard operating procedures (SOPs) and field methods. Soil sample intervals for each boring are presented on the soil boring logs included in Appendix C.

3.3.2 Groundwater Monitoring Well Installation

Upon observing a depth to water of approximately 7 feet bgs during drilling activities for the initial investigation soil borings on September 15, 2017, one soil boring was completed as groundwater monitoring well MW-03R. After soil borings were completed to depth and soil samples were collected, soil borings SB-07 through SB-11 were completed as groundwater monitoring wells MW-04R, MW-06R, MW-05R, MW-02R, and MW-01R, respectively. The wells were constructed to approximately 15 feet bgs using 2.0-inch diameter polyvinyl chloride (PVC) with 10 feet of factory slotted well screen and 5 feet of blank PVC casing to surface. A silica sand filter pack was placed around the well screen to approximately one foot above the top of well screen, followed by a hydrated bentonite seal, and approximately 0.5 feet of sand to the surface. A 3-foot steel stickup well casing was placed over each wellhead and set into concrete and the monitoring wells were fitted with J-plug well caps. The well construction details are provided on the monitoring well logs presented in Appendix C.

On October 19, 2017, Terracon personnel visited the site to collect static groundwater levels, develop the monitoring wells, and collect groundwater samples for laboratory analysis. Depth to groundwater ranged from 9.37 feet below top of monitoring well casing (TOC) in MW-06R to 10.80 feet below TOC in MW-01R. Monitoring wells MW-01R through MW-06R were developed by repeatedly surging the wells with a 2-inch diameter PVC surge block and purging the groundwater from the wells with a single-use PVC bailer in accordance with the Terracon SOP 10 – *Monitor Well Development.* Monitoring wells were sampled after development and after they were allowed to recharge for a short time.

The TOCs were surveyed in accordance with Terracon SOP *E.1800 Physical Field Measurements*. For this project, Terracon used a level, tripod and rod to establish the relative elevation of ground surface and TOC at each monitoring well constructed onsite.

3.3.3 Soil Vapor Point Installation

Terracon installed three SVPs (SVP-01 through SVP-03) in the vicinity of the former site O&G equipment features (i.e. well head, tank battery, pumping station) on September 15, 2017, and two SVPs (SVP-04 and SVP-05) approximately 250-feet south of the site on October 18, 2017 for collection of soil gas samples for laboratory analysis. SVP-01 through SVP-03 were installed in soil borings SB-01 through SB-03, respectively, after the boring had been backfilled with sand and bentonite. SVP-04 and SVP-05 were installed using a hand auger to 5-feet bgs. The soil gas points, consisting of 8.0-inch long stainless steel screened points and Teflon tubing, were placed into each boring at an approximate depth of approximately 5 feet bgs and backfilled with silica sand to approximately 6 inches above the top of the screen, followed by hydrated bentonite to near surface. Locations are depicted on Exhibit 2 in Appendix A.

Sampling of the soil gas points was performed on September 18, 2017 (SVP-02) and September 19, 2017 (SVP-01 and SVP-03), allowing the soil gas points time to equilibrate. Soil gas sampling was completed on two separate days due to issues with two of the laboratory prepared summa canisters. New canisters were shipped overnight and the sampling was performed on the following day. Additional soil vapor points SVP-04 and SVP-05 were sampled on October 19, 2017. Soil gas sampling was conducted within a polyethylene shroud placed over the sample point. Extracted soil gas was screened in the field utilizing a Multi-Rae multi-gas meter, which was calibrated prior to use in accordance with the manufacturer's specifications. The Multi-Rae was used to assess potential explosive gas (methane) and VOCs. Sample tubing was connected to the sampling point and routed to the exterior of the shroud. Leak detection was conducted by introducing helium tracer gas into the sampling shroud through a separate port prior to sampling and using a portable helium gas detector to monitor for potential leaks in the sampling train. A peristaltic pump was utilized to purge the sample train tubing prior to collecting the laboratory sample within laboratory supplied 1-liter summa canisters. Field measurements by the portable

helium gas detector were within acceptable levels (less than [<]5 percent [%] of the helium concentration in the shroud was detected through the sampling train).

After purging the sampling point of approximately three sampling train volumes and observing that there were no detected leaks, a laboratory-supplied 1-liter summa canister was filled with soil gas for laboratory analysis. The canister was connected to the sampling point using dedicated nylon sample tubing and was equipped with a laboratory-supplied flow regulator allowing for sample collection at a low-flow rate (i.e. <200 milliliters per minute [ml/min]).

Upon completion of sample collection, the summa canister valve was closed, secured, and appropriately labeled with pertinent sample information. Canister pressures were recorded prior to and after sample collection. The sample canisters were placed into a shipping container and transported under chain-of-custody to ESC Lab Sciences (ESC) located in Mt. Juliet, Tennessee for analysis.

3.4 Soil Boring Abandonment

At the completion of initial field activities, Terracon abandoned soil borings SB-04 through SB-06, which were not converted into either groundwater monitoring wells or soil vapor points, in accordance with state regulations and guidelines. The borings were completed to surface grade to match existing conditions. Soil cuttings generated during the field activities were returned to soil borings after the investigation was complete.

4.0 FIELD INVESTIGATION RESULTS

4.1 Geology/Hydrogeology

The boring logs in Appendix C detail the observed soil stratigraphy. In general, Terracon encountered clayey silt with trace amounts of sand from approximately 0 to 7 feet bgs, underlain by soft clay to approximately 8 feet bgs. Layers of saturated sands and gravel were observed to soil boring termination at approximately 12 to 16 feet bgs. The depth to groundwater ranged from approximately 7 to 10 feet bgs observed during drilling activities.

4.2 Field Screening

The field screening results are summarized on the boring logs in Appendix C. PID readings ranging from less than 1 part per million (ppm) to 486 ppm were measured in soil samples collected from the soil borings. The maximum PID reading of 486 ppm was measured in soil at approximately 8 to 10 feet bgs in boring SB-06. Petroleum hydrocarbon-like odors were noted when collecting the soil samples from borings SB-03 and SB-06.

5.0 ANALYTICAL RESULTS

The laboratory analytical reports and chain-of-custody records are attached in Appendix D. The following sections describe the results of the analytical testing performed as part of this limited site investigation. The constituents of concern concentrations were compared to the May 2016, US Environmental Protection Agency (US EPA), Residential and Industrial RSLs, and EPA May 2016 Residential and Industrial Indoor Air RSLs, January 2015 COGCC Table 910-1 (Concentration Levels) for soil. Groundwater analytical results were compared to June 30, 2016 CDPHE Groundwater Quality Standards (GWQSs) and January 2015 COGCC Table 910-1 Groundwater Concentration Levels (910-1 Levels). CDPHE January 2016 Residential and Industrial ASCs and the June 2017 USEPA Residential and Industrial Indoor Air RSLs, after applying a 3% attenuation factor for subslab soil gas per the USEPA OSWER Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015) were used for soil gas comparison.

5.1 Soil Sample Results

The soil analytical data and corresponding action levels are summarized in Table 1 (Appendix B).

VOC constituents were reported at concentrations above laboratory detection limits in the soil samples collected from borings SB-03, SB-06, SB-07, SB-10, and SB-11. These reported concentrations did not exceed their respective regulatory action levels for soils.

TPH-DRO constituents were reported at concentrations above the laboratory detection limits in the soil samples collected from borings SB-03 and SB-07. These reported concentrations did not exceed their respective regulatory action levels for soils.

TPH-GRO constituents were reported at concentrations above the laboratory detection limits in the soil samples collected from borings SB-03, SB-06, SB-07, SB-10, and SB-11. The concentrations of TPH-GRO in soil borings SB-06 (559 milligrams per kilogram [mg/kg]), SB-07 (626 mg/kg), and SB-11 (1,490 mg/kg) are above the COGCC Concentration Levels for TPH-GRO in soils.

5.2 Groundwater Sample Results

The groundwater analytical data and corresponding action levels are summarized in Table 2 (Appendix B).

VOC constituents were reported at concentrations above laboratory detection limits in the groundwater samples collected from monitoring well MW-01R through MW-04R. The reported concentrations did not exceed their respective regulatory action levels for groundwater samples collected from monitoring wells MW-02R, MW-03R, and MW-04R. A groundwater sample collected from monitoring well MW-01R had reported concentrations of ethylbenzene (738

micrograms per liter [µg/L]), naphthalene (140 µg/L), and total xylenes (5,460 µg/L) which exceeded the CDPHE Reg 41 limits of 700 µg/L, 140 µg/L, and 1,400 µg/L, respectively.

Inorganic cations and anions can be secondary indicators of well site releases associated with produced water. Neither CDPHE nor the COGCC have developed groundwater standards for the following indicator parameters: dissolved calcium, dissolved magnesium, dissolved potassium, dissolved sodium, strontium, alkalinity species, or bromide.

The COGCC has defined the groundwater standard exceedance concentrations for chloride and sulfate to be a regional background concentration with a multiplier of 1.25. Terracon utilized 2017 analytical data for chloride and sulfate from the sites sampled during the City of Longmont 2017 Annual Groundwater Quality Monitoring sampling event (Terracon Project No. 22177002) to calculate respective regional background concentrations.

Terracon used the USEPA's statistical software (ProUCL), Version 5.1, to determine if the dataset used to calculate the mean was statistically normal. The ProUCL software can be downloaded at https://www.epa.gov/land-research/proucl-software. After eliminating monitoring well analytical data that was not representative of normal conditions, the data was inputted into ProUCL. Analysis was conducted to evaluate if there are additional outlying data points and if the data set adhered to a normal distribution. Several sulfate analytical results were removed from the data set based on the results of the initial outlier test. The outlier test does state that there is a potential outlier. However, based on a 1% and 5% significance level, there were no potential outliers; therefore no additional analytical results were removed from the data set. A normal Q-Q plot was then generated to evaluate if the data set for chloride and sulfate adhered to a normal distribution. The normal Q-Q plot illustrates that both data sets are normal. The mean and standard deviation were also calculated using ProUCL.

The COGCC cleanup goal was calculated by multiplying the mean (from background well data) times 1.25 per Table 910-1 from the COGCC rules. A summary of pertinent statistical results and the calculated COGCC cleanup levels for chloride and sulfate are listed below in micrograms per liter (µg/L):

Statistical Analysis	Chloride (µg/L)	Sulfate (µg/L)
Mean (from background well data)	41,730	665,900
COGCC cleanup goal (1.25 x background)	52,160	832,400
Standard Deviation	6,240	148,600
Sample Size	44	21

The sulfate concentration reported in groundwater samples collected from monitoring wells MW-01R (263,000 µg/L), MW-02R (280,000 µg/L), MW-03R (276,000 µg/L), MW-04R (271,000 µg/L), MW-05R (276,000 µg/L), and MW-06R (282,000 µg/L) all exceeded the CGWQS of 250,000 µg/L, but were below COGCC statistical regional background concentration standard of 832,400 µg/L.

Specific conductance was reported in the groundwater samples ranging from 1.194 to 1.292 micro Siemens per centimeter (µmhos/cm). Generally, relatively higher concentrations of specific conductance were reported in groundwater samples with higher concentrations of alkalinity, bromide, chloride, nitrate, nitrite, sulfate and sulfide. Higher concentrations of specific conductance generally correspond to more turbid samples which have more sediment and subsequently more inorganics from the sediment. This occurs when monitoring wells do not recharge sufficiently during purging and the formation contains silts and clays.

Groundwater samples were reported to have a neutral pH (i.e. near 7.0), and within the CDPHE basic standard for groundwater range of 6.5 to 8.5; pH values in the monitoring wells measured during purging were reported ranging from 7.30 to 7.45 S.U.

Dissolved methane was reported in the groundwater samples collected from monitoring wells MW-01R (474 µg/L), MW-3R (677 µg/L), and MW-04R (34.9 µg/L). Currently, there is no regulatory standard developed for dissolved methane in groundwater.

5.3 Soil Gas Sample Results

VOC constituents reported in the soil gas samples were compared to the 2016 CDPHE Indoor ASCs – Residential and Worker Remediation Goals, and the June 2017 USEPA Residential and Industrial Indoor Air RSLs, after applying a 3% attenuation factor for subslab soil gas per the USEPA OSWER Technical Guide for Assessing and Mitigating the Gas Intrusion Pathway from Subsurface Gas Sources to Indoor Air (OSWER Guidance, June 2015). Reference to the OSWER guidance is not meant to imply that the scope of this soil gas investigation was designed to include the guidance's subsurface characterization criteria or that Terracon conducted a detailed vapor intrusion risk assessment. A summary of the analytical results is provided below. The soil gas analytical data reported above laboratory detection limits and corresponding action levels are summarized in Table 3 (Appendix B).

A number of VOCs were reported across the site above Residential and Industrial RSLs including ethylbenzene, 2-propanol (isopropyl alcohol), tetrachloroethylene, trichloroethylene, and xylene. After applying the 3% attenuation factor, the following VOCs in soil gas were reported at reported concentrations that represent a vapor intrusion concern for residential/industrial/commercial property use: ethylbenzene and 2-propanol (isopropyl alcohol).

Methane was not detected in any of the soil gas samples collected as part of this investigation above its respective laboratory detection limit.

APPENDIX A – EXHIBITS

Exhibit 1 – Topographic Map

Exhibit 2 – Site Diagram

Exhibit 3 – Groundwater Contour Map

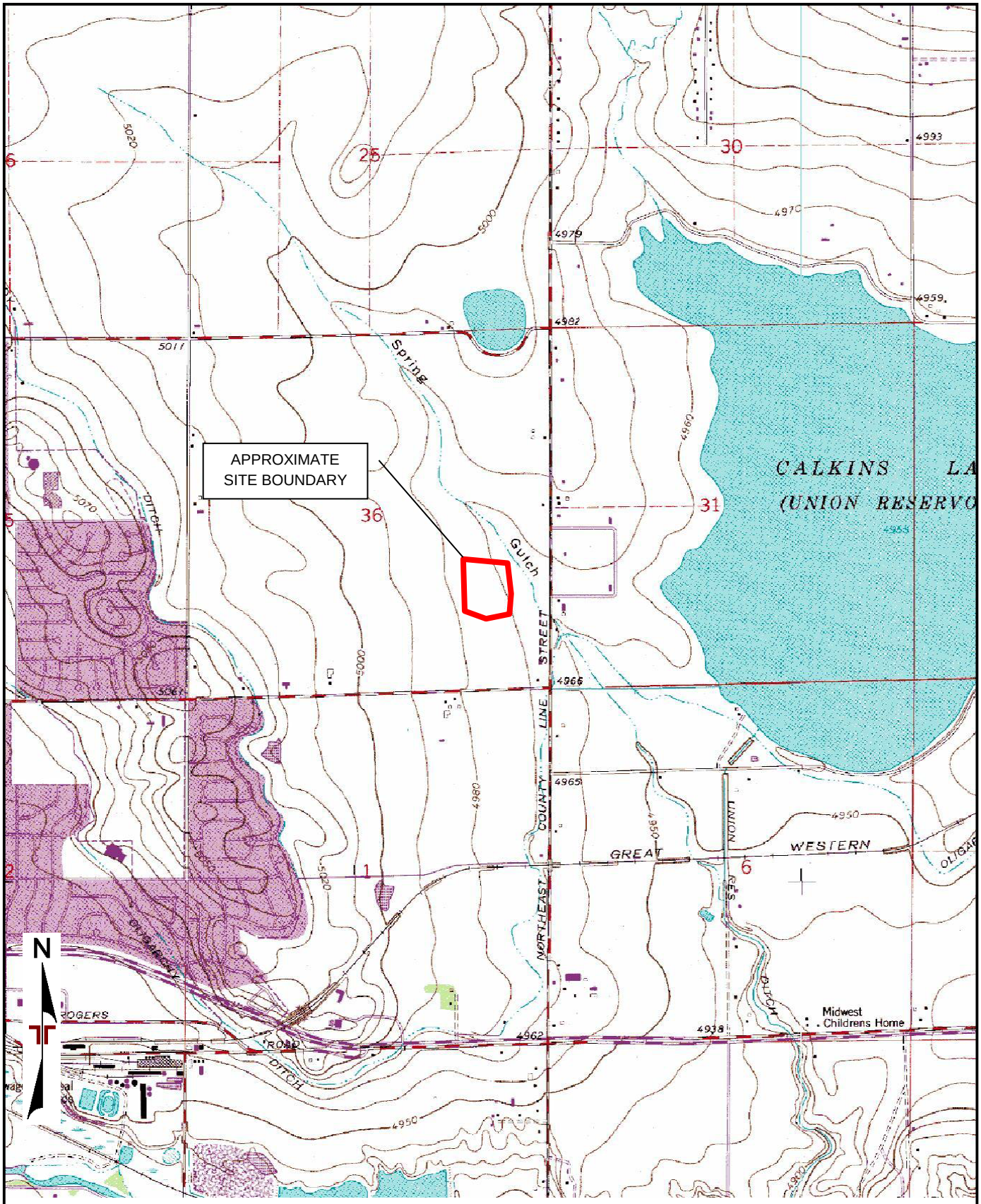
Exhibit 4 – Soil Concentration Map

Exhibit 5 – Groundwater Concentration Map

Exhibit 6 – TPH Concentrations in Soil

Exhibit 7 – Ethylbenzene Concentrations in Groundwater

Exhibit 8 – Xylene Concentrations in Groundwater



TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: LONGMONT, CO (1/1/1979).

Project Manager: MJS	Project No. 22177021	Terracon 1242 Bramwood Pl Longmont, CO 80501-6100	TOPOGRAPHIC MAP Rider #1 Well Site Investigation Longmont, CO
Drawn by: MJS	Scale: 1"=2,000'		Exhibit 1
Checked by: JCG	File Name: 22177021		
Approved by: JCG	Date: 10/17/2017		

0 15' 30' 60'

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	MJS
Drawn By:	CPD
Checked By:	MJS
Approved By:	DAB
Project No.	22177021
Scale:	AS-SHOWN
File No.	22177021.DWG
Date:	12.07.2017

Terracon
Consulting Engineers and Scientists
1242 BRAMWOOD PLACE LONGMONT, CO 80501
PH. (303) 776-3921 FAX. (303) 776-4041

SITE DIAGRAM

RIDER #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No. 2

0 15' 30' 60'

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

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Checked By:	MJS
Approved By:	DAB

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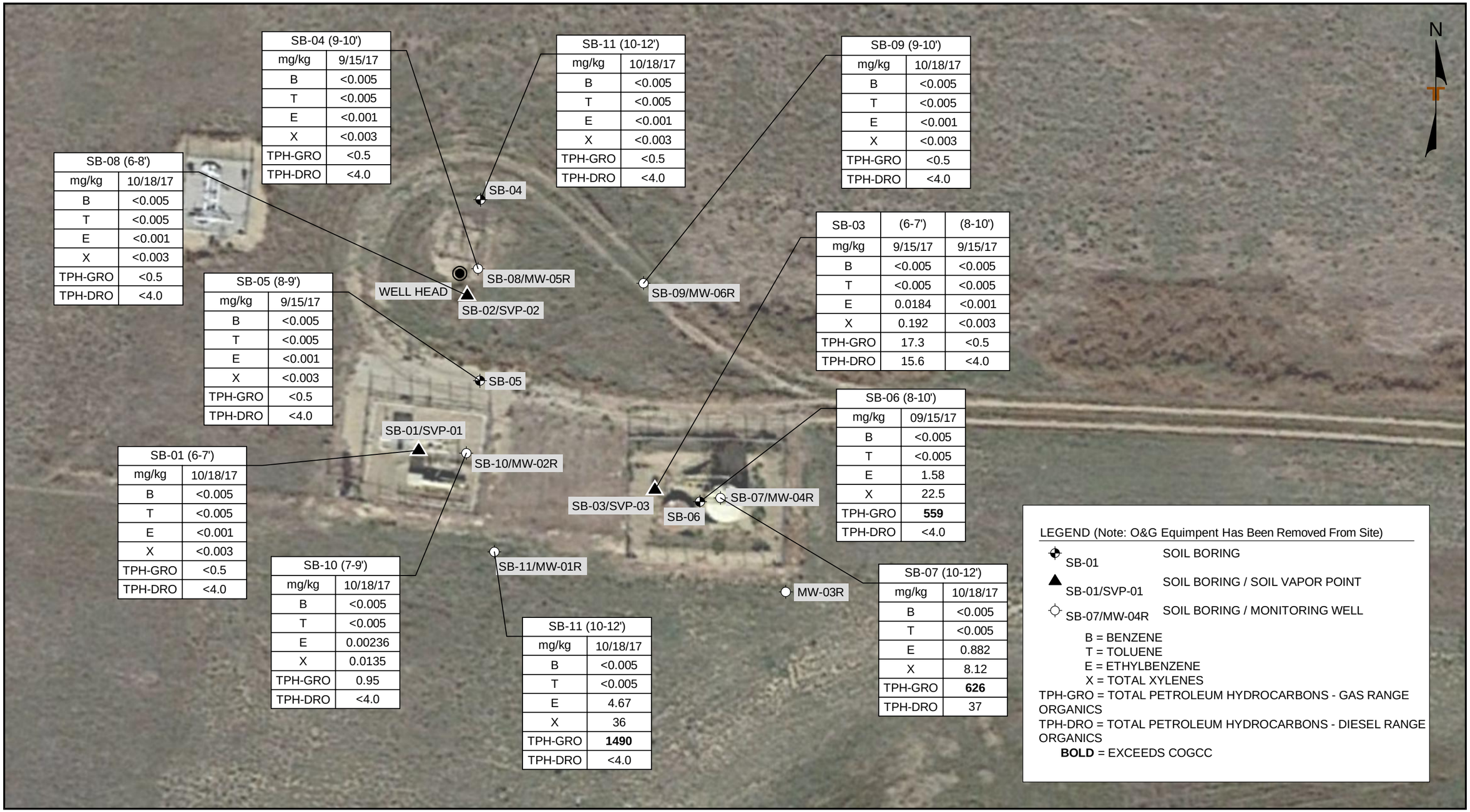
POTENTIOMETRIC SURFACE MAP (4Q 2017)

RIDER #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No. 3



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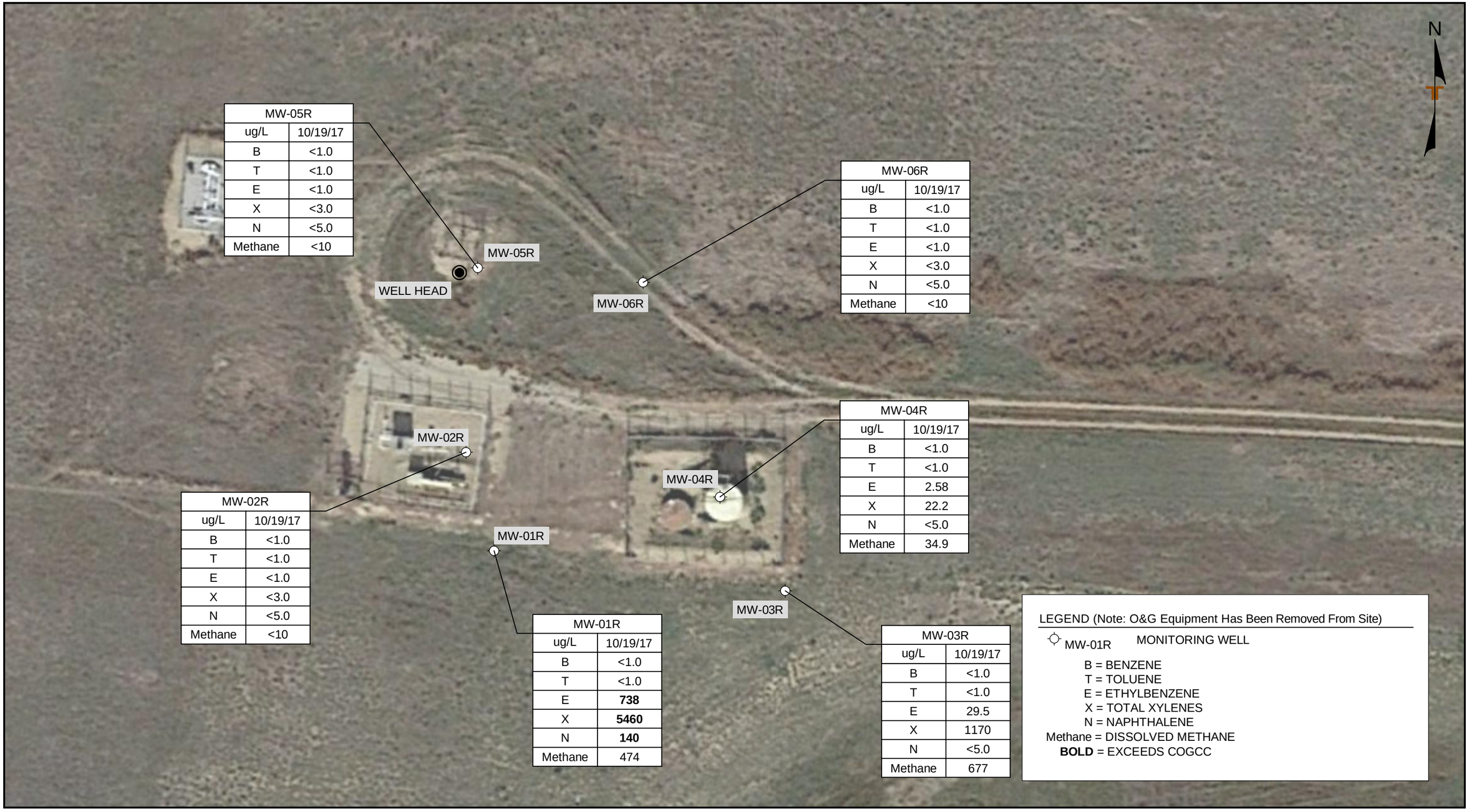
Project No.	22177021
Scale:	AS-SHOWN
File No.	22177021.DWG
Date:	12.13.2017

Terracon
Consulting Engineers and Scientists
1242 BRAMWOOD PLACE LONGMONT, CO 80501
PH. (303) 776-3921 FAX. (303) 776-4041

SOIL CONCENTRATION FIGURE (4Q 2017)

RIDER #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No. 4



MW-05R	
ug/L	10/19/17
B	<1.0
T	<1.0
E	<1.0
X	<3.0
N	<5.0
Methane	<10

MW-06R	
ug/L	10/19/17
B	<1.0
T	<1.0
E	<1.0
X	<3.0
N	<5.0
Methane	<10

MW-04R	
ug/L	10/19/17
B	<1.0
T	<1.0
E	2.58
X	22.2
N	<5.0
Methane	34.9

MW-02R	
ug/L	10/19/17
B	<1.0
T	<1.0
E	<1.0
X	<3.0
N	<5.0
Methane	<10

MW-01R	
ug/L	10/19/17
B	<1.0
T	<1.0
E	**738**
X	**5460**
N	**140**
Methane	474

MW-03R	
ug/L	10/19/17
B	<1.0
T	<1.0
E	29.5
X	1170
N	<5.0
Methane	677

LEGEND (Note: O&G Equipment Has Been Removed From Site)

MW-01R MONITORING WELL

B = BENZENE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES
N = NAPHTHALENE
Methane = DISSOLVED METHANE
BOLD = EXCEEDS COGCC

0 15' 30' 60'

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

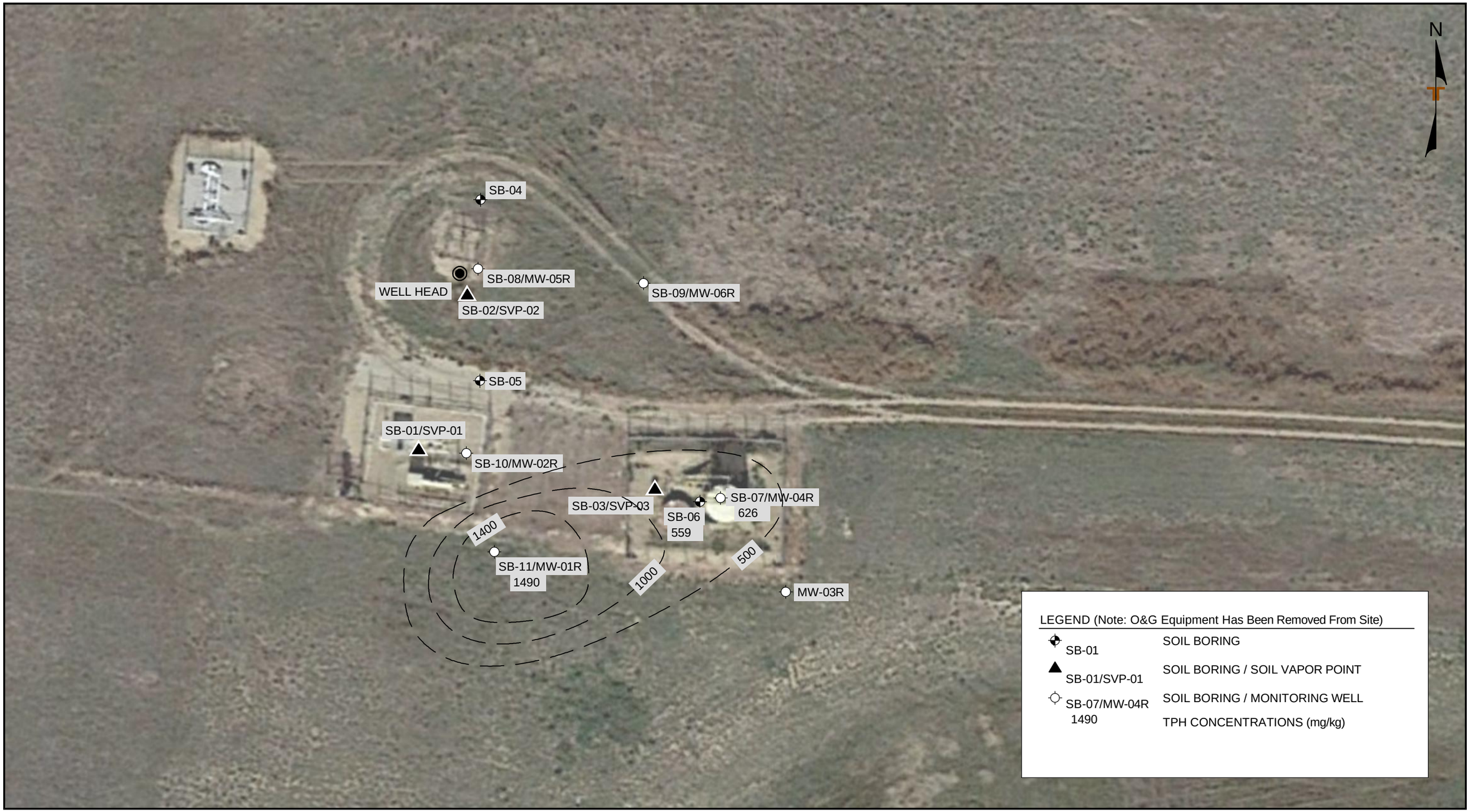
Project Mngr:	MJS
Drawn By:	CPD/BMW
Checked By:	MJS
Approved By:	DAB
Project No.	22177021
Scale:	AS-SHOWN
File No.	22177021.DWG
Date:	12.13.2017

Terracon
Consulting Engineers and Scientists
1242 BRAMWOOD PLACE LONGMONT, CO 80501
PH. (303) 776-3921 FAX. (303) 776-4041

GROUNDWATER CONCENTRATION FIGURE (4Q 2017)

RIDER #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No. 5



0 15' 30' 60'

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr: MJS	Project No. 22177021	Terracon Consulting Engineers and Scientists	TPH CONCENTRATION IN SOILS FIGURE
Drawn By: CPD/BMW	Scale: AS-SHOWN	1242 BRAMWOOD PLACE LONGMONT, CO 80501	RIDER #1
Checked By: MJS	File No. 22177021.DWG	PH. (303) 776-3921 FAX. (303) 776-4041	CITY OF LONGMONT
Approved By: DAB	Date: 12.13.2017		LONGMONT, COLORADO

EXHIBIT No. 6

0 15' 30' 60'

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

Project Mngr:	MJS
Drawn By:	CPD/BMW
Checked By:	MJS
Approved By:	DAB
Project No.	22177021
Scale:	AS-SHOWN
File No.	22177021.DWG
Date:	12.13.2017

Terracon
Consulting Engineers and Scientists
1242 BRAMWOOD PLACE LONGMONT, CO 80501
PH. (303) 776-3921 FAX. (303) 776-4041

ETHYLBENZENE CONCENTRATIONS IN GROUNDWATER
FIGURE
RIDER #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No.
7

DIAGRAM IS INTENDED FOR GENERAL USE ONLY, AND IS NOT FOR CONSTRUCTION PURPOSES. LOCATIONS ARE APPROXIMATE.

0 15' 30' 60'

Project Mngr:	MJS
Drawn By:	CPD/BMW
Checked By:	MJS
Approved By:	DAB
Project No.	22177021
Scale:	AS-SHOWN
File No.	22177021.DWG
Date:	12.13.2017

Terracon
Consulting Engineers and Scientists
1242 BRAMWOOD PLACE LONGMONT, CO 80501
PH. (303) 776-3921 FAX. (303) 776-4041

XYLENE CONCENTRATIONS IN GROUNDWATER FIGURE

RIDER #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No. 8

APPENDIX B – TABLES

Table 1 – Soil Analytical Summary
Table 2 – Groundwater Analytical Summary
Table 3 – Soil Gas Analytical Summary

Table 1
Soil Analytical Summary
Rider #1 Well Site
Longmont, Colorado
Terracon Project No. 22177021

Sample ID and Depth					SB-01 (6-7)	SB-02 (8-9)	SB-03 (6-7)	SB-03 (8-10)	SB-04 (9-10)	SB-05 (8-9)	SB-06 (8-10)	SB-07 (10-12)	SB-08 (6-8)	SB-09 (6-8)	SB-10 (7-9)	SB-11 (10-12)
Collection Date					9/15/17	9/15/17	9/15/17	9/15/17	9/15/17	9/15/17	9/15/17	10/18/17	10/18/17	10/18/17	10/18/17	10/18/17
Parameter	**Residential RSL**	**Industrial RSL**	**COGCC Concentration Levels**	**CDPHE GPV**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOC (8260B)																
n-Butylbenzene	**3,900**	**58,000**	**NE**	**NE**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	**0.332**	<0.100	<0.100	<0.100	**0.644**
sec-Butylbenzene	**7,800**	**120,000**	**NE**	**NE**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	**0.402**	<0.100	<0.100	**0.00119**	**0.644**
Ethylbenzene	**5.8**	**25**	**100**	**100**	<0.001	<0.001	**0.0184**	<0.001	<0.001	<0.001	**1.58**	**0.882**	<0.100	<0.100	**0.00236**	**4.67**
Isopropylbenzene (Cumene)	**1,900**	**9,900**	**NE**	**700**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	**0.563**	<0.100	<0.100	**0.00299**	**1.3**
p-Isopropyltoluene	**NE**	**NE**	**NE**	**NE**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	**0.421**	<0.100	<0.100	**0.0016**	**0.869**
Naphthalene	**3.8**	**17**	**23**	**23**	<0.005	<0.005	**0.0187**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.00585**	<0.005
n-Propylbenzene	**3,800**	**24,000**	**NE**	**77**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	**1.22**	<0.100	<0.100	**0.00606**	**2.59**
1,2,4-Trimethylbenzene	**58**	**240**	**NE**	**NE**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	**9.74**	<0.100	<0.100	**0.0568**	**19.4**
1,2,3-Trimethylbenzene	**49**	**210**	**NE**	**NE**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**1.21**	<0.200	<0.200	**0.00585**	**2.37**
1,3,5-Trimethylbenzene	**780**	**12,000**	**NE**	**NE**	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	**6.67**	<0.200	<0.200	**0.00111**	**11.2**
Xylenes, Total	**580**	**2,500**	**175**	**75**	<0.003	<0.003	**0.192**	<0.003	<0.003	<0.003	**22.5**	**8.12**	<0.003	<0.003	**0.0135**	**36**
TPH - 500 mg/kg (COGCC Regulatory Guidance Threshold)																
TPH-GRO	**NE**	**NE**	**500**	**NE**	<0.500	<0.500	**17.3**	<0.500	<0.500	<0.500	**559**	**626**	<0.500	<0.500	**0.95**	**1490**
TPH-DRO	**NE**	**NE**	**500**	**NE**	<4.0	<4.0	**15.6**	<4.0	<4.0	<4.0	<4.0	**37**	<4.0	<4.0	<4.0	<4.0

1) The CDPHE Background concentration is 11 mg/kg, per the Risk Management Guidance for Evaluating Arsenic Concentrations in Soil, reviewed/revised July 2014.
Only detected analytes shown (detected concentrations are **bold**)
RSL = EPA Regional Screening Level (May 2016)
CDPHE GPV = Colorado Department of Public Health and Environmental Groundwater Protection Value (March 2014)
NE = Not Established
TPH = Total Petroleum Hydrocarbons
VOC = Volatile Organic Compounds
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
COGCC = Colorado Oil and Gas Conservation Comission
COGCC Concentration Levels = COGCC Table 910-1 (January 2015)

Table 2
Groundwater Analytical Summary
Rider #1 Well Site
Longmont, Colorado
Terracon Project No. 22177021

Sample ID			MW-01R	MW-02R	MW-03R	MW-04R	MW-05R	MW-06R
Collect Date			10/19/17	10/19/17	10/19/17	10/19/17	10/19/17	10/19/17
Parameter	41 Groundwater Standard[1]	COGCC Concentration Levels[2]	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOC (8260B)								
sec-Butylbenzene	NE	NE	**46**	<10	**10**	<10	<10	<10
Ethylbenzene	700	700[M]	**738**	<1.0	**29.5**	**2.58**	<1.0	<1.0
Isopropylbenzene (Cumene)	NE	NE	**178**	<1.0	**17.7**	**1.04**	<1.0	<1.0
p-Isopropyltoluene	NE	NE	**181**	<1.0	**79**	**2.79**	<1.0	<1.0
Naphthalene	140	NE	**140**	<5.0	<5.0	<5.0	<5.0	<5.0
n-Propylbenzene	NE	NE	**329**	**1.41**	**25.5**	**2.22**	<1.0	<1.0
1,2,4-Trimethylbenzene	NE	NE	**2,480**	**9.51**	**513**	**18.7**	<1.0	<1.0
1,2,3-Trimethylbenzene	NE	NE	**346**	**1.05**	**116**	**2.63**	<1.0	<1.0
1,3,5-Trimethylbenzene	NE	NE	**1,400**	<1.0	**436**	**12.7**	<1.0	<1.0
Xylenes, Total	1,400 to 10,000	1,400 to 10,000[M]	**5,460**	<3.0	**1,170**	**22.2**	<3.0	<3.0
Other Organics - Dissolved								
Methane	NE	NE	**474**	<10	**677**	**34.9**	<10	<10
Ethane	NE	NE	<13	<13	<13	<13	<13	<13
Ethene	NE	NE	<13	<13	<13	<13	<13	<13
Inorganic Parameters								
Calcium, Dissolved	NE	NE	**99,200**	**103,000**	**99,400**	**101,000**	**100,000**	**99,500**
Iron, Dissolved	300 to 5,000[M]	NE	<100	<100	<100	<100	<100	<100
Magnesium, Dissolved	NE	NE	**82,500**	**79,000**	**83,900**	**82,600**	**83,500**	**81,200**
Potassium, Dissolved	NE	NE	**3,110**	**3,050**	**2,500**	**2,740**	**3,220**	**3,070**
Sodium, Dissolved	NE	NE	**111,000**	**110,000**	**105,000**	**105,000**	**105,000**	**103,000**
Strontium	NE	NE	**2,990**	**2,980**	**3,110**	**3,020**	**2,940**	**2,950**
Alkalinity, Carbonate (CaCO3)	NE	NE	**355,000**	**337,000**	**362,000**	**375,000**	**403,000**	**384,000**
Bromide	NE	NE	<1,000	<1,000	<1,000	<1,000	<1,000	<1,000
Chloride	250,000	52,160*	**41,300**	**39,500**	**44,700**	**42,400**	**41,000**	**42,000**
Nitrogen as Nitrate	10,000	NE	**3,880**	**4,220**	**2,950**	**3,830**	**3,060**	**3,740**
Nitrogen as Nitrite	1,000	NE	<100	<100	**156**	<100	<100	<100
Nitrogen as Nitrate and Nitrite	10,000	NE	**3,880**	**4,220**	**3,106**	**3,830**	**3,060**	**3,740**
Sulfate	250,000	832,400*	**263,000**	**280,000**	**276,000**	**271,000**	**276,000**	**282,000**
Sulfide, Total	NE	NE	**263,000**	**280,000**	**276,000**	**271,000**	**276,000**	**282,000**
General Parameters								
Specific Conductance (mmhos)	NE	NE	1.25	1.194	1.247	1.274	1.217	1.292
pH	6.5-8.5	NE	7.4	7.45	7.3	7.32	7.45	7.34

1) CDPHE GW Quality Standards – Regulation 41 Table A, Ground Water Organic Chemical Standards (June 30, 2016)
2) COGCC Concentration Levels = COGCC Table 910-1 (January 2015)
*) The COGCC cleanup standard for chloride and sulfate is 1.25 x background. Background concentrations from unimpacted wells were used to average and calculate an appropriate background concentration for this area.
Only detected analytes shown (detected concentrations are **bold**)
NE = Not Established
VOC = Volatile Organic Compounds
NA = Not Analyzed
COGCC = Colorado Oil and Gas Conservation Comission
M = Drinking Water Maximum Contaminant Level

Table 3
Soil Gas Analytical Summary
Rider #1 Well Site
Longmont, Colorado
Terracon Project No. 22177021

Sample ID			SVP-01	SVP-02	SVP-03	SVP-04	SVP-05
Collect Date			9/19/2017	9/18/2017	9/19/2017	10/19/2017	10/19/2017
Parameter	Residential RSL	Residential VISL[1]	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
VOC (TO-15)							
Acetone	**32,000**	**1,066,667**	**144**	**201**	**33**	**30.4**	**53.6**
Benzene	**0.36**	**12**	<1.28	<1.28	<1.28	<1.28	**1.35**
Carbon disulfide	**73**	**2,433**	<1.24	<1.24	<1.24	**1.43**	**3.54**
Chloroform	**0.12**	**4**	<1.95	<1.95	<1.95	**2.05**	**2.64**
Chloromethane	**94**	**3,133**	<0826	<0826	<0826	**0.827**	<0826
Cyclohexane	**630**	**21,000**	<0.689	**20.1**	**87.3**	<0.689	**2.38**
1,3-Dichlorobenzene	**NE**	**NE**	**212**	**578**	**235**	**2.69**	**2.87**
Ethanol	**NE**	**NE**	**7.96**	**35.3**	**4.63**	**39.3**	**27.6**
Ethylbenzene	**1.1**	**37**	<0.867	**4.51**	**49.1**	<0.867	**2.01**
4-Ethyltoluene	**NE**	**NE**	**1.51**	**5.19**	<19.6	<19.6	**2.79**
Dichlorodifluoromethane	**100**	**3,333**	**1.32**	<1.98	**1.22**	<1.98	<1.98
Heptane	**NE**	**NE**	<0.818	**87.1**	<0.818	<0.818	<0.818
n-Hexane	**730**	**24,333**	**0.925**	**42.7**	**10.4**	**3.12**	**5.23**
Methylene Chloride	**100**	**3,333**	**0.873**	**2.25**	**0.992**	**25.7**	**21.4**
2-Butanone (MEK)	**5,200**	**173,333**	**5.41**	**56.1**	<3.69	<3.69	<3.69
2-Propanol	**210**	**7,000**	**303**	**62800**	**692**	**38.5**	**17.6**
Propene	**3,100**	**103,333**	<0.689	<0.689	**2.67**	<0.689	<0.689
Tetrachloroethylene	**11**	**367**	**47.3**	**12.9**	<1.36	<1.36	<1.36
Tetrahydrofuran	**2,100**	**70,000**	<1.18	<1.18	<1.18	<1.18	**2.27**
Toluene	**5,200**	**173,333**	**1.22**	**18.2**	**11**	**9.97**	**11.5**
Trichloroethylene	**0.48**	**16**	**4.13**	**3.8**	<1.07	<1.07	<1.07
1,2,4-Trimethylbenzene	**7.3**	**243**	**2.4**	**7.04**	**37.5**	<1.96	**4.69**
1,3,5-Trimethylbenzene	**NE**	**NE**	<0.982	**2.11**	**507**	<0.982	**2.05**
m&p-Xylene	**100**	**3,333**	**2.84**	**16.8**	**180**	**5.34**	**6.93**
o-Xylene	**100**	**3,333**	**3**	**7.5**	**43.3**	**2.15**	**3.3**
Methane, ethane, ethene by 8015M (mg/m³)							
Methane	**NE**	**NE**	<6.54	<6.54	<6.54	<6.54	<6.54
Ethane	**NE**	**NE**	<12.3	<12.3	<12.3	<12.3	<12.3
Ethene	**NE**	**NE**	<11.5	<11.5	<11.5	<11.5	<11.5

1) VISL - Vapor Intrusion Screening Level (calculated by dividing the RSL for residential indoor air by the State approved 3% [0.03] attenuation factor).
RSL = USEPA Indoor Air Regional Screening Level (HQ=0.1 June 2017)
RSL = USEPA Indoor Air Regional Screening Level (June 2017)
ND = Not Detected
NE = Not Established
NA = Not Applicable
Only detected analytes shown (detected concentrations are **bold**)

APPENDIX C – SOIL BORING LOGS

WELL LOG NO. SB-01/SVP-01

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS (Well Completion)	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	ELASTIC SILT (MH), trace sand, fine to coarse grained, tan, dry, soft	Top cap; Slough backfill above bentonite seal; Bentonite chips with riser pipe; Screen pack in sand; Sand pack below pipe	5				0.5
7.0							
	FAT CLAY (CH), tan, wet			▽			
8.0							
	POORLY GRADED SAND WITH GRAVEL (SP), fine to coarse grained, tan, wet	Bentonite below sand pack	10				
12.0							
	Boring Terminated at 12 Feet						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as soil vapor point

Notes:

WATER LEVEL OBSERVATIONS

▽ *8.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 09-15-2017
Well Completed: 09-15-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-1

WELL LOG NO. SB-02/SVP-02

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS (Well Completion)
	ELASTIC SILT (MH), fine to coarse grained, tan, dry, soft	Top cap; Slough backfill above bentonite seal; Bentonite chips with riser pipe; Screen pack in sand; Sand pack below pipe
7.0	**LEAN CLAY (CL)**, tan, moist, very soft	Bentonite below sand pack
9.0	**POORLY GRADED SAND WITH GRAVEL (SP)**, fine to coarse grained, tan, wet	
12.0	***Boring Terminated at 12 Feet***	

DEPTH (ft): 5, 10

WATER LEVEL OBSERVATIONS: ▽ 9.0

SAMPLE TYPE

OVA/PID (ppm)

PID (ppm): 0.2

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as soil vapor point

Notes:

WATER LEVEL OBSERVATIONS

▽ *9.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 09-15-2017
Well Completed: 09-15-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-2

WELL LOG NO. SB-03/SVP-03

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS (Well Completion)	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	ELASTIC SILT (MH), fine to coarse grained, tan, dry, soft	Top cap; Slough backfill above bentonite seal; Bentonite chips with riser pipe; Screen pack in sand; Sand pack below pipe	5				12.6
7.0							
	LEAN CLAY (CL), tan, wet, very soft						
8.0							
	LEAN CLAY WITH GRAVEL (CL), fine to coarse grained, green/black, wet, petroleum odor observed at 8'-11' bgs	Bentonite below sand pack	10	▽			384
11.0							
	POORLY GRADED SAND WITH GRAVEL (SP), tan, wet						
12.0							
	Boring Terminated at 12 Feet						

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as soil vapor point

Notes:

WATER LEVEL OBSERVATIONS

▽ *11.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 09-15-2017
Well Completed: 09-15-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-3

BORING LOG NO. SB-04

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	ELASTIC SILT (MH), trace sand, tan, dry, soft					
4.0	**ELASTIC SILT (MH)**, trace sand, moist, stiff	5				
10.0	**POORLY GRADED SAND WITH GRAVEL (SP)**, fine to coarse grained, tan, wet	10	▽			0.0
12.0	***Boring Terminated at 12 Feet***					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 09-15-2017 | Boring Completed: 09-15-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-4

BORING LOG NO. SB-05

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	ELASTIC SILT (MH), trace sand, tan, dry, soft	5				0.5
10.0	**POORLY GRADED SAND WITH GRAVEL (SP)**, fine to coarse grained, tan, wet	10	▽			
12.0	***Boring Terminated at 12 Feet***					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 09-15-2017 | Boring Completed: 09-15-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-5

BORING LOG NO. SB-06

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		ELASTIC SILT (MH), tan, dry, soft	5				
	8.0						
		LEAN CLAY WITH GRAVEL (CL), black/green, moist, very soft, petroleum odor observed at 8'-10' bgs					486
	10.0		10	▽			
		POORLY GRADED SAND WITH GRAVEL (SP), fine to coarse grained, black/green, wet					
	12.0						
		Boring Terminated at 12 Feet					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 09-15-2017 | Boring Completed: 09-15-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-5

WELL LOG NO. MW-03R

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

GRAPHIC LOG	LOCATION See Exhibit A-2 DEPTH — MATERIAL DESCRIPTION	INSTALLATION DETAILS Well Completion:	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		Top cap Slough backfill above bentonite seal Bentonite chips with riser pipe Solid pipe in sand Screen pack in sand	5 10 15	▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as groundwater monitoring well

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.68, after well installation*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 09-15-2017
Well Completed: 09-15-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-6

BORING LOG NO. SB-07

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	SILTY CLAY (CL-ML), low plasticity, brown, dry, soft					
5.0	**SILTY CLAY (CL-ML)**, trace gravel below 8', low plasticity, brown, moist, saturated at 7'	5	▽			
10.0	**GRAVELLY SILTY CLAY (CL-ML)**, black/gray, wet, petroleum odor 10-12'	10				293
12.0	**WELL GRADED SAND WITH GRAVEL (SW)**, tan, wet	15				
16.0	***Boring Terminated at 16 Feet***					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *7.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 10-18-2017 | Boring Completed: 10-18-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-7

WELL LOG NO. MW-04R

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

GRAPHIC LOG	LOCATION See Exhibit A-2 DEPTH — MATERIAL DESCRIPTION	INSTALLATION DETAILS Well Completion: Stickup with cap	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		Slough backfill above bentonite seal Bentonite chips with riser pipe Solid pipe in sand Screen pack in sand	5 10 15	▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as groundwater monitoring well

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.22, after well installation*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-18-2017
Well Completed: 10-18-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-8

BORING LOG NO. SB-08

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	SILTY CLAY (CL-ML), low plasticity, brown, dry					
6.0	**SILTY CLAY (CL-ML)**, tan, moist	5				0.2
10.0	**GRAVELLY SILTY CLAY (CL-ML)**, brown, wet	10	▽			
12.0	**WELL GRADED SAND WITH GRAVEL (SW)**, tan, wet	15				
16.0	***Boring Terminated at 16 Feet***					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 10-18-2017 | Boring Completed: 10-18-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-9

WELL LOG NO. MW-05R

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
			Well Completion: Stickup with cap; Slough backfill above bentonite seal; Bentonite chips with riser pipe; Solid pipe in sand; Screen pack in sand	5; 10; 15	▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as groundwater monitoring well

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-18-2017
Well Completed: 10-18-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-10

BORING LOG NO. SB-09

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	SILTY CLAY (CL-ML), low plasticity, brown, dry	5				
6.0	**SILTY CLAY (CL-ML)**, tan, moist					0.5
10.0	**GRAVELLY SILTY CLAY (CL-ML)**, brown, wet	10	▽			
12.0	**WELL GRADED SAND WITH GRAVEL (SW)**, tan, wet	15				
16.0	***Boring Terminated at 16 Feet***					

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 10-18-2017 | Boring Completed: 10-18-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-11

WELL LOG NO. MW-06R

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
			Well Completion: Stickup with cap; Slough backfill above bentonite seal; Bentonite chips with riser pipe; Solid pipe in sand; Screen pack in sand	5; 10; 15	▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as groundwater monitoring well

Notes:

WATER LEVEL OBSERVATIONS

▽ *9.37, after well installation*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-18-2017
Well Completed: 10-18-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-12

BORING LOG NO. SB-10

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
	SILTY CLAY (CL-ML), low plasticity, brown, dry					
7.5	**LEAN CLAY (CL)**, with sand and gravel, tan, moist to 9', wet below 9', black with solvent-like odor at 9-10'	5				0.5
11.0	**WELL GRADED SAND WITH GRAVEL (SW)**, tan, wet	10	▽			
16.0	***Boring Terminated at 16 Feet***	15				

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 10-18-2017 | Boring Completed: 10-18-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-13

WELL LOG NO. MW-02R

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

GRAPHIC LOG	LOCATION See Exhibit A-2 DEPTH — MATERIAL DESCRIPTION	INSTALLATION DETAILS Well Completion: Stickup with cap	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		Slough backfill above bentonite seal Bentonite chips with riser pipe Solid pipe in sand Screen pack in sand	5 10 15	▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as groundwater monitoring

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.15, after well installation*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-18-2017 | Well Completed: 10-18-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-14

BORING LOG NO. SB-11

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

DEPTH	MATERIAL DESCRIPTION	PID (ppm)
	SILT (ML), with clay, brown, dry	
11.0		95.7
	SILTY CLAY (CL-ML), black, wet, petroleum-like odor	
12.0		
	WELL GRADED SAND WITH GRAVEL (SW), tan, wet, fine to coarse	
16.0		
	Boring Terminated at 16 Feet	

GRAPHIC LOG | DEPTH (ft) | WATER LEVEL OBSERVATIONS | SAMPLE TYPE | OVA/PID (ppm) | PID (ppm)

5

10

15

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

Notes:

WATER LEVEL OBSERVATIONS

▽ *9.0, during exploration*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Boring Started: 10-18-2017 | Boring Completed: 10-18-2017

Drill Rig: Geoprobe | Driller: Drill Pro

Project No.: 22177021 | Exhibit: B-15

WELL LOG NO. MW-01R

PROJECT: Rider #1 Well Site Investigation

CLIENT: City of Longmont
Longmont, CO

SITE: City of Longmont Property
Longmont, Colorado

LOCATION See Exhibit A-2

GRAPHIC LOG	DEPTH	MATERIAL DESCRIPTION	INSTALLATION DETAILS	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
			Well Completion: Stickup with cap; Slough backfill above bentonite seal; Bentonite ships with riser pipe; Solid pipe in sand; Screen pack in sand	5; 10; 15	▽			

The stratification lines represent the approximate transition between differing soil types and/or rock types; in-situ these transitions may be gradual or may occur at different depths than shown.

Hammer Type: Automatic

Advancement Method:
Direct Push

Abandonment Method:
Boring completed as groundwater monitoring well

Notes:

WATER LEVEL OBSERVATIONS

▽ *10.80, after well installation*

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-18-2017
Well Completed: 10-18-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177021
Exhibit: B-16

APPENDIX D – ANALYTICAL REPORTS AND CHAINS OF CUSTODY

ANALYTICAL REPORT

September 26, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L937097
Samples Received:	09/16/2017
Project Number:	22177021
Description:	Rider #1

Report To: Mike Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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SB-01 6-7' L937097-01 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 10:10 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	1	09/19/17 14:23	09/21/17 12:07	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 12:02	ACM

SB-04 9-10' L937097-02 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 10:25 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	1	09/19/17 14:23	09/21/17 12:27	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 10:37	ACM

SB-02 8-9' L937097-03 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 10:55 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	1	09/19/17 14:23	09/21/17 12:47	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 10:51	ACM

SB-05 8-9' L937097-04 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 11:15 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	1	09/19/17 14:23	09/21/17 13:06	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 11:05	ACM

SB-03 6-7' L937097-05 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 11:30 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	1	09/19/17 14:23	09/21/17 13:26	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 11:19	ACM

SB-03 8-10' L937097-06 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 11:40 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	1	09/19/17 14:23	09/21/17 13:45	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 11:33	ACM

SB-06 8-10' L937097-07 Solid

Collected by: M. Skridulis | Collected date/time: 09/15/17 12:00 | Received date/time: 09/16/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1	WG1022136	250	09/19/17 14:23	09/21/17 14:05	JAH
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	1	09/24/17 22:20	09/25/17 11:48	DMG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1024212	5	09/24/17 22:20	09/25/17 13:12	DMG

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	ND		0.500	1	09/21/2017 12:07	WG1022136
Benzene	ND		0.00100	1	09/21/2017 12:07	WG1022136
1,2-Dichloroethane	ND		0.00100	1	09/21/2017 12:07	WG1022136
1,2-Dibromoethane	ND		0.00100	1	09/21/2017 12:07	WG1022136
Ethylbenzene	ND		0.00100	1	09/21/2017 12:07	WG1022136
Methyl tert-butyl ether	ND		0.00100	1	09/21/2017 12:07	WG1022136
Naphthalene	ND		0.00500	1	09/21/2017 12:07	WG1022136
Toluene	ND		0.00500	1	09/21/2017 12:07	WG1022136
Xylenes, Total	ND		0.00300	1	09/21/2017 12:07	WG1022136
(S) Toluene-d8	*109*		*80.0-120*		*09/21/2017 12:07*	WG1022136
(S) Dibromofluoromethane	*102*		*74.0-131*		*09/21/2017 12:07*	WG1022136
(S) a,a,a-Trifluorotoluene	*96.4*		*80.0-120*		*09/21/2017 12:07*	WG1022136
(S) 4-Bromofluorobenzene	*109*		*64.0-132*		*09/21/2017 12:07*	WG1022136

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	09/25/2017 12:02	WG1024212
C28-C40 Oil Range	ND		4.00	1	09/25/2017 12:02	WG1024212
(S) o-Terphenyl	*85.8*		*18.0-148*		*09/25/2017 12:02*	WG1024212

Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	ND		0.500	1	09/21/2017 12:27	WG1022136
Benzene	ND		0.00100	1	09/21/2017 12:27	WG1022136
1,2-Dichloroethane	ND		0.00100	1	09/21/2017 12:27	WG1022136
1,2-Dibromoethane	ND		0.00100	1	09/21/2017 12:27	WG1022136
Ethylbenzene	ND		0.00100	1	09/21/2017 12:27	WG1022136
Methyl tert-butyl ether	ND		0.00100	1	09/21/2017 12:27	WG1022136
Naphthalene	ND		0.00500	1	09/21/2017 12:27	WG1022136
Toluene	ND		0.00500	1	09/21/2017 12:27	WG1022136
Xylenes, Total	ND		0.00300	1	09/21/2017 12:27	WG1022136
(S) Toluene-d8	*109*		*80.0-120*		*09/21/2017 12:27*	WG1022136
(S) Dibromofluoromethane	*106*		*74.0-131*		*09/21/2017 12:27*	WG1022136
(S) a,a,a-Trifluorotoluene	*96.6*		*80.0-120*		*09/21/2017 12:27*	WG1022136
(S) 4-Bromofluorobenzene	*107*		*64.0-132*		*09/21/2017 12:27*	WG1022136

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	09/25/2017 10:37	WG1024212
C28-C40 Oil Range	ND		4.00	1	09/25/2017 10:37	WG1024212
(S) o-Terphenyl	*82.1*		*18.0-148*		*09/25/2017 10:37*	WG1024212

Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	ND		0.500	1	09/21/2017 12:47	WG1022136
Benzene	ND		0.00100	1	09/21/2017 12:47	WG1022136
1,2-Dichloroethane	ND		0.00100	1	09/21/2017 12:47	WG1022136
1,2-Dibromoethane	ND		0.00100	1	09/21/2017 12:47	WG1022136
Ethylbenzene	ND		0.00100	1	09/21/2017 12:47	WG1022136
Methyl tert-butyl ether	ND		0.00100	1	09/21/2017 12:47	WG1022136
Naphthalene	ND		0.00500	1	09/21/2017 12:47	WG1022136
Toluene	ND		0.00500	1	09/21/2017 12:47	WG1022136
Xylenes, Total	ND		0.00300	1	09/21/2017 12:47	WG1022136
(S) Toluene-d8	*107*		*80.0-120*		*09/21/2017 12:47*	WG1022136
(S) Dibromofluoromethane	*106*		*74.0-131*		*09/21/2017 12:47*	WG1022136
(S) a,a,a-Trifluorotoluene	*97.4*		*80.0-120*		*09/21/2017 12:47*	WG1022136
(S) 4-Bromofluorobenzene	*108*		*64.0-132*		*09/21/2017 12:47*	WG1022136

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	09/25/2017 10:51	WG1024212
C28-C40 Oil Range	ND		4.00	1	09/25/2017 10:51	WG1024212
(S) o-Terphenyl	*88.3*		*18.0-148*		*09/25/2017 10:51*	WG1024212

Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	ND		0.500	1	09/21/2017 13:06	WG1022136
Benzene	ND		0.00100	1	09/21/2017 13:06	WG1022136
1,2-Dichloroethane	ND		0.00100	1	09/21/2017 13:06	WG1022136
1,2-Dibromoethane	ND		0.00100	1	09/21/2017 13:06	WG1022136
Ethylbenzene	ND		0.00100	1	09/21/2017 13:06	WG1022136
Methyl tert-butyl ether	ND		0.00100	1	09/21/2017 13:06	WG1022136
Naphthalene	ND		0.00500	1	09/21/2017 13:06	WG1022136
Toluene	ND		0.00500	1	09/21/2017 13:06	WG1022136
Xylenes, Total	ND		0.00300	1	09/21/2017 13:06	WG1022136
(S) Toluene-d8	*108*		*80.0-120*		*09/21/2017 13:06*	WG1022136
(S) Dibromofluoromethane	*108*		*74.0-131*		*09/21/2017 13:06*	WG1022136
(S) a,a,a-Trifluorotoluene	*98.6*		*80.0-120*		*09/21/2017 13:06*	WG1022136
(S) 4-Bromofluorobenzene	*106*		*64.0-132*		*09/21/2017 13:06*	WG1022136

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	09/25/2017 11:05	WG1024212
C28-C40 Oil Range	ND		4.00	1	09/25/2017 11:05	WG1024212
(S) o-Terphenyl	*88.7*		*18.0-148*		*09/25/2017 11:05*	WG1024212

Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	ND		0.500	1	09/21/2017 13:26	WG1022136
Benzene	ND		0.00100	1	09/21/2017 13:26	WG1022136
1,2-Dichloroethane	ND		0.00100	1	09/21/2017 13:26	WG1022136
1,2-Dibromoethane	ND		0.00100	1	09/21/2017 13:26	WG1022136
Ethylbenzene	ND		0.00100	1	09/21/2017 13:26	WG1022136
Methyl tert-butyl ether	ND		0.00100	1	09/21/2017 13:26	WG1022136
Naphthalene	ND		0.00500	1	09/21/2017 13:26	WG1022136
Toluene	ND		0.00500	1	09/21/2017 13:26	WG1022136
Xylenes, Total	ND		0.00300	1	09/21/2017 13:26	WG1022136
(S) Toluene-d8	*108*		*80.0-120*		*09/21/2017 13:26*	WG1022136
(S) Dibromofluoromethane	*104*		*74.0-131*		*09/21/2017 13:26*	WG1022136
(S) a,a,a-Trifluorotoluene	*98.9*		*80.0-120*		*09/21/2017 13:26*	WG1022136
(S) 4-Bromofluorobenzene	*108*		*64.0-132*		*09/21/2017 13:26*	WG1022136

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	09/25/2017 11:19	WG1024212
C28-C40 Oil Range	ND		4.00	1	09/25/2017 11:19	WG1024212
(S) o-Terphenyl	*76.6*		*18.0-148*		*09/25/2017 11:19*	WG1024212

Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	17.3		0.500	1	09/21/2017 13:45	WG1022136
Benzene	ND		0.00100	1	09/21/2017 13:45	WG1022136
1,2-Dichloroethane	ND		0.00100	1	09/21/2017 13:45	WG1022136
1,2-Dibromoethane	ND		0.00100	1	09/21/2017 13:45	WG1022136
Ethylbenzene	0.0184		0.00100	1	09/21/2017 13:45	WG1022136
Methyl tert-butyl ether	ND		0.00100	1	09/21/2017 13:45	WG1022136
Naphthalene	0.0187		0.00500	1	09/21/2017 13:45	WG1022136
Toluene	ND		0.00500	1	09/21/2017 13:45	WG1022136
Xylenes, Total	0.192		0.00300	1	09/21/2017 13:45	WG1022136
(S) Toluene-d8	*99.7*		*80.0-120*		*09/21/2017 13:45*	WG1022136
(S) Dibromofluoromethane	*106*		*74.0-131*		*09/21/2017 13:45*	WG1022136
(S) a,a,a-Trifluorotoluene	*87.7*		*80.0-120*		*09/21/2017 13:45*	WG1022136
(S) 4-Bromofluorobenzene	*148*	J1	*64.0-132*		*09/21/2017 13:45*	WG1022136

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	15.6		4.00	1	09/25/2017 11:33	WG1024212
C28-C40 Oil Range	ND		4.00	1	09/25/2017 11:33	WG1024212
(S) o-Terphenyl	*83.2*		*18.0-148*		*09/25/2017 11:33*	WG1024212

Volatile Organic Compounds (GC/MS) by Method 8260B/8260B/OA1

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/MS) Low Fraction	559		125	250	09/21/2017 14:05	WG1022136
Benzene	ND		0.250	250	09/21/2017 14:05	WG1022136
1,2-Dichloroethane	ND		0.250	250	09/21/2017 14:05	WG1022136
1,2-Dibromoethane	ND		0.250	250	09/21/2017 14:05	WG1022136
Ethylbenzene	1.58		0.250	250	09/21/2017 14:05	WG1022136
Methyl tert-butyl ether	ND		0.250	250	09/21/2017 14:05	WG1022136
Naphthalene	ND		1.25	250	09/21/2017 14:05	WG1022136
Toluene	ND		1.25	250	09/21/2017 14:05	WG1022136
Xylenes, Total	22.5		0.750	250	09/21/2017 14:05	WG1022136
(S) Toluene-d8	*114*		*80.0-120*		*09/21/2017 14:05*	WG1022136
(S) Dibromofluoromethane	*99.5*		*74.0-131*		*09/21/2017 14:05*	WG1022136
(S) a,a,a-Trifluorotoluene	*95.9*		*80.0-120*		*09/21/2017 14:05*	WG1022136
(S) 4-Bromofluorobenzene	*116*		*64.0-132*		*09/21/2017 14:05*	WG1022136

Sample Narrative:

L937097-07 WG1022136: Non-target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	476		20.0	5	09/25/2017 13:12	WG1024212
C28-C40 Oil Range	13.5		4.00	1	09/25/2017 11:48	WG1024212
(S) o-Terphenyl	*79.0*		*18.0-148*		*09/25/2017 11:48*	WG1024212
(S) o-Terphenyl	*69.5*		*18.0-148*		*09/25/2017 13:12*	WG1024212

Method Blank (MB)

(MB) R3251784-5 09/21/17 11:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/MS) Low Fraction	U		0.183	0.500
Benzene	U		0.000270	0.00100
1,2-Dibromoethane	U		0.000343	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
Ethylbenzene	U		0.000297	0.00100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
Toluene	U		0.000434	0.00500
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*116*			*80.0-120*
(S) Dibromofluoromethane	*101*			*74.0-131*
(S) a,a,a-Trifluorotoluene	*98.9*			*80.0-120*
(S) 4-Bromofluorobenzene	*109*			*64.0-132*

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

(LCS) R3251784-1 09/21/17 09:19 • (LCSD) R3251784-2 09/21/17 09:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.0250	0.0225	0.0225	89.9	90.2	71.0-124			0.340	20
1,2-Dibromoethane	0.0250	0.0275	0.0277	110	111	78.0-122			0.550	20
1,2-Dichloroethane	0.0250	0.0238	0.0238	95.2	95.2	69.0-128			0.0100	20
Ethylbenzene	0.0250	0.0261	0.0255	104	102	77.0-120			2.42	20
Methyl tert-butyl ether	0.0250	0.0188	0.0193	75.3	77.3	66.0-125			2.67	20
Naphthalene	0.0250	0.0232	0.0237	92.9	94.7	64.0-125			1.93	20
Toluene	0.0250	0.0256	0.0256	102	102	77.0-120			0.0600	20
Xylenes, Total	0.0750	0.0766	0.0770	102	103	77.0-120			0.520	20
(S) Toluene-d8				*116*	*115*	*80.0-120*				
(S) Dibromofluoromethane				*101*	*99.6*	*74.0-131*				
(S) a,a,a-Trifluorotoluene				*96.6*	*96.9*	*80.0-120*				
(S) 4-Bromofluorobenzene				*109*	*107*	*64.0-132*				

Laboratory Control Sample (LCS)

(LCS) R3251784-3 09/21/17 09:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/MS) Low Fraction	5.00	4.03	80.6	59.0-157	
(S) Toluene-d8			*113*	*80.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3251784-3 09/21/17 09:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) Dibromofluoromethane			*96.8*	*74.0-131*	
(S) a,a,a-Trifluorotoluene			*97.3*	*80.0-120*	
(S) 4-Bromofluorobenzene			*115*	*64.0-132*	

Method Blank (MB)

(MB) R3252020-1 09/25/17 09:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*88.9*			*18.0-148*

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

(LCS) R3252020-2 09/25/17 10:09 • (LCSD) R3252020-3 09/25/17 10:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	60.0	48.3	53.7	80.5	89.5	50.0-150			10.6	20
(S) o-Terphenyl				*88.3*	*91.4*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.

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		

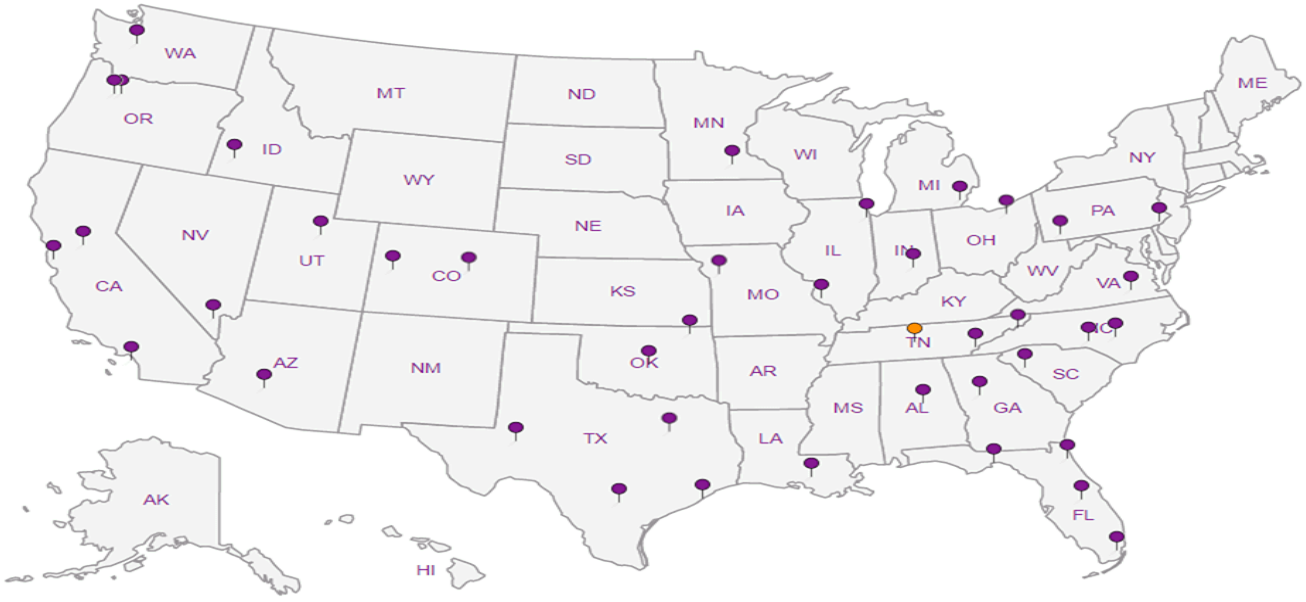
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	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.**



Company Name/Address:
Terracon - Longmont
1242 Bramwood Pl.
Longmont, CO 80501

Billing Information: SAME

Report to: Michael Skridulis

Email To: mjskridulis@terracon.com

Project Description: Rider #1

City/State Collected: Longmont CO

Phone: 303-776-3921
Fax: 303-776-4041

Client Project # 22177021

Lab Project #

Collected by (print): M. Sk

Site/Facility ID #

P.O. #

Collected by (signature): M. Skridulis

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: STANDARD

Email? ___No ✓Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LABORATORY SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L937097
D171

Acctnum: TERRALCO
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX by 8260	TPH-GRO by 8260	TPH-DRO by 8015	TPH-ORO by 8015							Rem./Contaminant	Sample # (lab only)
SB-01 (6-7)	G	SS		9/15/17	1010	2	X	X	X	X								-01
SB-04 (9-10)					1025		X	X	X	X								02
SB-02 (8-9)					1055		X	X	X	X								03
SB-05 (8-9)					1115		X	X	X	X								04
SB-03 (6-7)					1130		X	X	X	X								05
SB-03 (8-10)					1140		X	X	X	X								06
SB-06 (8-10)	↓	↓		↓	1200	↓	X	X	X	X								

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other _____

pH _____ Temp _____

Remarks: Fedex: 7466 1462 6880

Flow _____ Other _____

Hold #

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
M.S. / TT	9/15/17	1330	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: 4.0 °C Bottles Received: 14

Date: 9/16/17 Time: 0845

Condition: (lab use only) OK

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: TERRACON	SDG#	L937097	
Cooler Received/Opened On: 9/16/17	Temperature: 4.0		
Received by: Chris Ward			
Signature: Chris Ward			

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

ANALYTICAL REPORT

September 28, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L938101
Samples Received:	09/21/2017
Project Number:	22177021
Description:	Rider #1

Report To: Mike Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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SVP-02 L938101-01 Air

Collected by: M. Skridulis
Collected date/time: 09/18/17 11:15
Received date/time: 09/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015M	WG1024219	1	09/25/17 09:24	09/25/17 09:24	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1023800	2	09/23/17 22:00	09/23/17 22:00	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1024357	200	09/25/17 20:19	09/25/17 20:19	MBF

SVP-01 L938101-02 Air

Collected by: M. Skridulis
Collected date/time: 09/19/17 14:20
Received date/time: 09/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015M	WG1024219	1	09/25/17 09:26	09/25/17 09:26	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1023800	1	09/23/17 22:54	09/23/17 22:54	MBF

SVP-03 L938101-03 Air

Collected by: M. Skridulis
Collected date/time: 09/19/17 15:00
Received date/time: 09/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015M	WG1024219	1	09/25/17 09:29	09/25/17 09:29	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1023800	1	09/24/17 00:07	09/24/17 00:07	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1024357	20	09/25/17 21:01	09/25/17 21:01	MBF

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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) by Method 8015M

Analyte	CAS #	Mol. Wt.	RDL1 ppmv	RDL2 mg/m3	Result ppmv	Result mg/m3	Qualifier	Dilution	Batch
Methane	74-82-8	16	10.0	6.54	ND	ND		1	WG1024219
Ethane	74-84-0	30	10.0	12.3	ND	ND		1	WG1024219
Ethene	74-85-1	28	10.0	11.5	ND	ND		1	WG1024219

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	84.5	201		2	WG1023800
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1023800
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1023800
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1023800
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1023800
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1023800
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1023800
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1023800
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1023800
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1023800
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1023800
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1023800
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1023800
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1023800
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1023800
Cyclohexane	110-82-7	84.20	0.400	1.38	5.82	20.1		2	WG1023800
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1023800
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1023800
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1023800
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	96.1	578		2	WG1023800
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1023800
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1023800
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1023800
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1023800
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1023800
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1023800
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1023800
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1023800
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1023800
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1023800
Ethanol	64-17-5	46.10	1.26	2.38	18.7	35.3		2	WG1023800
Ethylbenzene	100-41-4	106	0.400	1.73	1.04	4.51		2	WG1023800
4-Ethyltoluene	622-96-8	120	0.400	1.96	1.06	5.19		2	WG1023800
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1023800
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1023800
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1023800
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1023800
Heptane	142-82-5	100	0.400	1.64	20.0	81.7		2	WG1023800
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1023800
n-Hexane	110-54-3	86.20	0.400	1.41	12.1	42.7		2	WG1023800
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1023800
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.648	2.25		2	WG1023800
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1023800
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	19.0	56.1		2	WG1023800
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1023800
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1023800
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1023800
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1023800

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
2-Propanol	67-63-0	60.10	250	615	25500	62800	E	200	WG1024357
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1023800
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1023800
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1023800
Tetrachloroethylene	127-18-4	166	0.400	2.72	1.90	12.9		2	WG1023800
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1023800
Toluene	108-88-3	92.10	0.400	1.51	4.82	18.2		2	WG1023800
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1023800
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1023800
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1023800
Trichloroethylene	79-01-6	131	0.400	2.14	0.709	3.80		2	WG1023800
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	1.43	7.04		2	WG1023800
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	0.430	2.11		2	WG1023800
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1023800
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1023800
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1023800
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1023800
m&p-Xylene	1330-20-7	106	0.800	3.47	3.86	16.8		2	WG1023800
o-Xylene	95-47-6	106	0.400	1.73	1.73	7.50		2	WG1023800
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.0*				WG1024357
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*105*				WG1023800

Volatile Organic Compounds (GC) by Method 8015M

Analyte	CAS #	Mol. Wt.	RDL1 ppmv	RDL2 mg/m3	Result ppmv	Result mg/m3	Qualifier	Dilution	Batch
Methane	74-82-8	16	10.0	6.54	ND	ND		1	WG1024219
Ethane	74-84-0	30	10.0	12.3	ND	ND		1	WG1024219
Ethene	74-85-1	28	10.0	11.5	ND	ND		1	WG1024219

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	60.4	144	E	1	WG1023800
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1023800
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1023800
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1023800
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1023800
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1023800
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1023800
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1023800
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1023800
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1023800
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1023800
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1023800
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1023800
Chloromethane	74-87-3	50.50	0.200	0.413	ND	ND		1	WG1023800
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1023800
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1023800
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1023800
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1023800
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1023800
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	35.2	212		1	WG1023800
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1023800
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1023800
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1023800
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1023800
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1023800
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1023800
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1023800
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1023800
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1023800
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1023800
Ethanol	64-17-5	46.10	0.630	1.19	4.22	7.96		1	WG1023800
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1023800
4-Ethyltoluene	622-96-8	120	0.200	0.982	0.307	1.51		1	WG1023800
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	ND	ND		1	WG1023800
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.267	1.32		1	WG1023800
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1023800
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1023800
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1023800
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1023800
n-Hexane	110-54-3	86.20	0.200	0.705	0.262	0.925		1	WG1023800
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1023800
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.252	0.873		1	WG1023800
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1023800
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	1.83	5.41		1	WG1023800
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1023800
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1023800
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1023800
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1023800

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
2-Propanol	67-63-0	60.10	1.25	3.07	123	303	E	1	WG1023800
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1023800
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1023800
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1023800
Tetrachloroethylene	127-18-4	166	0.200	1.36	6.97	47.3		1	WG1023800
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1023800
Toluene	108-88-3	92.10	0.200	0.753	0.323	1.22		1	WG1023800
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1023800
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1023800
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1023800
Trichloroethylene	79-01-6	131	0.200	1.07	0.772	4.13		1	WG1023800
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.490	2.40		1	WG1023800
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1023800
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1023800
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1023800
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1023800
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1023800
m&p-Xylene	1330-20-7	106	0.400	1.73	0.654	2.84		1	WG1023800
o-Xylene	95-47-6	106	0.200	0.867	0.692	3.00		1	WG1023800
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*101*				WG1023800

Volatile Organic Compounds (GC) by Method 8015M

Analyte	CAS #	Mol. Wt.	RDL1 ppmv	RDL2 mg/m3	Result ppmv	Result mg/m3	Qualifier	Dilution	Batch
Methane	74-82-8	16	10.0	6.54	ND	ND		1	WG1024219
Ethane	74-84-0	30	10.0	12.3	ND	ND		1	WG1024219
Ethene	74-85-1	28	10.0	11.5	ND	ND		1	WG1024219

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	13.9	33.0		1	WG1023800
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1023800
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1023800
Benzyl Chloride	100-44-7	127	4.00	20.8	ND	ND		20	WG1024357
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1023800
Bromoform	75-25-2	253	12.0	124	ND	ND		20	WG1024357
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1023800
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1023800
Carbon disulfide	75-15-0	76.10	0.200	0.622	ND	ND		1	WG1023800
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1023800
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1023800
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1023800
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1023800
Chloromethane	74-87-3	50.50	0.200	0.413	ND	ND		1	WG1023800
2-Chlorotoluene	95-49-8	126	4.00	20.6	ND	ND		20	WG1024357
Cyclohexane	110-82-7	84.20	0.200	0.689	25.3	87.3		1	WG1023800
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1023800
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1023800
1,2-Dichlorobenzene	95-50-1	147	4.00	24.0	ND	ND		20	WG1024357
1,3-Dichlorobenzene	541-73-1	147	4.00	24.0	39.0	235		20	WG1024357
1,4-Dichlorobenzene	106-46-7	147	4.00	24.0	ND	ND		20	WG1024357
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1023800
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1023800
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1023800
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1023800
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1023800
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1023800
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1023800
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1023800
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1023800
Ethanol	64-17-5	46.10	0.630	1.19	2.46	4.63		1	WG1023800
Ethylbenzene	100-41-4	106	4.00	17.3	11.3	49.1		20	WG1024357
4-Ethyltoluene	622-96-8	120	4.00	19.6	ND	ND		20	WG1024357
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	ND	ND		1	WG1023800
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.247	1.22		1	WG1023800
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1023800
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1023800
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1023800
Hexachloro-1,3-butadiene	87-68-3	261	12.6	135	ND	ND		20	WG1024357
n-Hexane	110-54-3	86.20	0.200	0.705	2.95	10.4		1	WG1023800
Isopropylbenzene	98-82-8	120.20	4.00	19.7	ND	ND		20	WG1024357
Methylene Chloride	75-09-2	84.90	0.200	0.694	0.286	0.992		1	WG1023800
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1023800
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1023800
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1023800
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1023800
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1023800
Naphthalene	91-20-3	128	12.6	66.0	ND	ND		20	WG1024357

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
2-Propanol	67-63-0	60.10	25.0	61.5	281	692		20	WG1024357
Propene	115-07-1	42.10	0.400	0.689	1.55	2.67		1	WG1023800
Styrene	100-42-5	104	4.00	17.0	ND	ND		20	WG1024357
1,1,2,2-Tetrachloroethane	79-34-5	168	4.00	27.5	ND	ND		20	WG1024357
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1023800
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1023800
Toluene	108-88-3	92.10	0.200	0.753	2.93	11.0		1	WG1023800
1,2,4-Trichlorobenzene	120-82-1	181	12.6	93.3	ND	ND		20	WG1024357
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1023800
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1023800
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1023800
1,2,4-Trimethylbenzene	95-63-6	120	4.00	19.6	7.64	37.5		20	WG1024357
1,3,5-Trimethylbenzene	108-67-8	120	4.00	19.6	103	507		20	WG1024357
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1023800
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1023800
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1023800
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1023800
m&p-Xylene	1330-20-7	106	8.00	34.7	41.5	180		20	WG1024357
o-Xylene	95-47-6	106	4.00	17.3	9.98	43.3		20	WG1024357
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*195*		J1		WG1024357
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*1990*		J1		WG1023800

Sample Narrative:

L938101-03 WG1023800, WG1024357: Surrogate failure due to sample matrix.

Method Blank (MB)

(MB) R3251918-3 09/25/17 09:20

Analyte	MB Result ppmv	MB Qualifier	MB MDL ppmv	MB RDL ppmv
Methane	U		1.85	10.0
Ethane	U		2.88	10.0
Ethene	U		2.47	10.0

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

(LCS) R3251918-1 09/25/17 09:07 • (LCSD) R3251918-2 09/25/17 09:10

Analyte	Spike Amount ppmv	LCS Result ppmv	LCSD Result ppmv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	500	458	462	91.6	92.5	77.0-115			0.970	20
Ethane	500	503	513	101	103	85.0-115			1.95	20
Ethene	500	527	541	105	108	85.0-115			2.60	20

Method Blank (MB)

(MB) R3251927-3 09/23/17 09:16

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3251927-3 09/23/17 09:16

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*97.0*			*60.0-140*

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

(LCS) R3251927-1 09/23/17 07:44 • (LCSD) R3251927-2 09/23/17 08:29

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.31	3.33	88.3	88.8	52.0-158			0.570	25
Propene	3.75	3.39	3.46	90.4	92.4	54.0-155			2.24	25
Dichlorodifluoromethane	3.75	3.39	3.32	90.3	88.6	69.0-143			1.94	25
1,2-Dichlorotetrafluoroethane	3.75	3.64	3.69	97.2	98.3	70.0-130			1.19	25
Chloromethane	3.75	3.42	3.47	91.2	92.5	70.0-130			1.38	25

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

(LCS) R3251927-1 09/23/17 07:44 • (LCSD) R3251927-2 09/23/17 08:29

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.34	3.42	89.2	91.3	70.0-130			2.32	25
1,3-Butadiene	3.75	3.30	3.39	88.0	90.5	70.0-130			2.78	25
Bromomethane	3.75	3.23	3.25	86.3	86.5	70.0-130			0.330	25
Chloroethane	3.75	3.11	3.11	83.0	82.8	70.0-130			0.270	25
Trichlorofluoromethane	3.75	3.95	3.96	105	106	70.0-130			0.150	25
1,1,2-Trichlorotrifluoroethane	3.75	3.76	3.75	100	100	70.0-130			0.130	25
1,1-Dichloroethene	3.75	3.75	3.74	99.9	99.9	70.0-130			0.0400	25
1,1-Dichloroethane	3.75	3.63	3.65	96.9	97.3	70.0-130			0.430	25
Acetone	3.75	3.59	3.59	95.6	95.7	70.0-130			0.0500	25
2-Propanol	3.75	3.69	3.73	98.3	99.4	66.0-150			1.11	25
Carbon disulfide	3.75	3.68	3.68	98.0	98.2	70.0-130			0.190	25
Methylene Chloride	3.75	3.52	3.51	93.9	93.6	70.0-130			0.320	25
MTBE	3.75	3.88	3.89	103	104	70.0-130			0.230	25
trans-1,2-Dichloroethene	3.75	3.68	3.69	98.3	98.5	70.0-130			0.250	25
n-Hexane	3.75	3.65	3.65	97.3	97.5	70.0-130			0.170	25
Vinyl acetate	3.75	3.92	3.93	105	105	70.0-130			0.230	25
Methyl Ethyl Ketone	3.75	3.72	3.79	99.3	101	70.0-130			1.67	25
cis-1,2-Dichloroethene	3.75	3.70	3.72	98.6	99.3	70.0-130			0.730	25
Chloroform	3.75	3.71	3.72	98.9	99.3	70.0-130			0.400	25
Cyclohexane	3.75	3.80	3.81	101	102	70.0-130			0.180	25
1,1,1-Trichloroethane	3.75	3.83	3.84	102	102	70.0-130			0.170	25
Carbon tetrachloride	3.75	3.91	3.92	104	105	70.0-130			0.220	25
Benzene	3.75	3.66	3.70	97.5	98.7	70.0-130			1.21	25
1,2-Dichloroethane	3.75	3.70	3.72	98.6	99.3	70.0-130			0.750	25
Heptane	3.75	3.64	3.63	97.1	96.8	70.0-130			0.270	25
Trichloroethylene	3.75	3.76	3.79	100	101	70.0-130			0.890	25
1,2-Dichloropropane	3.75	3.56	3.59	94.9	95.8	70.0-130			0.900	25
1,4-Dioxane	3.75	3.64	3.75	97.0	100	70.0-152			3.12	25
Bromodichloromethane	3.75	3.75	3.79	100	101	70.0-130			1.02	25
cis-1,3-Dichloropropene	3.75	3.81	3.85	102	103	70.0-130			0.990	25
4-Methyl-2-pentanone (MIBK)	3.75	3.78	3.82	101	102	70.0-142			0.930	25
Toluene	3.75	3.78	3.82	101	102	70.0-130			1.05	25
trans-1,3-Dichloropropene	3.75	3.82	3.87	102	103	70.0-130			1.48	25
1,1,2-Trichloroethane	3.75	3.70	3.76	98.7	100	70.0-130			1.47	25
Tetrachloroethylene	3.75	3.84	3.88	102	103	70.0-130			0.980	25
Methyl Butyl Ketone	3.75	3.85	3.92	103	105	70.0-150			1.85	25
Dibromochloromethane	3.75	3.88	3.96	103	105	70.0-130			2.04	25
1,2-Dibromoethane	3.75	3.75	3.82	100	102	70.0-130			1.75	25
Chlorobenzene	3.75	3.71	3.78	98.8	101	70.0-130			2.10	25
Ethylbenzene	3.75	3.98	4.00	106	107	70.0-130			0.520	25

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

(LCS) R3251927-1 09/23/17 07:44 • (LCSD) R3251927-2 09/23/17 08:29

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.99	8.02	107	107	70.0-130			0.400	25
o-Xylene	3.75	4.10	4.10	109	109	70.0-130			0.0300	25
Styrene	3.75	4.25	4.26	113	113	70.0-130			0.140	25
Bromoform	3.75	4.27	4.31	114	115	70.0-130			0.860	25
1,1,2,2-Tetrachloroethane	3.75	3.82	3.85	102	103	70.0-130			0.700	25
4-Ethyltoluene	3.75	4.11	4.14	110	110	70.0-130			0.630	25
1,3,5-Trimethylbenzene	3.75	4.11	4.11	110	110	70.0-130			0.120	25
1,2,4-Trimethylbenzene	3.75	4.12	4.16	110	111	70.0-130			1.07	25
1,3-Dichlorobenzene	3.75	4.16	4.21	111	112	70.0-130			1.17	25
1,4-Dichlorobenzene	3.75	4.30	4.37	115	117	70.0-130			1.65	25
Benzyl Chloride	3.75	4.53	4.55	121	121	70.0-144			0.330	25
1,2-Dichlorobenzene	3.75	4.12	4.16	110	111	70.0-130			0.890	25
1,2,4-Trichlorobenzene	3.75	4.62	4.69	123	125	70.0-155			1.51	25
Hexachloro-1,3-butadiene	3.75	4.22	4.26	112	114	70.0-145			1.09	25
Naphthalene	3.75	4.43	4.43	118	118	70.0-155			0.0500	25
Allyl Chloride	3.75	3.65	3.66	97.3	97.5	70.0-130			0.260	25
2-Chlorotoluene	3.75	4.02	4.02	107	107	70.0-130			0.160	25
Methyl Methacrylate	3.75	3.68	3.73	98.2	99.4	70.0-130			1.26	25
Tetrahydrofuran	3.75	3.57	3.60	95.3	96.0	70.0-140			0.800	25
2,2,4-Trimethylpentane	3.75	3.72	3.73	99.2	99.5	70.0-130			0.250	25
Vinyl Bromide	3.75	4.03	4.01	107	107	70.0-130			0.390	25
Isopropylbenzene	3.75	4.09	4.13	109	110	70.0-130			0.940	25
(S) 1,4-Bromofluorobenzene				*101*	*101*	*60.0-140*				

Method Blank (MB)

(MB) R3252219-3 09/25/17 09:48

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Benzyl Chloride	U		0.0598	0.200
Bromoform	U		0.0786	0.600
2-Chlorotoluene	U		0.0605	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
Isopropylbenzene	U		0.0563	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
(S) 1,4-Bromofluorobenzene	*102*			*60.0-140*

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

(LCS) R3252219-1 09/25/17 08:18 • (LCSD) R3252219-2 09/25/17 09:03

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
2-Propanol	3.75	4.08	4.19	109	112	66.0-150			2.49	25
Ethylbenzene	3.75	3.80	3.94	101	105	70.0-130			3.59	25
m&p-Xylene	7.50	7.80	8.16	104	109	70.0-130			4.50	25
o-Xylene	3.75	3.87	4.05	103	108	70.0-130			4.37	25
Styrene	3.75	3.96	4.16	106	111	70.0-130			4.82	25
Bromoform	3.75	3.76	3.95	100	105	70.0-130			5.13	25
1,1,2,2-Tetrachloroethane	3.75	3.75	3.99	100	106	70.0-130			6.15	25
4-Ethyltoluene	3.75	3.85	4.07	103	108	70.0-130			5.58	25
1,3,5-Trimethylbenzene	3.75	3.89	4.02	104	107	70.0-130			3.47	25
1,2,4-Trimethylbenzene	3.75	3.87	4.06	103	108	70.0-130			5.03	25
1,3-Dichlorobenzene	3.75	3.88	3.89	103	104	70.0-130			0.370	25
1,4-Dichlorobenzene	3.75	3.96	4.03	106	108	70.0-130			1.78	25
Benzyl Chloride	3.75	4.21	4.21	112	112	70.0-144			0.0700	25

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

(LCS) R3252219-1 09/25/17 08:18 • (LCSD) R3252219-2 09/25/17 09:03

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,2-Dichlorobenzene	3.75	3.77	3.95	101	105	70.0-130			4.60	25
1,2,4-Trichlorobenzene	3.75	4.06	4.24	108	113	70.0-155			4.39	25
Hexachloro-1,3-butadiene	3.75	3.60	3.92	95.9	104	70.0-145			8.48	25
Naphthalene	3.75	4.21	4.52	112	121	70.0-155			7.09	25
2-Chlorotoluene	3.75	3.82	3.91	102	104	70.0-130			2.34	25
Isopropylbenzene	3.75	3.78	3.98	101	106	70.0-130			5.09	25
(S) 1,4-Bromofluorobenzene				*100*	*101*	*60.0-140*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.

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		

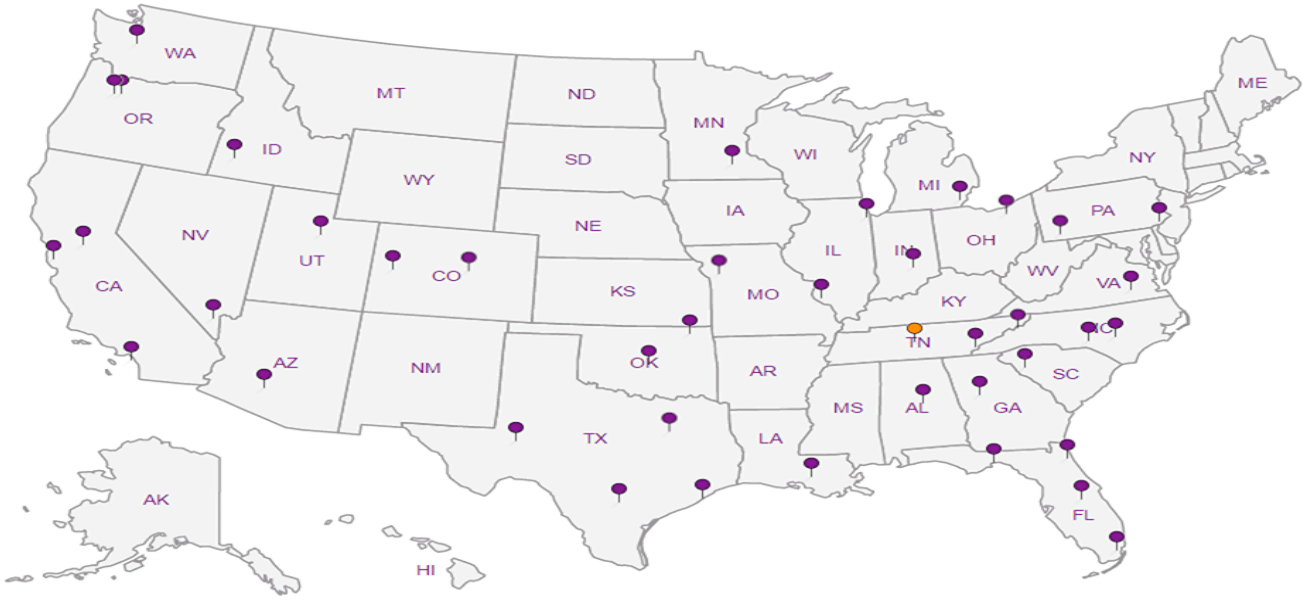
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	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.**



Company Name/Address:
Terracon Consultants
1242 Bramwood Pl
Longmont, CO 80501

Billing Information:
SAME

Report to: Mike Skridulis

Email To: mjskridulis@terracon.com

Project Description: Rider #1

City/State Collected: Longmont, CO

Phone: 303-454-5249
Fax:

Client Project # 22177021

Lab Project #

Collected by (print): M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Standard TAT

Email? ___No X Yes
FAX? X No ___Yes

Canister Pressure/Vacuum

Analysis: VOC's by TO-15; Methane

Chain of Custody Page 1 of 1

ESC LABS
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 938101
M191

Acctnum: TERRALCO
Template: T127723
Prelogin: P618110
TSR: Daphne Richards
Cooler: T6 9-8-17
Shipped Via:

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	VOC's by TO-15	Methane	Rem./Contaminent	Sample # (lab only)
1-L	SVP-02	5601	9/18/17	1115	24	5	X	X		-01
6-L	SVP-01	5564	9/19/17	1420	26	6	X	X		-02
6-L	SVP-03	7291	9/19/17	1500	24	7	X	X		-03

Remarks: Fedex: 7466 1468 4713

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
M. Skridulis /TT	9/20/17	0900	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____
Temp: AMB °C Bottles Received: 3
Date: 9/21/17 Time: 0845

Hold #
Condition: (lab use only)
COC Seal Intact: ___Y ___N ___NA
pH Checked:
NCF: OK

ESC LAB SCIENCES
Cooler Receipt Form

Client: TERRALOG	SDG#	93810
Cooler Received/Opened On: 9/21/17	Temperature: AMB	
Received by: Chris Ward		
Signature: Chris Ward		

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

ANALYTICAL REPORT

November 06, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L945404
Samples Received:	10/20/2017
Project Number:	22177021
Description:	Rider #1

Report To: Mike Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative

TABLE OF CONTENTS

SB-07 10-12 L945404-01 Solid

Collected by: M. Skridulis
Collected date/time: 10/18/17 08:45
Received date/time: 10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034269	100	10/21/17 16:37	10/22/17 09:58	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034261	100	10/21/17 22:50	10/24/17 06:47	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 18:31	MTJ

SB-08 6-8 L945404-02 Solid

Collected by: M. Skridulis
Collected date/time: 10/18/17 09:10
Received date/time: 10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034269	1	10/21/17 16:37	10/22/17 10:22	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034304	1	10/21/17 16:37	10/23/17 02:18	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 17:33	KLM

SB-09 6-8 L945404-03 Solid

Collected by: M. Skridulis
Collected date/time: 10/18/17 09:40
Received date/time: 10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034269	1	10/21/17 16:37	10/22/17 10:46	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034304	1	10/21/17 16:37	10/23/17 02:38	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 17:47	MTJ

SB-10 7-9 L945404-04 Solid

Collected by: M. Skridulis
Collected date/time: 10/18/17 10:10
Received date/time: 10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034269	1	10/21/17 16:37	10/22/17 11:10	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034304	1	10/21/17 16:37	10/23/17 02:58	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 18:02	MTJ

SB-11 10-12 L945404-05 Solid

Collected by: M. Skridulis
Collected date/time: 10/18/17 10:40
Received date/time: 10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034269	200	10/21/17 16:37	10/22/17 11:34	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034304	200	10/21/17 16:37	10/23/17 03:18	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 18:16	MTJ

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	626		10.0	100	10/22/2017 09:58	WG1034269
(S) a,a,a-Trifluorotoluene(FID)	*83.2*		*77.0-120*		*10/22/2017 09:58*	WG1034269

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		5.00	100	10/24/2017 06:47	WG1034261
Acrylonitrile	ND		1.00	100	10/24/2017 06:47	WG1034261
Benzene	ND		0.100	100	10/24/2017 06:47	WG1034261
Bromobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
Bromodichloromethane	ND		0.100	100	10/24/2017 06:47	WG1034261
Bromoform	ND		0.100	100	10/24/2017 06:47	WG1034261
Bromomethane	ND		0.500	100	10/24/2017 06:47	WG1034261
n-Butylbenzene	0.332		0.100	100	10/24/2017 06:47	WG1034261
sec-Butylbenzene	0.402		0.100	100	10/24/2017 06:47	WG1034261
tert-Butylbenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
Carbon tetrachloride	ND		0.100	100	10/24/2017 06:47	WG1034261
Chlorobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
Chlorodibromomethane	ND		0.100	100	10/24/2017 06:47	WG1034261
Chloroethane	ND		0.500	100	10/24/2017 06:47	WG1034261
Chloroform	ND		0.500	100	10/24/2017 06:47	WG1034261
Chloromethane	ND		0.250	100	10/24/2017 06:47	WG1034261
2-Chlorotoluene	ND		0.100	100	10/24/2017 06:47	WG1034261
4-Chlorotoluene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,2-Dibromo-3-Chloropropane	ND		0.500	100	10/24/2017 06:47	WG1034261
1,2-Dibromoethane	ND		0.100	100	10/24/2017 06:47	WG1034261
Dibromomethane	ND		0.100	100	10/24/2017 06:47	WG1034261
1,2-Dichlorobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,3-Dichlorobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,4-Dichlorobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
Dichlorodifluoromethane	ND		0.500	100	10/24/2017 06:47	WG1034261
1,1-Dichloroethane	ND		0.100	100	10/24/2017 06:47	WG1034261
1,2-Dichloroethane	ND		0.100	100	10/24/2017 06:47	WG1034261
1,1-Dichloroethene	ND		0.100	100	10/24/2017 06:47	WG1034261
cis-1,2-Dichloroethene	ND		0.100	100	10/24/2017 06:47	WG1034261
trans-1,2-Dichloroethene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,2-Dichloropropane	ND		0.100	100	10/24/2017 06:47	WG1034261
1,1-Dichloropropene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,3-Dichloropropane	ND		0.100	100	10/24/2017 06:47	WG1034261
cis-1,3-Dichloropropene	ND		0.100	100	10/24/2017 06:47	WG1034261
trans-1,3-Dichloropropene	ND		0.100	100	10/24/2017 06:47	WG1034261
2,2-Dichloropropane	ND		0.100	100	10/24/2017 06:47	WG1034261
Di-isopropyl ether	ND		0.100	100	10/24/2017 06:47	WG1034261
Ethylbenzene	0.882		0.100	100	10/24/2017 06:47	WG1034261
Hexachloro-1,3-butadiene	ND		0.100	100	10/24/2017 06:47	WG1034261
Isopropylbenzene	0.563		0.100	100	10/24/2017 06:47	WG1034261
p-Isopropyltoluene	0.421		0.100	100	10/24/2017 06:47	WG1034261
2-Butanone (MEK)	ND		1.00	100	10/24/2017 06:47	WG1034261
Methylene Chloride	ND		0.500	100	10/24/2017 06:47	WG1034261
4-Methyl-2-pentanone (MIBK)	ND		1.00	100	10/24/2017 06:47	WG1034261
Methyl tert-butyl ether	ND		0.100	100	10/24/2017 06:47	WG1034261
Naphthalene	ND		0.500	100	10/24/2017 06:47	WG1034261
n-Propylbenzene	1.22		0.100	100	10/24/2017 06:47	WG1034261
Styrene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,1,1,2-Tetrachloroethane	ND		0.100	100	10/24/2017 06:47	WG1034261

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,1,2,2-Tetrachloroethane	ND		0.100	100	10/24/2017 06:47	WG1034261
1,1,2-Trichlorotrifluoroethane	ND		0.100	100	10/24/2017 06:47	WG1034261
Tetrachloroethene	ND		0.100	100	10/24/2017 06:47	WG1034261
Toluene	ND		0.500	100	10/24/2017 06:47	WG1034261
1,2,3-Trichlorobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,2,4-Trichlorobenzene	ND		0.100	100	10/24/2017 06:47	WG1034261
1,1,1-Trichloroethane	ND		0.100	100	10/24/2017 06:47	WG1034261
1,1,2-Trichloroethane	ND		0.100	100	10/24/2017 06:47	WG1034261
Trichloroethene	ND		0.100	100	10/24/2017 06:47	WG1034261
Trichlorofluoromethane	ND		0.500	100	10/24/2017 06:47	WG1034261
1,2,3-Trichloropropane	ND		0.250	100	10/24/2017 06:47	WG1034261
1,2,4-Trimethylbenzene	9.74		0.100	100	10/24/2017 06:47	WG1034261
1,2,3-Trimethylbenzene	1.21		0.100	100	10/24/2017 06:47	WG1034261
1,3,5-Trimethylbenzene	6.67		0.100	100	10/24/2017 06:47	WG1034261
Vinyl chloride	ND		0.100	100	10/24/2017 06:47	WG1034261
Xylenes, Total	8.12		0.300	100	10/24/2017 06:47	WG1034261
(S) Toluene-d8	*95.0*		*80.0-120*		*10/24/2017 06:47*	WG1034261
(S) Dibromofluoromethane	*117*		*74.0-131*		*10/24/2017 06:47*	WG1034261
(S) 4-Bromofluorobenzene	*111*		*64.0-132*		*10/24/2017 06:47*	WG1034261

Sample Narrative:

L945404-01 WG1034261: Non-target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	37.0	J3	4.00	1	10/27/2017 18:31	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 18:31	WG1036360
(S) o-Terphenyl	*60.1*		*18.0-148*		*10/27/2017 18:31*	WG1036360

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/22/2017 10:22	WG1034269
(S) a,a,a-Trifluorotoluene(FID)	*85.2*		*77.0-120*		*10/22/2017 10:22*	WG1034269

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	10/23/2017 02:18	WG1034304
Acrylonitrile	ND		0.0100	1	10/23/2017 02:18	WG1034304
Benzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Bromobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Bromodichloromethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
Bromoform	ND		0.00100	1	10/23/2017 02:18	WG1034304
Bromomethane	ND		0.00500	1	10/23/2017 02:18	WG1034304
n-Butylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
sec-Butylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
tert-Butylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Carbon tetrachloride	ND		0.00100	1	10/23/2017 02:18	WG1034304
Chlorobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Chlorodibromomethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
Chloroethane	ND		0.00500	1	10/23/2017 02:18	WG1034304
Chloroform	ND		0.00500	1	10/23/2017 02:18	WG1034304
Chloromethane	ND		0.00250	1	10/23/2017 02:18	WG1034304
2-Chlorotoluene	ND		0.00100	1	10/23/2017 02:18	WG1034304
4-Chlorotoluene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/23/2017 02:18	WG1034304
1,2-Dibromoethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
Dibromomethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,2-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,3-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,4-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Dichlorodifluoromethane	ND		0.00500	1	10/23/2017 02:18	WG1034304
1,1-Dichloroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,2-Dichloroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,1-Dichloroethene	ND		0.00100	1	10/23/2017 02:18	WG1034304
cis-1,2-Dichloroethene	ND		0.00100	1	10/23/2017 02:18	WG1034304
trans-1,2-Dichloroethene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,2-Dichloropropane	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,1-Dichloropropene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,3-Dichloropropane	ND		0.00100	1	10/23/2017 02:18	WG1034304
cis-1,3-Dichloropropene	ND		0.00100	1	10/23/2017 02:18	WG1034304
trans-1,3-Dichloropropene	ND		0.00100	1	10/23/2017 02:18	WG1034304
2,2-Dichloropropane	ND		0.00100	1	10/23/2017 02:18	WG1034304
Di-isopropyl ether	ND		0.00100	1	10/23/2017 02:18	WG1034304
Ethylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Hexachloro-1,3-butadiene	ND	J4	0.00100	1	10/23/2017 02:18	WG1034304
Isopropylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
p-Isopropyltoluene	ND		0.00100	1	10/23/2017 02:18	WG1034304
2-Butanone (MEK)	ND		0.0100	1	10/23/2017 02:18	WG1034304
Methylene Chloride	ND		0.00500	1	10/23/2017 02:18	WG1034304
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/23/2017 02:18	WG1034304
Methyl tert-butyl ether	ND		0.00100	1	10/23/2017 02:18	WG1034304
Naphthalene	ND		0.00500	1	10/23/2017 02:18	WG1034304
n-Propylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Styrene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
Tetrachloroethene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Toluene	ND		0.00500	1	10/23/2017 02:18	WG1034304
1,2,3-Trichlorobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,2,4-Trichlorobenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,1,1-Trichloroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,1,2-Trichloroethane	ND		0.00100	1	10/23/2017 02:18	WG1034304
Trichloroethene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Trichlorofluoromethane	ND		0.00500	1	10/23/2017 02:18	WG1034304
1,2,3-Trichloropropane	ND		0.00250	1	10/23/2017 02:18	WG1034304
1,2,4-Trimethylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,2,3-Trimethylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
1,3,5-Trimethylbenzene	ND		0.00100	1	10/23/2017 02:18	WG1034304
Vinyl chloride	ND		0.00100	1	10/23/2017 02:18	WG1034304
Xylenes, Total	ND		0.00300	1	10/23/2017 02:18	WG1034304
(S) Toluene-d8	*99.9*		*80.0-120*		*10/23/2017 02:18*	WG1034304
(S) Dibromofluoromethane	*101*		*74.0-131*		*10/23/2017 02:18*	WG1034304
(S) 4-Bromofluorobenzene	*90.1*		*64.0-132*		*10/23/2017 02:18*	WG1034304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND	J3	4.00	1	10/27/2017 17:33	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 17:33	WG1036360
(S) o-Terphenyl	*52.8*		*18.0-148*		*10/27/2017 17:33*	WG1036360

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	10/22/2017 10:46	WG1034269
(S) a,a,a-Trifluorotoluene(FID)	*85.1*		*77.0-120*		*10/22/2017 10:46*	WG1034269

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	10/23/2017 02:38	WG1034304
Acrylonitrile	ND		0.0100	1	10/23/2017 02:38	WG1034304
Benzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Bromobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Bromodichloromethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
Bromoform	ND		0.00100	1	10/23/2017 02:38	WG1034304
Bromomethane	ND		0.00500	1	10/23/2017 02:38	WG1034304
n-Butylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
sec-Butylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
tert-Butylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Carbon tetrachloride	ND		0.00100	1	10/23/2017 02:38	WG1034304
Chlorobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Chlorodibromomethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
Chloroethane	ND		0.00500	1	10/23/2017 02:38	WG1034304
Chloroform	ND		0.00500	1	10/23/2017 02:38	WG1034304
Chloromethane	ND		0.00250	1	10/23/2017 02:38	WG1034304
2-Chlorotoluene	ND		0.00100	1	10/23/2017 02:38	WG1034304
4-Chlorotoluene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/23/2017 02:38	WG1034304
1,2-Dibromoethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
Dibromomethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,2-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,3-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,4-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Dichlorodifluoromethane	ND		0.00500	1	10/23/2017 02:38	WG1034304
1,1-Dichloroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,2-Dichloroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,1-Dichloroethene	ND		0.00100	1	10/23/2017 02:38	WG1034304
cis-1,2-Dichloroethene	ND		0.00100	1	10/23/2017 02:38	WG1034304
trans-1,2-Dichloroethene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,2-Dichloropropane	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,1-Dichloropropene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,3-Dichloropropane	ND		0.00100	1	10/23/2017 02:38	WG1034304
cis-1,3-Dichloropropene	ND		0.00100	1	10/23/2017 02:38	WG1034304
trans-1,3-Dichloropropene	ND		0.00100	1	10/23/2017 02:38	WG1034304
2,2-Dichloropropane	ND		0.00100	1	10/23/2017 02:38	WG1034304
Di-isopropyl ether	ND		0.00100	1	10/23/2017 02:38	WG1034304
Ethylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Hexachloro-1,3-butadiene	ND	J4	0.00100	1	10/23/2017 02:38	WG1034304
Isopropylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
p-Isopropyltoluene	ND		0.00100	1	10/23/2017 02:38	WG1034304
2-Butanone (MEK)	ND		0.0100	1	10/23/2017 02:38	WG1034304
Methylene Chloride	ND		0.00500	1	10/23/2017 02:38	WG1034304
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/23/2017 02:38	WG1034304
Methyl tert-butyl ether	ND		0.00100	1	10/23/2017 02:38	WG1034304
Naphthalene	ND		0.00500	1	10/23/2017 02:38	WG1034304
n-Propylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Styrene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
Tetrachloroethene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Toluene	ND		0.00500	1	10/23/2017 02:38	WG1034304
1,2,3-Trichlorobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,2,4-Trichlorobenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,1,1-Trichloroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,1,2-Trichloroethane	ND		0.00100	1	10/23/2017 02:38	WG1034304
Trichloroethene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Trichlorofluoromethane	ND		0.00500	1	10/23/2017 02:38	WG1034304
1,2,3-Trichloropropane	ND		0.00250	1	10/23/2017 02:38	WG1034304
1,2,4-Trimethylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,2,3-Trimethylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
1,3,5-Trimethylbenzene	ND		0.00100	1	10/23/2017 02:38	WG1034304
Vinyl chloride	ND		0.00100	1	10/23/2017 02:38	WG1034304
Xylenes, Total	ND		0.00300	1	10/23/2017 02:38	WG1034304
(S) Toluene-d8	*100*		*80.0-120*		*10/23/2017 02:38*	WG1034304
(S) Dibromofluoromethane	*101*		*74.0-131*		*10/23/2017 02:38*	WG1034304
(S) 4-Bromofluorobenzene	*87.5*		*64.0-132*		*10/23/2017 02:38*	WG1034304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND	J3	4.00	1	10/27/2017 17:47	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 17:47	WG1036360
(S) o-Terphenyl	*51.6*		*18.0-148*		*10/27/2017 17:47*	WG1036360

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.950		0.100	1	10/22/2017 11:10	WG1034269
(S) a,a,a-Trifluorotoluene(FID)	*83.3*		*77.0-120*		*10/22/2017 11:10*	WG1034269

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	10/23/2017 02:58	WG1034304
Acrylonitrile	ND		0.0100	1	10/23/2017 02:58	WG1034304
Benzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Bromobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Bromodichloromethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
Bromoform	ND		0.00100	1	10/23/2017 02:58	WG1034304
Bromomethane	ND		0.00500	1	10/23/2017 02:58	WG1034304
n-Butylbenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
sec-Butylbenzene	0.00119		0.00100	1	10/23/2017 02:58	WG1034304
tert-Butylbenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Carbon tetrachloride	ND		0.00100	1	10/23/2017 02:58	WG1034304
Chlorobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Chlorodibromomethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
Chloroethane	ND		0.00500	1	10/23/2017 02:58	WG1034304
Chloroform	ND		0.00500	1	10/23/2017 02:58	WG1034304
Chloromethane	ND		0.00250	1	10/23/2017 02:58	WG1034304
2-Chlorotoluene	ND		0.00100	1	10/23/2017 02:58	WG1034304
4-Chlorotoluene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/23/2017 02:58	WG1034304
1,2-Dibromoethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
Dibromomethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,2-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,3-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,4-Dichlorobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Dichlorodifluoromethane	ND		0.00500	1	10/23/2017 02:58	WG1034304
1,1-Dichloroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,2-Dichloroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,1-Dichloroethene	ND		0.00100	1	10/23/2017 02:58	WG1034304
cis-1,2-Dichloroethene	ND		0.00100	1	10/23/2017 02:58	WG1034304
trans-1,2-Dichloroethene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,2-Dichloropropane	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,1-Dichloropropene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,3-Dichloropropane	ND		0.00100	1	10/23/2017 02:58	WG1034304
cis-1,3-Dichloropropene	ND		0.00100	1	10/23/2017 02:58	WG1034304
trans-1,3-Dichloropropene	ND		0.00100	1	10/23/2017 02:58	WG1034304
2,2-Dichloropropane	ND		0.00100	1	10/23/2017 02:58	WG1034304
Di-isopropyl ether	ND		0.00100	1	10/23/2017 02:58	WG1034304
Ethylbenzene	0.00236		0.00100	1	10/23/2017 02:58	WG1034304
Hexachloro-1,3-butadiene	ND	J4	0.00100	1	10/23/2017 02:58	WG1034304
Isopropylbenzene	0.00299		0.00100	1	10/23/2017 02:58	WG1034304
p-Isopropyltoluene	0.00160		0.00100	1	10/23/2017 02:58	WG1034304
2-Butanone (MEK)	ND		0.0100	1	10/23/2017 02:58	WG1034304
Methylene Chloride	ND		0.00500	1	10/23/2017 02:58	WG1034304
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/23/2017 02:58	WG1034304
Methyl tert-butyl ether	ND		0.00100	1	10/23/2017 02:58	WG1034304
Naphthalene	0.00585		0.00500	1	10/23/2017 02:58	WG1034304
n-Propylbenzene	0.00606		0.00100	1	10/23/2017 02:58	WG1034304
Styrene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
Tetrachloroethene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Toluene	ND		0.00500	1	10/23/2017 02:58	WG1034304
1,2,3-Trichlorobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,2,4-Trichlorobenzene	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,1,1-Trichloroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
1,1,2-Trichloroethane	ND		0.00100	1	10/23/2017 02:58	WG1034304
Trichloroethene	ND		0.00100	1	10/23/2017 02:58	WG1034304
Trichlorofluoromethane	ND		0.00500	1	10/23/2017 02:58	WG1034304
1,2,3-Trichloropropane	ND		0.00250	1	10/23/2017 02:58	WG1034304
1,2,4-Trimethylbenzene	0.0568		0.00100	1	10/23/2017 02:58	WG1034304
1,2,3-Trimethylbenzene	0.00585		0.00100	1	10/23/2017 02:58	WG1034304
1,3,5-Trimethylbenzene	0.00111		0.00100	1	10/23/2017 02:58	WG1034304
Vinyl chloride	ND		0.00100	1	10/23/2017 02:58	WG1034304
Xylenes, Total	0.0135		0.00300	1	10/23/2017 02:58	WG1034304
(S) Toluene-d8	*99.3*		*80.0-120*		*10/23/2017 02:58*	WG1034304
(S) Dibromofluoromethane	*99.3*		*74.0-131*		*10/23/2017 02:58*	WG1034304
(S) 4-Bromofluorobenzene	*95.2*		*64.0-132*		*10/23/2017 02:58*	WG1034304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND	J3	4.00	1	10/27/2017 18:02	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 18:02	WG1036360
(S) o-Terphenyl	*51.6*		*18.0-148*		*10/27/2017 18:02*	WG1036360

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1490		20.0	200	10/22/2017 11:34	WG1034269
(S) a,a,a-Trifluorotoluene(FID)	*80.0*		*77.0-120*		*10/22/2017 11:34*	WG1034269

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		10.0	200	10/23/2017 03:18	WG1034304
Acrylonitrile	ND		2.00	200	10/23/2017 03:18	WG1034304
Benzene	ND		0.200	200	10/23/2017 03:18	WG1034304
Bromobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
Bromodichloromethane	ND		0.200	200	10/23/2017 03:18	WG1034304
Bromoform	ND		0.200	200	10/23/2017 03:18	WG1034304
Bromomethane	ND		1.00	200	10/23/2017 03:18	WG1034304
n-Butylbenzene	0.644		0.200	200	10/23/2017 03:18	WG1034304
sec-Butylbenzene	0.644		0.200	200	10/23/2017 03:18	WG1034304
tert-Butylbenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
Carbon tetrachloride	ND		0.200	200	10/23/2017 03:18	WG1034304
Chlorobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
Chlorodibromomethane	ND		0.200	200	10/23/2017 03:18	WG1034304
Chloroethane	ND		1.00	200	10/23/2017 03:18	WG1034304
Chloroform	ND		1.00	200	10/23/2017 03:18	WG1034304
Chloromethane	ND		0.500	200	10/23/2017 03:18	WG1034304
2-Chlorotoluene	ND		0.200	200	10/23/2017 03:18	WG1034304
4-Chlorotoluene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,2-Dibromo-3-Chloropropane	ND		1.00	200	10/23/2017 03:18	WG1034304
1,2-Dibromoethane	ND		0.200	200	10/23/2017 03:18	WG1034304
Dibromomethane	ND		0.200	200	10/23/2017 03:18	WG1034304
1,2-Dichlorobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,3-Dichlorobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,4-Dichlorobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
Dichlorodifluoromethane	ND		1.00	200	10/23/2017 03:18	WG1034304
1,1-Dichloroethane	ND		0.200	200	10/23/2017 03:18	WG1034304
1,2-Dichloroethane	ND		0.200	200	10/23/2017 03:18	WG1034304
1,1-Dichloroethene	ND		0.200	200	10/23/2017 03:18	WG1034304
cis-1,2-Dichloroethene	ND		0.200	200	10/23/2017 03:18	WG1034304
trans-1,2-Dichloroethene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,2-Dichloropropane	ND		0.200	200	10/23/2017 03:18	WG1034304
1,1-Dichloropropene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,3-Dichloropropane	ND		0.200	200	10/23/2017 03:18	WG1034304
cis-1,3-Dichloropropene	ND		0.200	200	10/23/2017 03:18	WG1034304
trans-1,3-Dichloropropene	ND		0.200	200	10/23/2017 03:18	WG1034304
2,2-Dichloropropane	ND		0.200	200	10/23/2017 03:18	WG1034304
Di-isopropyl ether	ND		0.200	200	10/23/2017 03:18	WG1034304
Ethylbenzene	4.67		0.200	200	10/23/2017 03:18	WG1034304
Hexachloro-1,3-butadiene	ND	J4	0.200	200	10/23/2017 03:18	WG1034304
Isopropylbenzene	1.30		0.200	200	10/23/2017 03:18	WG1034304
p-Isopropyltoluene	0.869		0.200	200	10/23/2017 03:18	WG1034304
2-Butanone (MEK)	ND		2.00	200	10/23/2017 03:18	WG1034304
Methylene Chloride	ND		1.00	200	10/23/2017 03:18	WG1034304
4-Methyl-2-pentanone (MIBK)	ND		2.00	200	10/23/2017 03:18	WG1034304
Methyl tert-butyl ether	ND		0.200	200	10/23/2017 03:18	WG1034304
Naphthalene	ND		1.00	200	10/23/2017 03:18	WG1034304
n-Propylbenzene	2.59		0.200	200	10/23/2017 03:18	WG1034304
Styrene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,1,1,2-Tetrachloroethane	ND		0.200	200	10/23/2017 03:18	WG1034304

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
1,1,2,2-Tetrachloroethane	ND		0.200	200	10/23/2017 03:18	WG1034304
1,1,2-Trichlorotrifluoroethane	ND		0.200	200	10/23/2017 03:18	WG1034304
Tetrachloroethene	ND		0.200	200	10/23/2017 03:18	WG1034304
Toluene	ND		1.00	200	10/23/2017 03:18	WG1034304
1,2,3-Trichlorobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,2,4-Trichlorobenzene	ND		0.200	200	10/23/2017 03:18	WG1034304
1,1,1-Trichloroethane	ND		0.200	200	10/23/2017 03:18	WG1034304
1,1,2-Trichloroethane	ND		0.200	200	10/23/2017 03:18	WG1034304
Trichloroethene	ND		0.200	200	10/23/2017 03:18	WG1034304
Trichlorofluoromethane	ND		1.00	200	10/23/2017 03:18	WG1034304
1,2,3-Trichloropropane	ND		0.500	200	10/23/2017 03:18	WG1034304
1,2,4-Trimethylbenzene	19.4		0.200	200	10/23/2017 03:18	WG1034304
1,2,3-Trimethylbenzene	2.37		0.200	200	10/23/2017 03:18	WG1034304
1,3,5-Trimethylbenzene	11.2		0.200	200	10/23/2017 03:18	WG1034304
Vinyl chloride	ND		0.200	200	10/23/2017 03:18	WG1034304
Xylenes, Total	36.0		0.600	200	10/23/2017 03:18	WG1034304
(S) Toluene-d8	*110*		*80.0-120*		*10/23/2017 03:18*	WG1034304
(S) Dibromofluoromethane	*91.4*		*74.0-131*		*10/23/2017 03:18*	WG1034304
(S) 4-Bromofluorobenzene	*103*		*64.0-132*		*10/23/2017 03:18*	WG1034304

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	117	J3	4.00	1	10/27/2017 18:16	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 18:16	WG1036360
(S) o-Terphenyl	*62.3*		*18.0-148*		*10/27/2017 18:16*	WG1036360

Method Blank (MB)

(MB) R3260240-3 10/22/17 03:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*87.2*			*77.0-120*

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

(LCS) R3260240-1 10/22/17 02:47 • (LCSD) R3260240-2 10/22/17 03:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.24	5.25	95.2	95.5	70.0-136			0.300	20
(S) a,a,a-Trifluorotoluene(FID)				*92.0*	*92.4*	*77.0-120*				

L945404-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945404-05 10/22/17 11:34 • (MS) R3260240-4 10/22/17 11:58 • (MSD) R3260240-5 10/22/17 12:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	1490	2000	2000	46.2	46.2	200	10.0-147			0.0200	30
(S) a,a,a-Trifluorotoluene(FID)					*83.4*	*83.7*		*77.0-120*				

Method Blank (MB)

(MB) R3259782-3 10/21/17 23:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
Isopropylbenzene	U		0.000243	0.00100

Method Blank (MB)

(MB) R3259782-3 10/21/17 23:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	U		0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*105*			*80.0-120*
(S) Dibromofluoromethane	*102*			*74.0-131*
(S) 4-Bromofluorobenzene	*96.4*			*64.0-132*

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

(LCS) R3259782-1 10/21/17 21:41 • (LCSD) R3259782-2 10/21/17 22:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.139	0.129	111	103	11.0-160			7.68	23
Acrylonitrile	0.125	0.140	0.134	112	107	61.0-143			4.87	20
Benzene	0.0250	0.0227	0.0231	90.7	92.2	71.0-124			1.70	20
Bromobenzene	0.0250	0.0243	0.0255	97.2	102	78.0-120			4.67	20
Bromodichloromethane	0.0250	0.0239	0.0238	95.6	95.3	75.0-120			0.290	20

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

(LCS) R3259782-1 10/21/17 21:41 • (LCSD) R3259782-2 10/21/17 22:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	0.0241	0.0252	96.4	101	65.0-133			4.43	20
Bromomethane	0.0250	0.0211	0.0210	84.4	84.2	26.0-160			0.200	20
n-Butylbenzene	0.0250	0.0297	0.0313	119	125	73.0-126			5.26	20
sec-Butylbenzene	0.0250	0.0285	0.0294	114	118	75.0-121			3.26	20
tert-Butylbenzene	0.0250	0.0272	0.0283	109	113	74.0-122			4.10	20
Carbon tetrachloride	0.0250	0.0232	0.0214	92.6	85.7	66.0-123			7.71	20
Chlorobenzene	0.0250	0.0260	0.0271	104	108	79.0-121			4.21	20
Chlorodibromomethane	0.0250	0.0247	0.0253	98.8	101	74.0-128			2.26	20
Chloroethane	0.0250	0.0218	0.0214	87.2	85.6	51.0-147			1.82	20
Chloroform	0.0250	0.0242	0.0242	96.7	96.7	73.0-123			0.0400	20
Chloromethane	0.0250	0.0224	0.0221	89.8	88.3	51.0-138			1.67	20
2-Chlorotoluene	0.0250	0.0261	0.0273	105	109	72.0-124			4.25	20
4-Chlorotoluene	0.0250	0.0263	0.0275	105	110	78.0-120			4.35	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0236	0.0238	94.4	95.2	65.0-126			0.850	20
1,2-Dibromoethane	0.0250	0.0235	0.0240	94.1	95.9	78.0-122			1.93	20
Dibromomethane	0.0250	0.0234	0.0233	93.7	93.2	79.0-120			0.550	20
1,2-Dichlorobenzene	0.0250	0.0269	0.0279	108	112	80.0-120			3.66	20
1,3-Dichlorobenzene	0.0250	0.0267	0.0280	107	112	72.0-123			4.69	20
1,4-Dichlorobenzene	0.0250	0.0269	0.0276	107	110	77.0-120			2.77	20
Dichlorodifluoromethane	0.0250	0.0214	0.0203	85.6	81.4	49.0-155			5.08	20
1,1-Dichloroethane	0.0250	0.0254	0.0252	102	101	70.0-128			0.990	20
1,2-Dichloroethane	0.0250	0.0248	0.0249	99.3	99.7	69.0-128			0.420	20
1,1-Dichloroethene	0.0250	0.0208	0.0201	83.4	80.5	63.0-131			3.47	20
cis-1,2-Dichloroethene	0.0250	0.0240	0.0238	96.0	95.3	74.0-123			0.750	20
trans-1,2-Dichloroethene	0.0250	0.0217	0.0216	87.0	86.4	72.0-122			0.670	20
1,2-Dichloropropane	0.0250	0.0262	0.0260	105	104	75.0-126			0.640	20
1,1-Dichloropropene	0.0250	0.0218	0.0219	87.1	87.4	72.0-130			0.320	20
1,3-Dichloropropane	0.0250	0.0249	0.0253	99.8	101	80.0-121			1.36	20
cis-1,3-Dichloropropene	0.0250	0.0236	0.0246	94.2	98.3	80.0-125			4.20	20
trans-1,3-Dichloropropene	0.0250	0.0237	0.0251	95.0	100	75.0-129			5.42	20
2,2-Dichloropropane	0.0250	0.0212	0.0228	84.9	91.1	60.0-129			7.06	20
Di-isopropyl ether	0.0250	0.0262	0.0258	105	103	62.0-133			1.45	20
Ethylbenzene	0.0250	0.0251	0.0257	101	103	77.0-120			2.11	20
Hexachloro-1,3-butadiene	0.0250	0.0300	0.0315	120	126	68.0-128			4.83	20
Isopropylbenzene	0.0250	0.0284	0.0292	114	117	75.0-120			2.94	20
p-Isopropyltoluene	0.0250	0.0284	0.0296	113	118	74.0-125			4.14	20
2-Butanone (MEK)	0.125	0.138	0.133	111	106	37.0-159			3.72	20
Methylene Chloride	0.0250	0.0223	0.0214	89.2	85.7	67.0-123			3.90	20
4-Methyl-2-pentanone (MIBK)	0.125	0.133	0.130	106	104	60.0-144			2.28	20
Methyl tert-butyl ether	0.0250	0.0254	0.0243	101	97.3	66.0-125			4.13	20

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

(LCS) R3259782-1 10/21/17 21:41 • (LCSD) R3259782-2 10/21/17 22:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0263	0.0272	105	109	64.0-125			3.52	20
n-Propylbenzene	0.0250	0.0272	0.0283	109	113	78.0-120			4.04	20
Styrene	0.0250	0.0238	0.0251	95.3	100	78.0-124			5.06	20
1,1,1,2-Tetrachloroethane	0.0250	0.0255	0.0256	102	103	74.0-124			0.680	20
1,1,2,2-Tetrachloroethane	0.0250	0.0254	0.0258	102	103	73.0-120			1.46	20
Tetrachloroethene	0.0250	0.0231	0.0241	92.3	96.4	70.0-127			4.34	20
Toluene	0.0250	0.0234	0.0242	93.7	96.6	77.0-120			3.06	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0217	0.0215	86.9	86.0	64.0-135			1.05	20
1,2,3-Trichlorobenzene	0.0250	0.0261	0.0271	105	109	68.0-126			3.73	20
1,2,4-Trichlorobenzene	0.0250	0.0265	0.0284	106	114	70.0-127			6.89	20
1,1,1-Trichloroethane	0.0250	0.0227	0.0231	90.8	92.2	69.0-125			1.62	20
1,1,2-Trichloroethane	0.0250	0.0245	0.0244	97.8	97.7	78.0-120			0.0600	20
Trichloroethene	0.0250	0.0239	0.0236	95.6	94.4	79.0-120			1.29	20
Trichlorofluoromethane	0.0250	0.0217	0.0221	86.8	88.6	59.0-136			2.09	20
1,2,3-Trichloropropane	0.0250	0.0232	0.0235	92.7	93.9	73.0-124			1.33	20
1,2,3-Trimethylbenzene	0.0250	0.0266	0.0273	106	109	76.0-120			2.86	20
1,2,4-Trimethylbenzene	0.0250	0.0266	0.0275	106	110	75.0-120			3.31	20
1,3,5-Trimethylbenzene	0.0250	0.0265	0.0276	106	110	75.0-120			3.74	20
Vinyl chloride	0.0250	0.0223	0.0214	89.3	85.8	63.0-134			4.05	20
Xylenes, Total	0.0750	0.0753	0.0763	100	102	77.0-120			1.32	20
(S) Toluene-d8				*102*	*103*	*80.0-120*				
(S) Dibromofluoromethane				*103*	*101*	*74.0-131*				
(S) 4-Bromofluorobenzene				*94.7*	*95.0*	*64.0-132*				

Method Blank (MB)

(MB) R3260187-3 10/23/17 00:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
Isopropylbenzene	U		0.000243	0.00100

Method Blank (MB)

(MB) R3260187-3 10/23/17 00:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	U		0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*109*			*80.0-120*
(S) Dibromofluoromethane	*89.3*			*74.0-131*
(S) 4-Bromofluorobenzene	*91.1*			*64.0-132*

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

(LCS) R3260187-1 10/22/17 15:01 • (LCSD) R3260187-2 10/22/17 15:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.0876	0.0918	70.1	73.4	11.0-160			4.70	23
Acrylonitrile	0.125	0.0861	0.0844	68.9	67.5	61.0-143			1.99	20
Benzene	0.0250	0.0223	0.0213	89.1	85.2	71.0-124			4.50	20
Bromobenzene	0.0250	0.0231	0.0220	92.4	88.1	78.0-120			4.82	20
Bromodichloromethane	0.0250	0.0220	0.0213	87.9	85.1	75.0-120			3.26	20

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

(LCS) R3260187-1 10/22/17 15:01 • (LCSD) R3260187-2 10/22/17 15:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	0.0241	0.0233	96.4	93.1	65.0-133			3.47	20
Bromomethane	0.0250	0.0244	0.0230	97.6	92.0	26.0-160			5.92	20
n-Butylbenzene	0.0250	0.0290	0.0279	116	112	73.0-126			3.77	20
sec-Butylbenzene	0.0250	0.0274	0.0265	109	106	75.0-121			3.35	20
tert-Butylbenzene	0.0250	0.0261	0.0252	104	101	74.0-122			3.29	20
Carbon tetrachloride	0.0250	0.0240	0.0214	95.9	85.8	66.0-123			11.2	20
Chlorobenzene	0.0250	0.0271	0.0260	108	104	79.0-121			4.06	20
Chlorodibromomethane	0.0250	0.0260	0.0251	104	101	74.0-128			3.51	20
Chloroethane	0.0250	0.0223	0.0209	89.3	83.7	51.0-147			6.50	20
Chloroform	0.0250	0.0219	0.0210	87.6	84.0	73.0-123			4.18	20
Chloromethane	0.0250	0.0202	0.0192	80.6	76.8	51.0-138			4.94	20
2-Chlorotoluene	0.0250	0.0251	0.0242	100	96.9	72.0-124			3.41	20
4-Chlorotoluene	0.0250	0.0249	0.0239	99.5	95.5	78.0-120			4.15	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0212	0.0214	84.9	85.6	65.0-126			0.840	20
1,2-Dibromoethane	0.0250	0.0239	0.0226	95.6	90.5	78.0-122			5.50	20
Dibromomethane	0.0250	0.0213	0.0211	85.1	84.5	79.0-120			0.770	20
1,2-Dichlorobenzene	0.0250	0.0254	0.0246	102	98.5	80.0-120			3.10	20
1,3-Dichlorobenzene	0.0250	0.0262	0.0250	105	99.9	72.0-123			4.74	20
1,4-Dichlorobenzene	0.0250	0.0267	0.0257	107	103	77.0-120			4.01	20
Dichlorodifluoromethane	0.0250	0.0246	0.0232	98.2	92.9	49.0-155			5.55	20
1,1-Dichloroethane	0.0250	0.0217	0.0209	86.6	83.4	70.0-128			3.81	20
1,2-Dichloroethane	0.0250	0.0201	0.0194	80.4	77.8	69.0-128			3.37	20
1,1-Dichloroethene	0.0250	0.0236	0.0218	94.3	87.4	63.0-131			7.56	20
cis-1,2-Dichloroethene	0.0250	0.0222	0.0211	88.8	84.2	74.0-123			5.31	20
trans-1,2-Dichloroethene	0.0250	0.0224	0.0212	89.4	84.7	72.0-122			5.48	20
1,2-Dichloropropane	0.0250	0.0230	0.0219	92.0	87.6	75.0-126			4.80	20
1,1-Dichloropropene	0.0250	0.0217	0.0212	86.7	84.7	72.0-130			2.31	20
1,3-Dichloropropane	0.0250	0.0237	0.0228	94.6	91.1	80.0-121			3.76	20
cis-1,3-Dichloropropene	0.0250	0.0260	0.0251	104	100	80.0-125			3.47	20
trans-1,3-Dichloropropene	0.0250	0.0249	0.0240	99.6	96.0	75.0-129			3.68	20
2,2-Dichloropropane	0.0250	0.0239	0.0241	95.6	96.6	60.0-129			1.01	20
Di-isopropyl ether	0.0250	0.0198	0.0191	79.4	76.5	62.0-133			3.73	20
Ethylbenzene	0.0250	0.0271	0.0256	108	103	77.0-120			5.55	20
Hexachloro-1,3-butadiene	0.0250	0.0334	0.0337	134	135	68.0-128	J4	J4	0.830	20
Isopropylbenzene	0.0250	0.0251	0.0242	101	96.7	75.0-120			3.92	20
p-Isopropyltoluene	0.0250	0.0292	0.0283	117	113	74.0-125			3.23	20
2-Butanone (MEK)	0.125	0.0839	0.0872	67.1	69.8	37.0-159			3.86	20
Methylene Chloride	0.0250	0.0224	0.0214	89.5	85.4	67.0-123			4.68	20
4-Methyl-2-pentanone (MIBK)	0.125	0.0922	0.0921	73.8	73.7	60.0-144			0.0500	20
Methyl tert-butyl ether	0.0250	0.0207	0.0201	83.0	80.6	66.0-125			2.90	20

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

(LCS) R3260187-1 10/22/17 15:01 • (LCSD) R3260187-2 10/22/17 15:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0216	0.0219	86.6	87.6	64.0-125			1.22	20
n-Propylbenzene	0.0250	0.0272	0.0262	109	105	78.0-120			3.80	20
Styrene	0.0250	0.0250	0.0238	100	95.1	78.0-124			5.11	20
1,1,1,2-Tetrachloroethane	0.0250	0.0250	0.0244	100	97.6	74.0-124			2.57	20
1,1,2,2-Tetrachloroethane	0.0250	0.0220	0.0215	87.8	86.1	73.0-120			2.04	20
Tetrachloroethene	0.0250	0.0278	0.0266	111	107	70.0-127			4.16	20
Toluene	0.0250	0.0247	0.0239	99.0	95.5	77.0-120			3.53	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0238	0.0228	95.1	91.0	64.0-135			4.36	20
1,2,3-Trichlorobenzene	0.0250	0.0261	0.0263	104	105	68.0-126			0.730	20
1,2,4-Trichlorobenzene	0.0250	0.0272	0.0265	109	106	70.0-127			2.57	20
1,1,1-Trichloroethane	0.0250	0.0224	0.0217	89.5	86.9	69.0-125			2.98	20
1,1,2-Trichloroethane	0.0250	0.0245	0.0232	98.1	92.7	78.0-120			5.64	20
Trichloroethene	0.0250	0.0236	0.0230	94.6	91.9	79.0-120			2.94	20
Trichlorofluoromethane	0.0250	0.0224	0.0215	89.6	85.9	59.0-136			4.18	20
1,2,3-Trichloropropane	0.0250	0.0223	0.0217	89.4	86.7	73.0-124			3.00	20
1,2,3-Trimethylbenzene	0.0250	0.0232	0.0227	92.9	90.9	76.0-120			2.17	20
1,2,4-Trimethylbenzene	0.0250	0.0258	0.0249	103	99.4	75.0-120			3.57	20
1,3,5-Trimethylbenzene	0.0250	0.0260	0.0251	104	100	75.0-120			3.70	20
Vinyl chloride	0.0250	0.0222	0.0210	88.9	84.0	63.0-134			5.73	20
Xylenes, Total	0.0750	0.0811	0.0774	108	103	77.0-120			4.67	20
(S) Toluene-d8				*106*	*106*	*80.0-120*				
(S) Dibromofluoromethane				*92.9*	*91.9*	*74.0-131*				
(S) 4-Bromofluorobenzene				*95.3*	*94.2*	*64.0-132*				

L944579-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L944579-02 10/23/17 01:39 • (MS) R3260187-4 10/23/17 09:26 • (MSD) R3260187-5 10/23/17 09:50

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.150	ND	2.16	2.31	57.6	61.4	25	10.0-160			6.41	36
Acrylonitrile	0.150	ND	2.30	2.67	61.3	71.2	25	14.0-160			14.9	33
Benzene	0.0300	ND	0.602	0.670	80.1	89.2	25	13.0-146			10.7	27
Bromobenzene	0.0300	ND	0.597	0.632	79.6	84.2	25	10.0-149			5.71	33
Bromodichloromethane	0.0300	ND	0.620	0.688	82.5	91.6	25	15.0-142			10.4	28
Bromoform	0.0300	ND	0.615	0.663	81.9	88.3	25	10.0-147			7.53	31
Bromomethane	0.0300	ND	0.327	0.411	43.6	54.8	25	10.0-160			22.8	32
n-Butylbenzene	0.0300	ND	0.747	0.855	98.3	113	25	10.0-154			13.4	37
sec-Butylbenzene	0.0300	0.155	0.878	0.996	96.3	112	25	10.0-151			12.6	36
tert-Butylbenzene	0.0300	ND	0.745	0.858	95.7	111	25	10.0-152			14.1	35

L944579-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L944579-02 10/23/17 01:39 • (MS) R3260187-4 10/23/17 09:26 • (MSD) R3260187-5 10/23/17 09:50

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.0300	ND	0.574	0.640	76.5	85.3	25	13.0-140			10.9	30
Chlorobenzene	0.0300	ND	0.799	0.856	106	114	25	10.0-149			6.85	31
Chlorodibromomethane	0.0300	ND	0.737	0.808	98.1	108	25	12.0-147			9.22	29
Chloroethane	0.0300	ND	0.154	0.187	20.5	24.8	25	10.0-159			19.4	33
Chloroform	0.0300	ND	0.602	0.677	80.1	90.2	25	18.0-148			11.8	28
Chloromethane	0.0300	ND	0.489	0.534	65.2	71.1	25	10.0-146			8.78	29
2-Chlorotoluene	0.0300	ND	0.667	0.727	88.9	96.8	25	10.0-151			8.59	35
4-Chlorotoluene	0.0300	ND	0.667	0.718	88.9	95.6	25	10.0-150			7.26	35
1,2-Dibromo-3-Chloropropane	0.0300	ND	0.587	0.723	78.2	96.3	25	10.0-149			20.7	34
1,2-Dibromoethane	0.0300	ND	0.675	0.725	89.9	96.6	25	14.0-145			7.25	28
Dibromomethane	0.0300	ND	0.591	0.667	78.7	88.9	25	18.0-144			12.2	27
1,2-Dichlorobenzene	0.0300	ND	0.706	0.788	94.1	105	25	10.0-153			10.9	34
1,3-Dichlorobenzene	0.0300	ND	0.695	0.764	92.6	102	25	10.0-150			9.34	35
1,4-Dichlorobenzene	0.0300	ND	0.711	0.771	94.7	103	25	10.0-148			8.14	34
Dichlorodifluoromethane	0.0300	ND	0.572	0.642	76.2	85.5	25	10.0-160			11.4	30
1,1-Dichloroethane	0.0300	ND	0.588	0.659	78.4	87.8	25	19.0-148			11.3	28
1,2-Dichloroethane	0.0300	ND	0.521	0.596	69.4	79.4	25	17.0-147			13.4	27
1,1-Dichloroethene	0.0300	ND	0.560	0.634	74.6	84.5	25	10.0-150			12.4	31
cis-1,2-Dichloroethene	0.0300	ND	0.614	0.691	81.9	92.1	25	16.0-145			11.7	28
trans-1,2-Dichloroethene	0.0300	ND	0.572	0.646	76.2	86.0	25	11.0-142			12.1	29
1,2-Dichloropropane	0.0300	ND	0.655	0.708	87.2	94.4	25	17.0-148			7.85	28
1,1-Dichloropropene	0.0300	ND	0.554	0.631	73.8	84.1	25	10.0-150			13.1	30
1,3-Dichloropropane	0.0300	ND	0.674	0.704	89.8	93.8	25	16.0-148			4.42	27
cis-1,3-Dichloropropene	0.0300	ND	0.711	0.766	94.7	102	25	13.0-150			7.54	28
trans-1,3-Dichloropropene	0.0300	ND	0.672	0.712	89.6	94.9	25	10.0-152			5.73	29
2,2-Dichloropropane	0.0300	ND	0.551	0.688	73.4	91.6	25	16.0-143			22.0	30
Di-isopropyl ether	0.0300	ND	0.533	0.598	71.0	79.6	25	16.0-149			11.5	28
Ethylbenzene	0.0300	ND	0.793	0.864	106	115	25	10.0-147			8.50	31
Hexachloro-1,3-butadiene	0.0300	ND	0.879	1.07	117	143	25	10.0-154			19.8	40
Isopropylbenzene	0.0300	ND	0.686	0.757	91.4	101	25	10.0-147			9.84	33
p-Isopropyltoluene	0.0300	ND	0.797	0.894	106	119	25	10.0-156			11.6	37
2-Butanone (MEK)	0.150	ND	2.12	2.37	56.4	63.2	25	10.0-160			11.3	33
Methylene Chloride	0.0300	ND	0.598	0.663	79.6	88.3	25	16.0-139			10.3	29
4-Methyl-2-pentanone (MIBK)	0.150	ND	2.45	2.90	65.3	77.2	25	12.0-160			16.8	32
Methyl tert-butyl ether	0.0300	ND	0.566	0.642	72.8	82.9	25	21.0-145			12.6	29
Naphthalene	0.0300	ND	0.690	0.821	91.9	109	25	10.0-153			17.3	36
n-Propylbenzene	0.0300	ND	0.712	0.782	94.9	104	25	10.0-151			9.38	34
Styrene	0.0300	ND	0.691	0.719	92.1	95.8	25	10.0-155			3.96	34
1,1,1,2-Tetrachloroethane	0.0300	ND	0.737	0.867	98.2	115	25	10.0-147			16.1	30

L944579-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L944579-02 10/23/17 01:39 • (MS) R3260187-4 10/23/17 09:26 • (MSD) R3260187-5 10/23/17 09:50

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2,2-Tetrachloroethane	0.0300	ND	2.13	2.41	283	321	25	10.0-155	J5	J5	12.3	31
Tetrachloroethene	0.0300	ND	0.788	0.865	105	115	25	10.0-144			9.34	32
Toluene	0.0300	ND	0.705	0.763	93.9	102	25	10.0-144			7.95	28
1,1,2-Trichlorotrifluoroethane	0.0300	ND	0.603	0.683	80.4	90.9	25	10.0-153			12.4	33
1,2,3-Trichlorobenzene	0.0300	ND	0.750	0.881	99.9	117	25	10.0-153			16.0	40
1,2,4-Trichlorobenzene	0.0300	ND	0.723	0.833	96.4	111	25	10.0-156			14.1	40
1,1,1-Trichloroethane	0.0300	ND	0.600	0.684	79.9	91.1	25	18.0-145			13.1	29
1,1,2-Trichloroethane	0.0300	ND	0.724	0.787	96.4	105	25	12.0-151			8.44	28
Trichloroethene	0.0300	ND	0.692	0.785	92.2	105	25	11.0-148			12.5	29
Trichlorofluoromethane	0.0300	ND	0.192	0.138	25.6	18.4	25	10.0-157			32.7	34
1,2,3-Trichloropropane	0.0300	ND	0.857	0.962	114	128	25	10.0-154			11.6	32
1,2,3-Trimethylbenzene	0.0300	ND	0.645	0.718	85.9	95.6	25	10.0-150			10.7	33
1,2,4-Trimethylbenzene	0.0300	ND	0.688	0.775	89.6	101	25	10.0-151			11.8	34
1,3,5-Trimethylbenzene	0.0300	ND	0.696	0.778	92.7	104	25	10.0-150			11.1	33
Vinyl chloride	0.0300	ND	0.543	0.587	72.3	78.2	25	10.0-150			7.84	29
Xylenes, Total	0.0901	ND	2.34	2.58	104	115	25	10.0-150			9.75	31
(S) Toluene-d8					*107*	*106*		*80.0-120*				
(S) Dibromofluoromethane					*87.1*	*90.0*		*74.0-131*				
(S) 4-Bromofluorobenzene					*135*	*142*		*64.0-132*	J1	J1		

Sample Narrative:

OS: Non-target compounds too high to run at a lower dilution.

Method Blank (MB)

(MB) R3261235-1 10/27/17 16:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*57.3*			*18.0-148*

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

(LCS) R3261235-2 10/27/17 16:22 • (LCSD) R3261235-3 10/27/17 16:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	60.0	35.2	45.3	58.7	75.5	50.0-150		J3	25.1	20
(S) o-Terphenyl				*69.1*	*79.3*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
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		

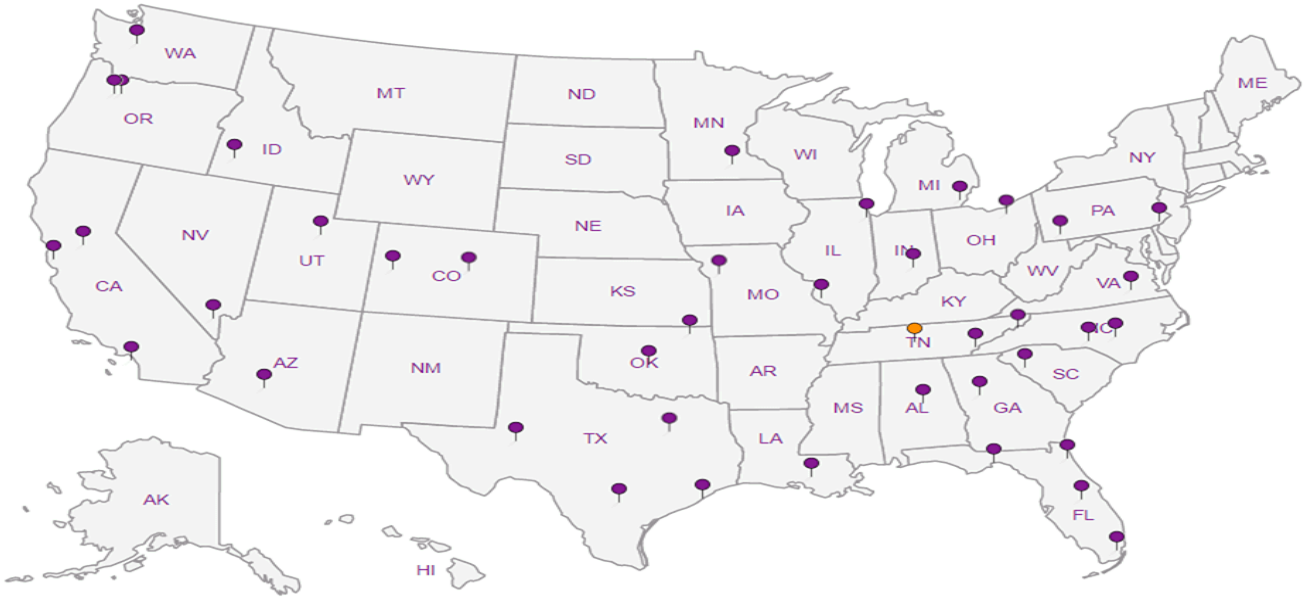
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	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.**



Company Name/Address:
Terracon - Longmont
1242 Bramwood Pl.
Longmont, CO 80501

Billing Information:
SAME

Report to: **Michael Skridulis**

Email To: **mjskridulis@terracon.com**

Project Description: Rider #1

City/State Collected: Longmont CO

Phone: **303-776-3921**
Fax: **303-776-4041**

Client Project # 22177021

Lab Project #

Collected by (print): M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature): M. Sk

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: STANDARD

Email? ___No ✓Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	V8260 - 4oz Soil Jar	TPH-GRO - 2oz Soil Jar	TPH-DRO - 4oz Soil Jar	TPH-ORO - 4oz Soil Jar							Rem./Contaminant	Sample # (lab only)
SB-07 (10-12)	G	SS		10/18/17	0845	4	X	X	X	X								-01
SB-08 (6-8)	↓	SS		↓	0910	4	X	X	X	X								02
SB-09 (6-8)		SS			0940	4	X	X	X	X								03
SB-10 (7-9)		SS			1010	4	X	X	X	X								04
SB-11 (10-12)		SS		↓	1040	4	X	X	X	X								05

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L945404

Tal E020

Acctnum: TERRALCO

Template:

Prelogin:

TSR:

PB:

Shipped Via:

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks: Fedex: 4094 8307 3870

pH _____ Temp _____

Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
M. Sk	10/19/17	1000	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: 2.1° °C Bottles Received: 20

Date: 10/20/17 Time: 8:45

Condition: (lab use only) TOU OK

COC Seal Intact: ✓Y ___N ___NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client:	TERRACO	SDG#	L945404
Cooler Received/Opened On:	10/20/17	Temperature:	2.1
Received by:	Christian Kacar		
Signature:			

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

ANALYTICAL REPORT

October 27, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L945438
Samples Received:	10/21/2017
Project Number:	22177021
Description:	Rider #1

Report To: Mike Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Jason Romer
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

MW-05R L945438-01 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 11:50	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1034042	1	10/24/17 19:25	10/24/17 19:25	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 19:25	10/24/17 19:25	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 11:12	10/21/17 11:12	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 00:07	10/25/17 00:07	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:28	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 13:54	10/24/17 13:54	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 00:10	10/26/17 00:10	JHH

MW-06R L945438-02 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 12:55	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1034042	1	10/24/17 19:33	10/24/17 19:33	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 19:33	10/24/17 19:33	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 11:27	10/21/17 11:27	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 00:17	10/25/17 00:17	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:32	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 13:56	10/24/17 13:56	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 00:30	10/26/17 00:30	JHH

MW-04R L945438-03 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 13:35	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1034042	1	10/24/17 19:41	10/24/17 19:41	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 19:41	10/24/17 19:41	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 11:42	10/21/17 11:42	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 00:27	10/25/17 00:27	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:41	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 13:58	10/24/17 13:58	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 00:49	10/26/17 00:49	JHH

MW-03R L945438-04 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 14:00	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1034042	1	10/24/17 19:50	10/24/17 19:50	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 19:50	10/24/17 19:50	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 11:57	10/21/17 11:57	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 00:38	10/25/17 00:38	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:45	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 14:00	10/24/17 14:00	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	10	10/26/17 01:08	10/26/17 01:08	JHH

MW-01R L945438-05 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 14:30	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1034042	1	10/24/17 19:58	10/24/17 19:58	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 19:58	10/24/17 19:58	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 12:11	10/21/17 12:11	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 00:48	10/25/17 00:48	KCF

MW-01R L945438-05 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 14:30	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:48	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 14:04	10/24/17 14:04	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	25	10/26/17 01:27	10/26/17 01:27	JHH

MW-02R L945438-06 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/19/17 15:10	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1034042	1	10/24/17 20:14	10/24/17 20:14	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 20:14	10/24/17 20:14	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 12:26	10/21/17 12:26	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 01:18	10/25/17 01:18	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:51	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 14:10	10/24/17 14:10	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 01:47	10/26/17 01:47	JHH

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Jason Romer
Technical Service Representative

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	403		20.0	1	10/24/2017 19:25	WG1034042

Sample Narrative:
L945438-01 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 4500CO2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Free Carbon Dioxide	24.2	T8	20.0	1	10/24/2017 19:25	WG1034042

Sample Narrative:
L945438-01 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	ND		1.00	1	10/21/2017 11:12	WG1034068
Chloride	41.0		1.00	1	10/21/2017 11:12	WG1034068
Nitrate as (N)	3.06		0.100	1	10/21/2017 11:12	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 11:12	WG1034068
Sulfate	276		50.0	10	10/25/2017 00:07	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	100		1.00	1	10/26/2017 16:28	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:28	WG1035670
Magnesium,Dissolved	83.5		1.00	1	10/26/2017 16:28	WG1035670
Potassium,Dissolved	3.22		1.00	1	10/26/2017 16:28	WG1035670
Sodium,Dissolved	105		1.00	1	10/26/2017 16:28	WG1035670
Strontium,Dissolved	2.94		0.0100	1	10/26/2017 16:28	WG1035670

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Methane	ND		0.0100	1	10/24/2017 13:54	WG1034670
Ethane	ND		0.0130	1	10/24/2017 13:54	WG1034670
Ethene	ND		0.0130	1	10/24/2017 13:54	WG1034670

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	10/26/2017 00:10	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 00:10	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 00:10	WG1034344
Benzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 00:10	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 00:10	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Carbon tetrachloride	ND		0.00100	1	10/26/2017 00:10	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 00:10	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 00:10	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 00:10	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 00:10	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 00:10	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 00:10	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 00:10	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 00:10	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 00:10	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 00:10	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 00:10	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 00:10	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 00:10	WG1034344
Ethylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Isopropylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
p-Isopropyltoluene	ND		0.00100	1	10/26/2017 00:10	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 00:10	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 00:10	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 00:10	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 00:10	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 00:10	WG1034344
n-Propylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Styrene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Toluene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 00:10	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 00:10	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 00:10	WG1034344
1,2,4-Trimethylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,2,3-Trimethylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
1,3,5-Trimethylbenzene	ND		0.00100	1	10/26/2017 00:10	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 00:10	WG1034344
Xylenes, Total	ND		0.00300	1	10/26/2017 00:10	WG1034344
(S) Toluene-d8	*109*		*80.0-120*		*10/26/2017 00:10*	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*102*		*76.0-123*		*10/26/2017 00:10*	WG1034344
(S) 4-Bromofluorobenzene	*93.8*		*80.0-120*		*10/26/2017 00:10*	WG1034344

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	384		20.0	1	10/24/2017 19:33	WG1034042

Sample Narrative:
L945438-02 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 4500CO2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Free Carbon Dioxide	ND	T8	20.0	1	10/24/2017 19:33	WG1034042

Sample Narrative:
L945438-02 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	ND		1.00	1	10/21/2017 11:27	WG1034068
Chloride	42.0		1.00	1	10/21/2017 11:27	WG1034068
Nitrate as (N)	3.74		0.100	1	10/21/2017 11:27	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 11:27	WG1034068
Sulfate	282		50.0	10	10/25/2017 00:17	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	99.5		1.00	1	10/26/2017 16:32	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:32	WG1035670
Magnesium,Dissolved	81.2		1.00	1	10/26/2017 16:32	WG1035670
Potassium,Dissolved	3.07		1.00	1	10/26/2017 16:32	WG1035670
Sodium,Dissolved	103		1.00	1	10/26/2017 16:32	WG1035670
Strontium,Dissolved	2.95		0.0100	1	10/26/2017 16:32	WG1035670

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Methane	ND		0.0100	1	10/24/2017 13:56	WG1034670
Ethane	ND		0.0130	1	10/24/2017 13:56	WG1034670
Ethene	ND		0.0130	1	10/24/2017 13:56	WG1034670

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	10/26/2017 00:30	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 00:30	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 00:30	WG1034344
Benzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 00:30	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 00:30	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Carbon tetrachloride	ND		0.00100	1	10/26/2017 00:30	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 00:30	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 00:30	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 00:30	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 00:30	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 00:30	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 00:30	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 00:30	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 00:30	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 00:30	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 00:30	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 00:30	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 00:30	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 00:30	WG1034344
Ethylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Isopropylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
p-Isopropyltoluene	ND		0.00100	1	10/26/2017 00:30	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 00:30	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 00:30	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 00:30	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 00:30	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 00:30	WG1034344
n-Propylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Styrene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Toluene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 00:30	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 00:30	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 00:30	WG1034344
1,2,4-Trimethylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,2,3-Trimethylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
1,3,5-Trimethylbenzene	ND		0.00100	1	10/26/2017 00:30	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 00:30	WG1034344
Xylenes, Total	ND		0.00300	1	10/26/2017 00:30	WG1034344
(S) Toluene-d8	*106*		*80.0-120*		*10/26/2017 00:30*	WG1034344

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*106*		*76.0-123*		*10/26/2017 00:30*	WG1034344
(S) 4-Bromofluorobenzene	*95.4*		*80.0-120*		*10/26/2017 00:30*	WG1034344

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	375		20.0	1	10/24/2017 19:41	WG1034042

Sample Narrative:
L945438-03 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 4500CO2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Free Carbon Dioxide	21.0	T8	20.0	1	10/24/2017 19:41	WG1034042

Sample Narrative:
L945438-03 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	ND		1.00	1	10/21/2017 11:42	WG1034068
Chloride	42.4		1.00	1	10/21/2017 11:42	WG1034068
Nitrate as (N)	3.83		0.100	1	10/21/2017 11:42	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 11:42	WG1034068
Sulfate	271		50.0	10	10/25/2017 00:27	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	101		1.00	1	10/26/2017 16:41	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:41	WG1035670
Magnesium,Dissolved	82.6		1.00	1	10/26/2017 16:41	WG1035670
Potassium,Dissolved	2.74		1.00	1	10/26/2017 16:41	WG1035670
Sodium,Dissolved	105		1.00	1	10/26/2017 16:41	WG1035670
Strontium,Dissolved	3.02		0.0100	1	10/26/2017 16:41	WG1035670

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Methane	0.0349		0.0100	1	10/24/2017 13:58	WG1034670
Ethane	ND		0.0130	1	10/24/2017 13:58	WG1034670
Ethene	ND		0.0130	1	10/24/2017 13:58	WG1034670

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	10/26/2017 00:49	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 00:49	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 00:49	WG1034344
Benzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 00:49	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 00:49	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Carbon tetrachloride	ND		0.00100	1	10/26/2017 00:49	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 00:49	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 00:49	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 00:49	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 00:49	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 00:49	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 00:49	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 00:49	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 00:49	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 00:49	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 00:49	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 00:49	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 00:49	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 00:49	WG1034344
Ethylbenzene	0.00258		0.00100	1	10/26/2017 00:49	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Isopropylbenzene	0.00104		0.00100	1	10/26/2017 00:49	WG1034344
p-Isopropyltoluene	0.00279		0.00100	1	10/26/2017 00:49	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 00:49	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 00:49	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 00:49	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 00:49	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 00:49	WG1034344
n-Propylbenzene	0.00222		0.00100	1	10/26/2017 00:49	WG1034344
Styrene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Toluene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 00:49	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 00:49	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 00:49	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 00:49	WG1034344
1,2,4-Trimethylbenzene	0.0187		0.00100	1	10/26/2017 00:49	WG1034344
1,2,3-Trimethylbenzene	0.00263		0.00100	1	10/26/2017 00:49	WG1034344
1,3,5-Trimethylbenzene	0.0127		0.00100	1	10/26/2017 00:49	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 00:49	WG1034344
Xylenes, Total	0.0222		0.00300	1	10/26/2017 00:49	WG1034344
(S) Toluene-d8	*109*		*80.0-120*		*10/26/2017 00:49*	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*102*		*76.0-123*		*10/26/2017 00:49*	WG1034344
(S) 4-Bromofluorobenzene	*93.3*		*80.0-120*		*10/26/2017 00:49*	WG1034344

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	362		20.0	1	10/24/2017 19:50	WG1034042

Sample Narrative:
L945438-04 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 4500CO2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Free Carbon Dioxide	23.4	T8	20.0	1	10/24/2017 19:50	WG1034042

Sample Narrative:
L945438-04 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	ND		1.00	1	10/21/2017 11:57	WG1034068
Chloride	44.7		1.00	1	10/21/2017 11:57	WG1034068
Nitrate as (N)	2.95		0.100	1	10/21/2017 11:57	WG1034068
Nitrite as (N)	0.156		0.100	1	10/21/2017 11:57	WG1034068
Sulfate	276		50.0	10	10/25/2017 00:38	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	99.4		1.00	1	10/26/2017 16:45	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:45	WG1035670
Magnesium,Dissolved	83.9		1.00	1	10/26/2017 16:45	WG1035670
Potassium,Dissolved	2.50		1.00	1	10/26/2017 16:45	WG1035670
Sodium,Dissolved	105		1.00	1	10/26/2017 16:45	WG1035670
Strontium,Dissolved	3.11		0.0100	1	10/26/2017 16:45	WG1035670

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Methane	0.677		0.0100	1	10/24/2017 14:00	WG1034670
Ethane	ND		0.0130	1	10/24/2017 14:00	WG1034670
Ethene	ND		0.0130	1	10/24/2017 14:00	WG1034670

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND		0.500	10	10/26/2017 01:08	WG1034344
Acrolein	ND		0.500	10	10/26/2017 01:08	WG1034344
Acrylonitrile	ND		0.100	10	10/26/2017 01:08	WG1034344
Benzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Bromobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Bromodichloromethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
Bromoform	ND		0.0100	10	10/26/2017 01:08	WG1034344
Bromomethane	ND		0.0500	10	10/26/2017 01:08	WG1034344
n-Butylbenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
sec-Butylbenzene	0.0100		0.0100	10	10/26/2017 01:08	WG1034344
tert-Butylbenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Carbon tetrachloride	ND		0.0100	10	10/26/2017 01:08	WG1034344
Chlorobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Chlorodibromomethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
Chloroethane	ND		0.0500	10	10/26/2017 01:08	WG1034344
Chloroform	ND		0.0500	10	10/26/2017 01:08	WG1034344
Chloromethane	ND		0.0250	10	10/26/2017 01:08	WG1034344
2-Chlorotoluene	ND		0.0100	10	10/26/2017 01:08	WG1034344
4-Chlorotoluene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.0500	10	10/26/2017 01:08	WG1034344
1,2-Dibromoethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
Dibromomethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,2-Dichlorobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,3-Dichlorobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,4-Dichlorobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Dichlorodifluoromethane	ND		0.0500	10	10/26/2017 01:08	WG1034344
1,1-Dichloroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,2-Dichloroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1-Dichloroethene	ND		0.0100	10	10/26/2017 01:08	WG1034344
cis-1,2-Dichloroethene	ND		0.0100	10	10/26/2017 01:08	WG1034344
trans-1,2-Dichloroethene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,2-Dichloropropane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1-Dichloropropene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,3-Dichloropropane	ND		0.0100	10	10/26/2017 01:08	WG1034344
cis-1,3-Dichloropropene	ND		0.0100	10	10/26/2017 01:08	WG1034344
trans-1,3-Dichloropropene	ND		0.0100	10	10/26/2017 01:08	WG1034344
2,2-Dichloropropane	ND		0.0100	10	10/26/2017 01:08	WG1034344
Di-isopropyl ether	ND		0.0100	10	10/26/2017 01:08	WG1034344
Ethylbenzene	0.0295		0.0100	10	10/26/2017 01:08	WG1034344
Hexachloro-1,3-butadiene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Isopropylbenzene	0.0177		0.0100	10	10/26/2017 01:08	WG1034344
p-Isopropyltoluene	0.0790		0.0100	10	10/26/2017 01:08	WG1034344
2-Butanone (MEK)	ND		0.100	10	10/26/2017 01:08	WG1034344
Methylene Chloride	ND		0.0500	10	10/26/2017 01:08	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.100	10	10/26/2017 01:08	WG1034344
Methyl tert-butyl ether	ND		0.0100	10	10/26/2017 01:08	WG1034344
Naphthalene	ND		0.0500	10	10/26/2017 01:08	WG1034344
n-Propylbenzene	0.0255		0.0100	10	10/26/2017 01:08	WG1034344
Styrene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
Tetrachloroethene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Toluene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,2,3-Trichlorobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,2,4-Trichlorobenzene	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1,1-Trichloroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
1,1,2-Trichloroethane	ND		0.0100	10	10/26/2017 01:08	WG1034344
Trichloroethene	ND		0.0100	10	10/26/2017 01:08	WG1034344
Trichlorofluoromethane	ND		0.0500	10	10/26/2017 01:08	WG1034344
1,2,3-Trichloropropane	ND		0.0250	10	10/26/2017 01:08	WG1034344
1,2,4-Trimethylbenzene	0.513		0.0100	10	10/26/2017 01:08	WG1034344
1,2,3-Trimethylbenzene	0.116		0.0100	10	10/26/2017 01:08	WG1034344
1,3,5-Trimethylbenzene	0.436		0.0100	10	10/26/2017 01:08	WG1034344
Vinyl chloride	ND		0.0100	10	10/26/2017 01:08	WG1034344
Xylenes, Total	1.17		0.0300	10	10/26/2017 01:08	WG1034344
(S) Toluene-d8	*109*		*80.0-120*		*10/26/2017 01:08*	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*104*		*76.0-123*		*10/26/2017 01:08*	WG1034344
(S) 4-Bromofluorobenzene	*97.2*		*80.0-120*		*10/26/2017 01:08*	WG1034344

Sample Narrative:

L945438-04 WG1034344: Target compounds too high to run at a lower dilution.

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	355		20.0	1	10/24/2017 19:58	WG1034042

Sample Narrative:
L945438-05 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 4500CO2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Free Carbon Dioxide	20.7	T8	20.0	1	10/24/2017 19:58	WG1034042

Sample Narrative:
L945438-05 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	ND		1.00	1	10/21/2017 12:11	WG1034068
Chloride	41.3		1.00	1	10/21/2017 12:11	WG1034068
Nitrate as (N)	3.88		0.100	1	10/21/2017 12:11	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 12:11	WG1034068
Sulfate	263		50.0	10	10/25/2017 00:48	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	99.2		1.00	1	10/26/2017 16:48	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:48	WG1035670
Magnesium,Dissolved	82.5		1.00	1	10/26/2017 16:48	WG1035670
Potassium,Dissolved	3.11		1.00	1	10/26/2017 16:48	WG1035670
Sodium,Dissolved	111		1.00	1	10/26/2017 16:48	WG1035670
Strontium,Dissolved	2.99		0.0100	1	10/26/2017 16:48	WG1035670

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Methane	0.474		0.0100	1	10/24/2017 14:04	WG1034670
Ethane	ND		0.0130	1	10/24/2017 14:04	WG1034670
Ethene	ND		0.0130	1	10/24/2017 14:04	WG1034670

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Acetone	ND		1.25	25	10/26/2017 01:27	WG1034344
Acrolein	ND		1.25	25	10/26/2017 01:27	WG1034344
Acrylonitrile	ND		0.250	25	10/26/2017 01:27	WG1034344
Benzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Bromobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Bromodichloromethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
Bromoform	ND		0.0250	25	10/26/2017 01:27	WG1034344
Bromomethane	ND		0.125	25	10/26/2017 01:27	WG1034344
n-Butylbenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
sec-Butylbenzene	0.0460		0.0250	25	10/26/2017 01:27	WG1034344
tert-Butylbenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Carbon tetrachloride	ND		0.0250	25	10/26/2017 01:27	WG1034344
Chlorobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Chlorodibromomethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
Chloroethane	ND		0.125	25	10/26/2017 01:27	WG1034344
Chloroform	ND		0.125	25	10/26/2017 01:27	WG1034344
Chloromethane	ND		0.0625	25	10/26/2017 01:27	WG1034344
2-Chlorotoluene	ND		0.0250	25	10/26/2017 01:27	WG1034344
4-Chlorotoluene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.125	25	10/26/2017 01:27	WG1034344
1,2-Dibromoethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
Dibromomethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,2-Dichlorobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,3-Dichlorobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,4-Dichlorobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Dichlorodifluoromethane	ND		0.125	25	10/26/2017 01:27	WG1034344
1,1-Dichloroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,2-Dichloroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1-Dichloroethene	ND		0.0250	25	10/26/2017 01:27	WG1034344
cis-1,2-Dichloroethene	ND		0.0250	25	10/26/2017 01:27	WG1034344
trans-1,2-Dichloroethene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,2-Dichloropropane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1-Dichloropropene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,3-Dichloropropane	ND		0.0250	25	10/26/2017 01:27	WG1034344
cis-1,3-Dichloropropene	ND		0.0250	25	10/26/2017 01:27	WG1034344
trans-1,3-Dichloropropene	ND		0.0250	25	10/26/2017 01:27	WG1034344
2,2-Dichloropropane	ND		0.0250	25	10/26/2017 01:27	WG1034344
Di-isopropyl ether	ND		0.0250	25	10/26/2017 01:27	WG1034344
Ethylbenzene	0.738		0.0250	25	10/26/2017 01:27	WG1034344
Hexachloro-1,3-butadiene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Isopropylbenzene	0.178		0.0250	25	10/26/2017 01:27	WG1034344
p-Isopropyltoluene	0.181		0.0250	25	10/26/2017 01:27	WG1034344
2-Butanone (MEK)	ND		0.250	25	10/26/2017 01:27	WG1034344
Methylene Chloride	ND		0.125	25	10/26/2017 01:27	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.250	25	10/26/2017 01:27	WG1034344
Methyl tert-butyl ether	ND		0.0250	25	10/26/2017 01:27	WG1034344
Naphthalene	0.140		0.125	25	10/26/2017 01:27	WG1034344
n-Propylbenzene	0.329		0.0250	25	10/26/2017 01:27	WG1034344
Styrene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
Tetrachloroethene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Toluene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,2,3-Trichlorobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,2,4-Trichlorobenzene	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1,1-Trichloroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
1,1,2-Trichloroethane	ND		0.0250	25	10/26/2017 01:27	WG1034344
Trichloroethene	ND		0.0250	25	10/26/2017 01:27	WG1034344
Trichlorofluoromethane	ND		0.125	25	10/26/2017 01:27	WG1034344
1,2,3-Trichloropropane	ND		0.0625	25	10/26/2017 01:27	WG1034344
1,2,4-Trimethylbenzene	2.48		0.0250	25	10/26/2017 01:27	WG1034344
1,2,3-Trimethylbenzene	0.346		0.0250	25	10/26/2017 01:27	WG1034344
1,3,5-Trimethylbenzene	1.40		0.0250	25	10/26/2017 01:27	WG1034344
Vinyl chloride	ND		0.0250	25	10/26/2017 01:27	WG1034344
Xylenes, Total	5.46		0.0750	25	10/26/2017 01:27	WG1034344
(S) Toluene-d8	*109*		*80.0-120*		*10/26/2017 01:27*	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*103*		*76.0-123*		*10/26/2017 01:27*	WG1034344
(S) 4-Bromofluorobenzene	*105*		*80.0-120*		*10/26/2017 01:27*	WG1034344

Sample Narrative:

L945438-05 WG1034344: Target compounds too high to run at a lower dilution.

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	337		20.0	1	10/24/2017 20:14	WG1034042

Sample Narrative:
L945438-06 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 4500CO2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Free Carbon Dioxide	ND	T8	20.0	1	10/24/2017 20:14	WG1034042

Sample Narrative:
L945438-06 WG1034042: Endpoint pH 4.5

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Bromide	ND		1.00	1	10/21/2017 12:26	WG1034068
Chloride	39.5		1.00	1	10/21/2017 12:26	WG1034068
Nitrate as (N)	4.22		0.100	1	10/21/2017 12:26	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 12:26	WG1034068
Sulfate	280		50.0	10	10/25/2017 01:18	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	103		1.00	1	10/26/2017 16:51	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:51	WG1035670
Magnesium,Dissolved	79.0		1.00	1	10/26/2017 16:51	WG1035670
Potassium,Dissolved	3.05		1.00	1	10/26/2017 16:51	WG1035670
Sodium,Dissolved	110		1.00	1	10/26/2017 16:51	WG1035670
Strontium,Dissolved	2.98		0.0100	1	10/26/2017 16:51	WG1035670

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Methane	ND		0.0100	1	10/24/2017 14:10	WG1034670
Ethane	ND		0.0130	1	10/24/2017 14:10	WG1034670
Ethene	ND		0.0130	1	10/24/2017 14:10	WG1034670

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	10/26/2017 01:47	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 01:47	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 01:47	WG1034344
Benzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 01:47	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 01:47	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Carbon tetrachloride	ND		0.00100	1	10/26/2017 01:47	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 01:47	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 01:47	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 01:47	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 01:47	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 01:47	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 01:47	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 01:47	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 01:47	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 01:47	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 01:47	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 01:47	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 01:47	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 01:47	WG1034344
Ethylbenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Isopropylbenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
p-Isopropyltoluene	ND		0.00100	1	10/26/2017 01:47	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 01:47	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 01:47	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 01:47	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 01:47	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 01:47	WG1034344
n-Propylbenzene	0.00141		0.00100	1	10/26/2017 01:47	WG1034344
Styrene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Toluene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 01:47	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 01:47	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 01:47	WG1034344
1,2,4-Trimethylbenzene	0.00951		0.00100	1	10/26/2017 01:47	WG1034344
1,2,3-Trimethylbenzene	0.00105		0.00100	1	10/26/2017 01:47	WG1034344
1,3,5-Trimethylbenzene	ND		0.00100	1	10/26/2017 01:47	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 01:47	WG1034344
Xylenes, Total	ND		0.00300	1	10/26/2017 01:47	WG1034344
(S) Toluene-d8	*110*		*80.0-120*		*10/26/2017 01:47*	WG1034344

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
(S) Dibromofluoromethane	*103*		*76.0-123*		*10/26/2017 01:47*	WG1034344
(S) 4-Bromofluorobenzene	*100*		*80.0-120*		*10/26/2017 01:47*	WG1034344

L945386-01 Original Sample (OS) • Duplicate (DUP)

(OS) L945386-01 10/24/17 18:14 • (DUP) R3260658-1 10/24/17 18:21

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	64.0	66.2	1	4.00		20

Sample Narrative:
OS: Endpoint pH 4.5
DUP: Endpoint pH 4.5

L945386-03 Original Sample (OS) • Duplicate (DUP)

(OS) L945386-03 10/24/17 19:04 • (DUP) R3260658-3 10/24/17 19:11

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	72.6	65.4	1	10.0		20

Sample Narrative:
OS: Endpoint pH 4.5
DUP: Endpoint pH 4.5

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

(LCS) R3260658-2 10/24/17 18:43 • (LCSD) R3260658-4 10/24/17 20:06

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 %
Alkalinity	100	93.5	96.3	94.0	96.0	85.0-115			3.00	20

Sample Narrative:
LCS: Endpoint pH 4.5
LCSD: Endpoint pH 4.5

Method Blank (MB)

(MB) R3259557-1 10/21/17 07:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromide	U		0.079	1.00
Chloride	U		0.0519	1.00
Nitrate	U		0.0227	0.100
Nitrite	U		0.0277	0.100

L945442-01 Original Sample (OS) • Duplicate (DUP)

(OS) L945442-01 10/21/17 14:01 • (DUP) R3259557-4 10/21/17 14:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	4.80	4.81	1	0		15
Nitrate	0.155	0.149	1	4		15
Nitrite	0.178	0.183	1	3		15

L945441-01 Original Sample (OS) • Duplicate (DUP)

(OS) L945441-01 10/21/17 15:01 • (DUP) R3259557-7 10/21/17 15:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Bromide	ND	0.000	1	0		15
Chloride	42.3	41.7	1	1		15
Nitrate	3.60	3.65	1	1		15
Nitrite	ND	0.0350	1	0		15

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

(LCS) R3259557-2 10/21/17 07:39 • (LCSD) R3259557-3 10/21/17 07:54

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 %
Bromide	40.0	39.4	39.5	98	99	80-120			0	15
Chloride	40.0	39.2	39.4	98	98	80-120			0	15
Nitrate	8.00	8.03	8.06	100	101	80-120			0	15
Nitrite	8.00	7.87	7.88	98	98	80-120			0	15

L945442-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945442-01 10/21/17 14:01 • (MS) R3259557-5 10/21/17 14:31 • (MSD) R3259557-6 10/21/17 14:46

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 %
Bromide	50.0	4.80	51.8	50.5	94	91	1	80-120			2	15
Nitrate	5.00	0.155	4.92	4.80	95	93	1	80-120			3	15
Nitrite	5.00	0.178	5.16	5.05	100	98	1	80-120			2	15

L945441-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L945441-01 10/21/17 15:01 • (MS) R3259557-8 10/21/17 15:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Bromide	50.0	ND	45.0	90	1	80-120	
Chloride	50.0	42.3	90.2	96	1	80-120	
Nitrate	5.00	3.60	8.46	97	1	80-120	
Nitrite	5.00	ND	5.07	101	1	80-120	

Method Blank (MB)

(MB) R3260258-1 10/24/17 16:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfate	U		0.0774	5.00

L945384-01 Original Sample (OS) • Duplicate (DUP)

(OS) L945384-01 10/24/17 21:45 • (DUP) R3260258-4 10/24/17 21:55

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	ND	2.39	1	5	J	15

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

(LCS) R3260258-2 10/24/17 16:14 • (LCSD) R3260258-3 10/24/17 16:25

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 %
Sulfate	40.0	40.2	40.1	100	100	80-120			0	15

L945384-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945384-01 10/24/17 21:45 • (MS) R3260258-5 10/24/17 22:05 • (MSD) R3260258-6 10/24/17 22:15

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 %
Sulfate	50.0	ND	46.1	46.2	87	87	1	80-120			0	15

Method Blank (MB)

(MB) R3260887-1 10/26/17 15:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Calcium,Dissolved	U		0.0463	1.00
Iron,Dissolved	U		0.0141	0.100
Magnesium,Dissolved	U		0.0111	1.00
Potassium,Dissolved	0.12	J	0.102	1.00
Sodium,Dissolved	0.13	J	0.0985	1.00
Strontium,Dissolved	U		0.0017	0.0100

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

(LCS) R3260887-2 10/26/17 16:06 • (LCSD) R3260887-3 10/26/17 16:09

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 %
Calcium,Dissolved	10.0	10.2	10.2	102	102	80-120			0	20
Iron,Dissolved	10.0	10.4	10.3	104	103	80-120			0	20
Magnesium,Dissolved	10.0	10.4	10.5	104	105	80-120			1	20
Potassium,Dissolved	10.0	10.1	9.87	101	99	80-120			2	20
Sodium,Dissolved	10.0	9.87	9.83	99	98	80-120			0	20
Strontium,Dissolved	1.00	1.04	1.04	104	104	80-120			0	20

L945810-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945810-04 10/26/17 16:12 • (MS) R3260887-5 10/26/17 16:19 • (MSD) R3260887-6 10/26/17 16:22

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 %
Calcium,Dissolved	10.0	30.5	40.7	40.6	102	100	1	75-125			0	20
Iron,Dissolved	10.0	ND	10.3	10.4	103	104	1	75-125			1	20
Magnesium,Dissolved	10.0	11.2	21.3	21.3	101	101	1	75-125			0	20
Potassium,Dissolved	10.0	1.32	11.2	11.2	99	99	1	75-125			0	20
Sodium,Dissolved	10.0	3.29	13.1	13.1	98	98	1	75-125			0	20
Strontium,Dissolved	1.00	0.0568	1.09	1.10	103	104	1	75-125			0	20

Method Blank (MB)

(MB) R3260097-1 10/24/17 11:55

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Methane	U		0.00291	0.0100
Ethane	U		0.00407	0.0130
Ethene	U		0.00426	0.0130

L945163-15 Original Sample (OS) • Duplicate (DUP)

(OS) L945163-15 10/24/17 12:02 • (DUP) R3260097-2 10/24/17 13:34

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	0.677	0.699	1	3.13		20
Ethane	U	0.000	1	200	P1	20
Ethene	U	0.000	1	0.000		20

L945426-01 Original Sample (OS) • Duplicate (DUP)

(OS) L945426-01 10/24/17 13:51 • (DUP) R3260097-3 10/24/17 14:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	0.000	1	0.000		20
Ethane	ND	0.000	1	0.000		20
Ethene	ND	0.000	1	0.000		20

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

(LCS) R3260097-4 10/24/17 14:26 • (LCSD) R3260097-5 10/24/17 14:29

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 %
Methane	0.0678	0.0706	0.0699	104	103	85.0-115			0.990	20
Ethane	0.129	0.121	0.125	93.9	96.8	85.0-115			3.06	20
Ethene	0.127	0.118	0.121	92.6	95.2	85.0-115			2.69	20

Method Blank (MB)

(MB) R3260674-3 10/25/17 20:20

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) R3260674-3 10/25/17 20:20

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
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		0.000412	0.00100
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	*109*			*80.0-120*
(S) Dibromofluoromethane	*104*			*76.0-123*
(S) 4-Bromofluorobenzene	*94.8*			*80.0-120*

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

(LCS) R3260674-1 10/25/17 19:22 • (LCSD) R3260674-2 10/25/17 19:42

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	0.171	0.182	137	146	10.0-160			6.14	23
Acrolein	0.125	0.0293	0.0271	23.4	21.7	10.0-160			7.57	20
Acrylonitrile	0.125	0.116	0.122	92.9	97.9	60.0-142			5.28	20
Benzene	0.0250	0.0248	0.0248	99.2	99.4	69.0-123			0.240	20

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

(LCS) R3260674-1 10/25/17 19:22 • (LCSD) R3260674-2 10/25/17 19:42

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	0.0239	96.0	95.5	79.0-120			0.480	20
Bromodichloromethane	0.0250	0.0229	0.0224	91.8	89.7	76.0-120			2.32	20
Bromoform	0.0250	0.0209	0.0216	83.8	86.4	67.0-132			3.03	20
Bromomethane	0.0250	0.0289	0.0283	116	113	18.0-160			2.20	20
n-Butylbenzene	0.0250	0.0240	0.0241	96.0	96.4	72.0-126			0.360	20
sec-Butylbenzene	0.0250	0.0248	0.0249	99.3	99.6	74.0-121			0.340	20
tert-Butylbenzene	0.0250	0.0244	0.0240	97.7	96.0	75.0-122			1.73	20
Carbon tetrachloride	0.0250	0.0225	0.0222	90.1	88.9	63.0-122			1.29	20
Chlorobenzene	0.0250	0.0258	0.0247	103	98.7	79.0-121			4.49	20
Chlorodibromomethane	0.0250	0.0248	0.0236	99.1	94.4	75.0-125			4.88	20
Chloroethane	0.0250	0.0274	0.0270	109	108	47.0-152			1.45	20
Chloroform	0.0250	0.0234	0.0236	93.5	94.3	72.0-121			0.880	20
Chloromethane	0.0250	0.0285	0.0286	114	115	48.0-139			0.330	20
2-Chlorotoluene	0.0250	0.0256	0.0253	102	101	74.0-122			1.30	20
4-Chlorotoluene	0.0250	0.0251	0.0251	100	100	79.0-120			0.0600	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0221	0.0219	88.3	87.4	64.0-127			1.00	20
1,2-Dibromoethane	0.0250	0.0251	0.0241	101	96.6	77.0-123			4.03	20
Dibromomethane	0.0250	0.0235	0.0231	94.2	92.3	78.0-120			2.08	20
1,2-Dichlorobenzene	0.0250	0.0237	0.0235	94.7	94.1	80.0-120			0.720	20
1,3-Dichlorobenzene	0.0250	0.0241	0.0234	96.4	93.5	72.0-123			3.00	20
1,4-Dichlorobenzene	0.0250	0.0239	0.0234	95.6	93.6	77.0-120			2.15	20
Dichlorodifluoromethane	0.0250	0.0242	0.0251	96.8	100	49.0-155			3.62	20
1,1-Dichloroethane	0.0250	0.0260	0.0262	104	105	70.0-126			0.680	20
1,2-Dichloroethane	0.0250	0.0263	0.0260	105	104	67.0-126			1.25	20
1,1-Dichloroethene	0.0250	0.0242	0.0249	96.8	99.6	64.0-129			2.81	20
cis-1,2-Dichloroethene	0.0250	0.0231	0.0235	92.4	94.1	73.0-120			1.84	20
trans-1,2-Dichloroethene	0.0250	0.0237	0.0240	94.8	96.1	71.0-121			1.29	20
1,2-Dichloropropane	0.0250	0.0257	0.0252	103	101	75.0-125			1.96	20
1,1-Dichloropropene	0.0250	0.0249	0.0246	99.7	98.5	71.0-129			1.27	20
1,3-Dichloropropane	0.0250	0.0256	0.0250	102	100	80.0-121			2.14	20
cis-1,3-Dichloropropene	0.0250	0.0242	0.0233	96.7	93.3	79.0-123			3.51	20
trans-1,3-Dichloropropene	0.0250	0.0246	0.0233	98.4	93.3	74.0-127			5.32	20
2,2-Dichloropropane	0.0250	0.0232	0.0226	92.9	90.4	60.0-125			2.79	20
Di-isopropyl ether	0.0250	0.0292	0.0290	117	116	59.0-133			0.730	20
Ethylbenzene	0.0250	0.0259	0.0243	103	97.4	77.0-120			6.02	20
Hexachloro-1,3-butadiene	0.0250	0.0198	0.0205	79.1	82.2	64.0-131			3.87	20
Isopropylbenzene	0.0250	0.0226	0.0231	90.6	92.5	75.0-120			2.06	20
p-Isopropyltoluene	0.0250	0.0244	0.0238	97.4	95.4	74.0-126			2.13	20
2-Butanone (MEK)	0.125	0.149	0.155	119	124	37.0-158			3.95	20
Methylene Chloride	0.0250	0.0246	0.0246	98.5	98.6	66.0-121			0.120	20

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

(LCS) R3260674-1 10/25/17 19:22 • (LCSD) R3260674-2 10/25/17 19:42

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	0.146	0.140	117	112	59.0-143			3.79	20
Methyl tert-butyl ether	0.0250	0.0240	0.0241	96.2	96.3	64.0-123			0.0800	20
Naphthalene	0.0250	0.0234	0.0237	93.5	94.7	62.0-128			1.24	20
n-Propylbenzene	0.0250	0.0244	0.0246	97.4	98.6	79.0-120			1.15	20
Styrene	0.0250	0.0225	0.0227	89.9	90.8	78.0-124			0.940	20
1,1,1,2-Tetrachloroethane	0.0250	0.0250	0.0241	100	96.5	75.0-122			3.65	20
1,1,2,2-Tetrachloroethane	0.0250	0.0238	0.0234	95.3	93.5	71.0-122			1.88	20
Tetrachloroethene	0.0250	0.0248	0.0243	99.1	97.0	70.0-127			2.13	20
Toluene	0.0250	0.0253	0.0247	101	98.9	77.0-120			2.52	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0249	0.0246	99.4	98.6	61.0-136			0.890	20
1,2,3-Trichlorobenzene	0.0250	0.0221	0.0227	88.4	90.7	61.0-133			2.58	20
1,2,4-Trichlorobenzene	0.0250	0.0223	0.0228	89.0	91.2	69.0-129			2.47	20
1,1,1-Trichloroethane	0.0250	0.0250	0.0247	100	98.6	68.0-122			1.58	20
1,1,2-Trichloroethane	0.0250	0.0251	0.0241	100	96.4	78.0-120			3.85	20
Trichloroethene	0.0250	0.0250	0.0251	100	101	78.0-120			0.550	20
Trichlorofluoromethane	0.0250	0.0270	0.0265	108	106	56.0-137			1.72	20
1,2,3-Trichloropropane	0.0250	0.0242	0.0247	96.7	98.7	72.0-124			2.03	20
1,2,3-Trimethylbenzene	0.0250	0.0244	0.0241	97.7	96.6	75.0-120			1.15	20
1,2,4-Trimethylbenzene	0.0250	0.0244	0.0237	97.5	94.9	75.0-120			2.68	20
1,3,5-Trimethylbenzene	0.0250	0.0249	0.0250	99.6	100	75.0-120			0.480	20
Vinyl chloride	0.0250	0.0277	0.0277	111	111	64.0-133			0.230	20
Xylenes, Total	0.0750	0.0744	0.0720	99.2	96.0	77.0-120			3.28	20
(S) Toluene-d8				*110*	*106*	*80.0-120*				
(S) Dibromofluoromethane				*103*	*102*	*76.0-123*				
(S) 4-Bromofluorobenzene				*95.7*	*98.8*	*80.0-120*				

L945487-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945487-01 10/26/17 03:05 • (MS) R3260674-4 10/26/17 03:24 • (MSD) R3260674-5 10/26/17 03:44

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	0.160	0.173	128	138	1	10.0-139			7.87	25
Acrolein	0.125	U	0.156	0.195	125	156	1	10.0-160			22.0	25
Acrylonitrile	0.125	U	0.164	0.173	131	138	1	46.0-159			5.29	23
Benzene	0.0250	U	0.0277	0.0274	111	110	1	34.0-147			0.810	20
Bromobenzene	0.0250	U	0.0243	0.0262	97.1	105	1	51.0-137			7.53	20
Bromodichloromethane	0.0250	U	0.0270	0.0267	108	107	1	52.0-135			1.20	20
Bromoform	0.0250	U	0.0236	0.0255	94.2	102	1	50.0-146			8.00	20
Bromomethane	0.0250	U	0.0331	0.0324	132	130	1	10.0-160			2.23	23

L945487-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945487-01 10/26/17 03:05 • (MS) R3260674-4 10/26/17 03:24 • (MSD) R3260674-5 10/26/17 03:44

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	U	0.0183	0.0217	73.3	87.0	1	50.0-144			17.1	20
sec-Butylbenzene	0.0250	U	0.0203	0.0234	81.1	93.5	1	48.0-143			14.2	20
tert-Butylbenzene	0.0250	U	0.0210	0.0231	84.2	92.4	1	50.0-142			9.34	20
Carbon tetrachloride	0.0250	U	0.0224	0.0227	89.7	90.7	1	41.0-138			1.06	20
Chlorobenzene	0.0250	U	0.0253	0.0260	101	104	1	52.0-141			2.72	20
Chlorodibromomethane	0.0250	U	0.0276	0.0285	110	114	1	54.0-142			3.28	20
Chloroethane	0.0250	U	0.0316	0.0314	126	125	1	23.0-160			0.640	20
Chloroform	0.0250	U	0.0283	0.0282	113	113	1	50.0-139			0.130	20
Chloromethane	0.0250	U	0.0320	0.0315	128	126	1	14.0-151			1.50	20
2-Chlorotoluene	0.0250	U	0.0235	0.0255	94.0	102	1	48.0-142			8.20	20
4-Chlorotoluene	0.0250	U	0.0229	0.0248	91.7	99.2	1	52.0-139			7.84	20
1,2-Dibromo-3-Chloropropane	0.0250	U	0.0267	0.0294	107	118	1	49.0-144			9.52	24
1,2-Dibromoethane	0.0250	U	0.0295	0.0303	118	121	1	54.0-140			2.68	20
Dibromomethane	0.0250	U	0.0286	0.0293	114	117	1	53.0-138			2.37	20
1,2-Dichlorobenzene	0.0250	U	0.0221	0.0247	88.6	98.7	1	56.0-139			10.8	20
1,3-Dichlorobenzene	0.0250	U	0.0216	0.0237	86.5	94.7	1	50.0-141			8.97	20
1,4-Dichlorobenzene	0.0250	U	0.0221	0.0243	88.4	97.2	1	53.0-136			9.43	20
Dichlorodifluoromethane	0.0250	U	0.0232	0.0240	92.8	95.9	1	20.0-160			3.33	21
1,1-Dichloroethane	0.0250	U	0.0308	0.0310	123	124	1	47.0-143			0.610	20
1,2-Dichloroethane	0.0250	U	0.0326	0.0332	130	133	1	47.0-141			1.72	20
1,1-Dichloroethene	0.0250	U	0.0254	0.0257	101	103	1	31.0-148			1.38	20
cis-1,2-Dichloroethene	0.0250	0.000286	0.0276	0.0278	109	110	1	43.0-142			0.830	20
trans-1,2-Dichloroethene	0.0250	U	0.0259	0.0258	104	103	1	36.0-141			0.640	20
1,2-Dichloropropane	0.0250	U	0.0301	0.0300	120	120	1	51.0-141			0.380	20
1,1-Dichloropropene	0.0250	U	0.0245	0.0249	98.0	99.4	1	42.0-146			1.39	20
1,3-Dichloropropane	0.0250	U	0.0303	0.0315	121	126	1	58.0-139			3.82	20
cis-1,3-Dichloropropene	0.0250	U	0.0257	0.0266	103	106	1	53.0-139			3.40	20
trans-1,3-Dichloropropene	0.0250	U	0.0267	0.0271	107	108	1	51.0-143			1.51	20
2,2-Dichloropropane	0.0250	U	0.0268	0.0266	107	106	1	43.0-139			0.890	20
Di-isopropyl ether	0.0250	U	0.0396	0.0399	158	160	1	44.0-144	J5	J5	0.890	20
Ethylbenzene	0.0250	U	0.0242	0.0247	96.9	99.0	1	42.0-147			2.08	20
Hexachloro-1,3-butadiene	0.0250	U	0.00935	0.0132	37.4	52.6	1	44.0-146	J6	J3	33.9	21
Isopropylbenzene	0.0250	U	0.0207	0.0226	82.8	90.2	1	48.0-141			8.53	20
p-Isopropyltoluene	0.0250	0.00111	0.0200	0.0229	75.4	87.2	1	49.0-146			13.7	20
2-Butanone (MEK)	0.125	U	0.209	0.219	168	175	1	12.0-149	J5	J5	4.58	24
Methylene Chloride	0.0250	U	0.0303	0.0310	121	124	1	42.0-135			2.50	20
4-Methyl-2-pentanone (MIBK)	0.125	U	0.199	0.205	159	164	1	44.0-160		J5	2.97	22
Methyl tert-butyl ether	0.0250	U	0.0340	0.0341	136	136	1	42.0-142			0.200	20
Naphthalene	0.0250	U	0.0222	0.0269	88.8	108	1	42.0-146			19.1	24
n-Propylbenzene	0.0250	U	0.0215	0.0238	85.9	95.4	1	47.0-144			10.5	20

L945487-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945487-01 10/26/17 03:05 • (MS) R3260674-4 10/26/17 03:24 • (MSD) R3260674-5 10/26/17 03:44

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	U	0.0196	0.0219	78.3	87.7	1	47.0-147			11.4	20
1,1,1,2-Tetrachloroethane	0.0250	U	0.0270	0.0275	108	110	1	52.0-140			1.75	20
1,1,2,2-Tetrachloroethane	0.0250	U	0.0299	0.0320	120	128	1	46.0-149			6.78	20
Tetrachloroethene	0.0250	0.000466	0.0227	0.0232	89.1	90.8	1	38.0-147			1.85	20
Toluene	0.0250	U	0.0253	0.0259	101	104	1	42.0-141			2.15	20
1,1,2-Trichlorotrifluoroethane	0.0250	U	0.0233	0.0240	93.1	96.0	1	40.0-151			3.12	21
1,2,3-Trichlorobenzene	0.0250	U	0.0167	0.0214	66.7	85.5	1	45.0-145		J3	24.7	22
1,2,4-Trichlorobenzene	0.0250	U	0.0170	0.0215	68.1	86.2	1	49.0-147		J3	23.5	21
1,1,1-Trichloroethane	0.0250	U	0.0264	0.0265	106	106	1	46.0-140			0.460	20
1,1,2-Trichloroethane	0.0250	U	0.0300	0.0307	120	123	1	54.0-139			2.48	20
Trichloroethene	0.0250	0.000553	0.0246	0.0253	96.3	98.9	1	32.0-156			2.56	20
Trichlorofluoromethane	0.0250	U	0.0269	0.0274	108	110	1	32.0-152			1.70	20
1,2,3-Trichloropropane	0.0250	U	0.0309	0.0323	123	129	1	54.0-143			4.50	21
1,2,3-Trimethylbenzene	0.0250	U	0.0231	0.0250	92.3	99.8	1	48.0-138			7.79	20
1,2,4-Trimethylbenzene	0.0250	U	0.0217	0.0236	86.8	94.5	1	41.0-146			8.57	20
1,3,5-Trimethylbenzene	0.0250	U	0.0226	0.0249	90.2	99.5	1	44.0-143			9.71	20
Vinyl chloride	0.0250	U	0.0296	0.0289	118	116	1	24.0-153			2.24	20
Xylenes, Total	0.0750	U	0.0717	0.0737	95.6	98.3	1	41.0-148			2.75	20
(S) Toluene-d8					*107*	*107*		*80.0-120*				
(S) Dibromofluoromethane					*104*	*102*		*76.0-123*				
(S) 4-Bromofluorobenzene					*97.7*	*99.4*		*80.0-120*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.

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		

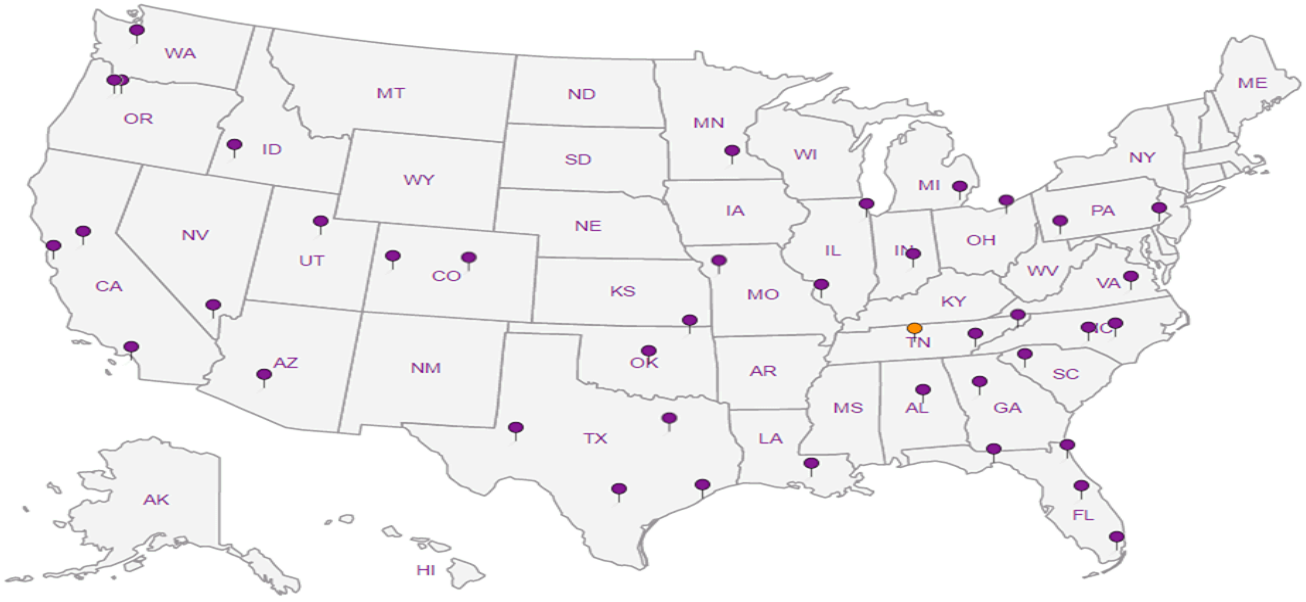
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	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.**



Company Name/Address:
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1142 Bramwood Pl.
Longmont, CO 80501

Billing Information:
SAME

Report to:
Michael Skridulis

Email To:
mjskridulis@terracon.com

Project Discription: Rider #1

City/State Collected: Longmont CO

Phone: **303-776-3921**
Fax: **303-776-4041**

Client Project #
22177021

Lab Project #

Collected by (print):
M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature):
M. Sk

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed
STANDARD
Email? ___No ✓Yes
FAX? ___No ___Yes

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	V8260 (3) 40ml Amber w/HCl	RSK175 Methatne,Ethane,Ethylene (2) 40ml Amber w/HCl	Ca,Mg,Na,Fe,K Sr- 250ml HDPE No Pres	Br,Cl,SO4,NO2,NO3 - 250ml HDPE No Pres	Alk - 125ml HDPENo PRes	CO2 - 250ml HDPE No Pres	Rem./Contaminant	Sample # (lab only)
MW-05R	G	GW		10/19/17	1150	9	X	X	X	X	X	X		01
MW-06R		GW			1255		X	X	X	X	X	X		02
MW-04R		GW			1335		X	X	X	X	X	X		03
MW-03R		GW			1400		X	X	X	X	X	X		04
MW-01R		GW			1430		X	X	X	X	X	X		05
MW-02R	↓	GW		↓	1510	↓	X	X	X	X	X	X		06
		~~GW~~ MS												

Chain of Custody Page 1 of 1

ESC LABS
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 945438
B122
Acctnum: TERRALCO
Template:
Prelogin:
TSR:
PB:
Shipped Via:

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other_____

Remarks: Fedex: 7466 1468 3257

pH _____ Temp _____
Flow _____ Other _____

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
M.Sk	10/20/17	1500	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Kate Mol 063

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 2.8 °C Bottles Received: 45
Date: 10/21/17 Time: 0845

Condition: (lab use only)
COC Seal Intact: ✓ Y ___N ___NA
pH Checked: NCF: X

ESC LAB SCIENCES
Cooler Receipt Form

Client:	TERRACON	SDG#	945438
Cooler Received/Opened On:	10/21/17	Temperature:	2-8
Received by:	Kate Moffitt		
Signature:	Kate Moffitt		

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

Matt Shacklock

ESC Lab Sciences
Non-Conformance Form

Login #945438	Client: TERRALCO	Date:10/21	Evaluated by:Matt S

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courier
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: Metals received not preserved

Client informed by:		Call		Email	X	Voice Mail		Date:10/25/17	Time:1029
TSR Initials:DR	Client Contact: MS								

Login Instructions:

Dissolved metals. Filter in lab

ANALYTICAL REPORT

October 25, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L945508
Samples Received:	10/21/2017
Project Number:	22177021
Description:	Rider #1

Report To: Mike Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
Technical Service Representative

TABLE OF CONTENTS

SVP-04 L945508-01 Air

Collected by: M. Skridulis
Collected date/time: 10/19/17 15:40
Received date/time: 10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1034524	2	10/23/17 21:25	10/23/17 21:25	AMC
Organic Compounds (GC) by Method D1946	WG1034280	1	10/23/17 10:22	10/23/17 10:22	AMC

SVP-05 L945508-02 Air

Collected by: M. Skridulis
Collected date/time: 10/19/17 16:00
Received date/time: 10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1034524	2	10/23/17 22:09	10/23/17 22:09	AMC
Organic Compounds (GC) by Method D1946	WG1034280	1	10/23/17 10:34	10/23/17 10:34	AMC

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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 (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	12.8	30.4		2	WG1034524
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1034524
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1034524
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1034524
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1034524
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1034524
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1034524
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1034524
Carbon disulfide	75-15-0	76.10	0.400	1.24	0.459	1.43		2	WG1034524
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1034524
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1034524
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1034524
Chloroform	67-66-3	119	0.400	1.95	0.420	2.05		2	WG1034524
Chloromethane	74-87-3	50.50	0.400	0.826	0.401	0.827		2	WG1034524
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1034524
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1034524
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1034524
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1034524
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1034524
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	0.448	2.69		2	WG1034524
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1034524
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1034524
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1034524
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1034524
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1034524
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1034524
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1034524
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1034524
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1034524
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1034524
Ethanol	64-17-5	46.10	1.26	2.38	20.9	39.3		2	WG1034524
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1034524
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1034524
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1034524
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1034524
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1034524
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1034524
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1034524
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1034524
n-Hexane	110-54-3	86.20	0.400	1.41	0.884	3.12		2	WG1034524
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1034524
Methylene Chloride	75-09-2	84.90	0.400	1.39	7.40	25.7		2	WG1034524
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1034524
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1034524
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1034524
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1034524
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1034524
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1034524
2-Propanol	67-63-0	60.10	2.50	6.15	15.7	38.5		2	WG1034524
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1034524
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1034524
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1034524
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1034524
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1034524
Toluene	108-88-3	92.10	0.400	1.51	2.65	9.97		2	WG1034524
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1034524

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1034524
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1034524
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1034524
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1034524
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1034524
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1034524
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1034524
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1034524
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1034524
m&p-Xylene	1330-20-7	106	0.800	3.47	1.23	5.34		2	WG1034524
o-Xylene	95-47-6	106	0.400	1.73	0.496	2.15		2	WG1034524
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*97.3*				WG1034524

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	15.4		1	WG1034280
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1034280
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1034280
Methane	74-82-8	16	0.400	ND		1	WG1034280

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	22.6	53.6		2	WG1034524
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1034524
Benzene	71-43-2	78.10	0.400	1.28	0.423	1.35		2	WG1034524
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1034524
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1034524
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1034524
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1034524
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1034524
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.14	3.54		2	WG1034524
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1034524
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1034524
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1034524
Chloroform	67-66-3	119	0.400	1.95	0.543	2.64		2	WG1034524
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1034524
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1034524
Cyclohexane	110-82-7	84.20	0.400	1.38	0.691	2.38		2	WG1034524
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1034524
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1034524
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1034524
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	0.477	2.87		2	WG1034524
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1034524
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1034524
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1034524
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1034524
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1034524
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1034524
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1034524
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1034524
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1034524
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1034524
Ethanol	64-17-5	46.10	1.26	2.38	14.6	27.6		2	WG1034524
Ethylbenzene	100-41-4	106	0.400	1.73	0.463	2.01		2	WG1034524
4-Ethyltoluene	622-96-8	120	0.400	1.96	0.569	2.79		2	WG1034524
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1034524
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1034524
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1034524
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1034524
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1034524
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1034524
n-Hexane	110-54-3	86.20	0.400	1.41	1.48	5.23		2	WG1034524
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1034524
Methylene Chloride	75-09-2	84.90	0.400	1.39	6.17	21.4		2	WG1034524
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1034524
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1034524
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1034524
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1034524
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1034524
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1034524
2-Propanol	67-63-0	60.10	2.50	6.15	7.15	17.6		2	WG1034524
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1034524
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1034524
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1034524
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1034524
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.770	2.27		2	WG1034524
Toluene	108-88-3	92.10	0.400	1.51	3.06	11.5		2	WG1034524
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1034524

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1034524
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1034524
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1034524
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	0.956	4.69		2	WG1034524
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	0.418	2.05		2	WG1034524
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1034524
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1034524
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1034524
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1034524
m&p-Xylene	1330-20-7	106	0.800	3.47	1.60	6.93		2	WG1034524
o-Xylene	95-47-6	106	0.400	1.73	0.761	3.30		2	WG1034524
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*115*				WG1034524

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	ND		1	WG1034280
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1034280
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1034280
Methane	74-82-8	16	0.400	ND		1	WG1034280

Method Blank (MB)

(MB) R3259795-3 10/23/17 09:01

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3259795-3 10/23/17 09:01

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*97.3*			*60.0-140*

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

(LCS) R3259795-1 10/23/17 07:29 • (LCSD) R3259795-2 10/23/17 08:14

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.10	4.10	109	109	52.0-158			0.180	25
Propene	3.75	4.06	4.07	108	109	54.0-155			0.370	25
Dichlorodifluoromethane	3.75	3.59	3.55	95.6	94.6	69.0-143			1.12	25
1,2-Dichlorotetrafluoroethane	3.75	3.94	3.92	105	104	70.0-130			0.500	25
Chloromethane	3.75	4.06	3.82	108	102	70.0-130			6.06	25

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

(LCS) R3259795-1 10/23/17 07:29 • (LCSD) R3259795-2 10/23/17 08:14

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.92	3.85	105	103	70.0-130			1.89	25
1,3-Butadiene	3.75	3.82	3.80	102	101	70.0-130			0.630	25
Bromomethane	3.75	3.28	3.27	87.5	87.2	70.0-130			0.280	25
Chloroethane	3.75	3.62	3.21	96.6	85.6	70.0-130			12.0	25
Trichlorofluoromethane	3.75	3.92	3.89	104	104	70.0-130			0.650	25
1,1,2-Trichlorotrifluoroethane	3.75	3.92	3.91	104	104	70.0-130			0.0200	25
1,1-Dichloroethene	3.75	4.02	4.01	107	107	70.0-130			0.320	25
1,1-Dichloroethane	3.75	3.95	3.96	105	106	70.0-130			0.130	25
Acetone	3.75	4.03	4.05	107	108	70.0-130			0.590	25
2-Propanol	3.75	4.16	4.16	111	111	66.0-150			0.0200	25
Carbon disulfide	3.75	4.00	3.96	107	106	70.0-130			0.950	25
Methylene Chloride	3.75	3.92	3.90	104	104	70.0-130			0.430	25
MTBE	3.75	4.02	4.05	107	108	70.0-130			0.610	25
trans-1,2-Dichloroethene	3.75	4.02	4.03	107	107	70.0-130			0.270	25
n-Hexane	3.75	4.03	4.04	108	108	70.0-130			0.160	25
Vinyl acetate	3.75	4.27	4.31	114	115	70.0-130			0.750	25
Methyl Ethyl Ketone	3.75	4.05	4.08	108	109	70.0-130			0.860	25
cis-1,2-Dichloroethene	3.75	4.02	4.02	107	107	70.0-130			0.150	25
Chloroform	3.75	3.91	3.91	104	104	70.0-130			0.0800	25
Cyclohexane	3.75	3.99	3.99	106	106	70.0-130			0.150	25
1,1,1-Trichloroethane	3.75	3.92	3.92	105	105	70.0-130			0.0100	25
Carbon tetrachloride	3.75	3.90	3.90	104	104	70.0-130			0.0700	25
Benzene	3.75	3.93	3.95	105	105	70.0-130			0.290	25
1,2-Dichloroethane	3.75	3.95	3.96	105	105	70.0-130			0.0600	25
Heptane	3.75	4.07	4.06	109	108	70.0-130			0.260	25
Trichloroethylene	3.75	3.94	3.92	105	105	70.0-130			0.470	25
1,2-Dichloropropane	3.75	3.94	3.94	105	105	70.0-130			0.140	25
1,4-Dioxane	3.75	4.12	4.13	110	110	70.0-152			0.240	25
Bromodichloromethane	3.75	3.97	3.94	106	105	70.0-130			0.680	25
cis-1,3-Dichloropropene	3.75	4.07	4.08	108	109	70.0-130			0.210	25
4-Methyl-2-pentanone (MIBK)	3.75	4.30	4.31	115	115	70.0-142			0.280	25
Toluene	3.75	3.97	3.99	106	107	70.0-130			0.630	25
trans-1,3-Dichloropropene	3.75	4.04	4.07	108	109	70.0-130			0.850	25
1,1,2-Trichloroethane	3.75	3.90	3.94	104	105	70.0-130			1.06	25
Tetrachloroethylene	3.75	3.92	3.92	104	104	70.0-130			0.0300	25
Methyl Butyl Ketone	3.75	4.42	4.44	118	119	70.0-150			0.460	25
Dibromochloromethane	3.75	4.01	4.01	107	107	70.0-130			0.0400	25
1,2-Dibromoethane	3.75	3.94	3.96	105	106	70.0-130			0.310	25
Chlorobenzene	3.75	3.88	3.90	104	104	70.0-130			0.460	25
Ethylbenzene	3.75	4.08	4.11	109	110	70.0-130			0.690	25

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

(LCS) R3259795-1 10/23/17 07:29 • (LCSD) R3259795-2 10/23/17 08:14

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	8.18	8.23	109	110	70.0-130			0.570	25
o-Xylene	3.75	4.16	4.17	111	111	70.0-130			0.200	25
Styrene	3.75	4.25	4.27	113	114	70.0-130			0.580	25
Bromoform	3.75	4.16	4.21	111	112	70.0-130			1.25	25
1,1,2,2-Tetrachloroethane	3.75	4.05	4.09	108	109	70.0-130			0.830	25
4-Ethyltoluene	3.75	4.24	4.26	113	114	70.0-130			0.470	25
1,3,5-Trimethylbenzene	3.75	4.23	4.27	113	114	70.0-130			0.910	25
1,2,4-Trimethylbenzene	3.75	4.21	4.23	112	113	70.0-130			0.390	25
1,3-Dichlorobenzene	3.75	4.14	4.17	111	111	70.0-130			0.630	25
1,4-Dichlorobenzene	3.75	4.25	4.28	113	114	70.0-130			0.620	25
Benzyl Chloride	3.75	4.42	4.48	118	119	70.0-144			1.42	25
1,2-Dichlorobenzene	3.75	4.10	4.13	109	110	70.0-130			0.570	25
1,2,4-Trichlorobenzene	3.75	4.38	4.52	117	121	70.0-155			3.22	25
Hexachloro-1,3-butadiene	3.75	4.21	4.24	112	113	70.0-145			0.680	25
Naphthalene	3.75	4.40	4.51	117	120	70.0-155			2.36	25
Allyl Chloride	3.75	4.07	4.07	109	109	70.0-130			0.0200	25
2-Chlorotoluene	3.75	4.21	4.22	112	113	70.0-130			0.210	25
Methyl Methacrylate	3.75	4.08	4.11	109	110	70.0-130			0.660	25
Tetrahydrofuran	3.75	4.10	4.09	109	109	70.0-140			0.150	25
2,2,4-Trimethylpentane	3.75	4.08	4.07	109	109	70.0-130			0.230	25
Vinyl Bromide	3.75	3.92	3.88	104	104	70.0-130			0.870	25
Isopropylbenzene	3.75	4.14	4.16	110	111	70.0-130			0.390	25
(S) 1,4-Bromofluorobenzene				*100*	*100*	*60.0-140*				

Method Blank (MB)

(MB) R3259687-3 10/23/17 07:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Oxygen	U		0.225	2.00
Carbon Monoxide	U		0.665	2.00
Carbon Dioxide	U		0.121	0.500
Methane	U		0.0584	0.400

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

(LCS) R3259687-1 10/23/17 06:40 • (LCSD) R3259687-2 10/23/17 07:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	%	%	%	%	%	%			%	%
Oxygen	3.50	4.07	3.39	116	96.9	70.0-130			18.0	20
Carbon Monoxide	3.50	3.71	3.44	106	98.4	70.0-130			7.48	20
Carbon Dioxide	3.50	3.14	2.97	89.7	84.9	70.0-130			5.56	20
Methane	2.80	2.56	2.63	91.3	94.0	70.0-130			2.91	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

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		

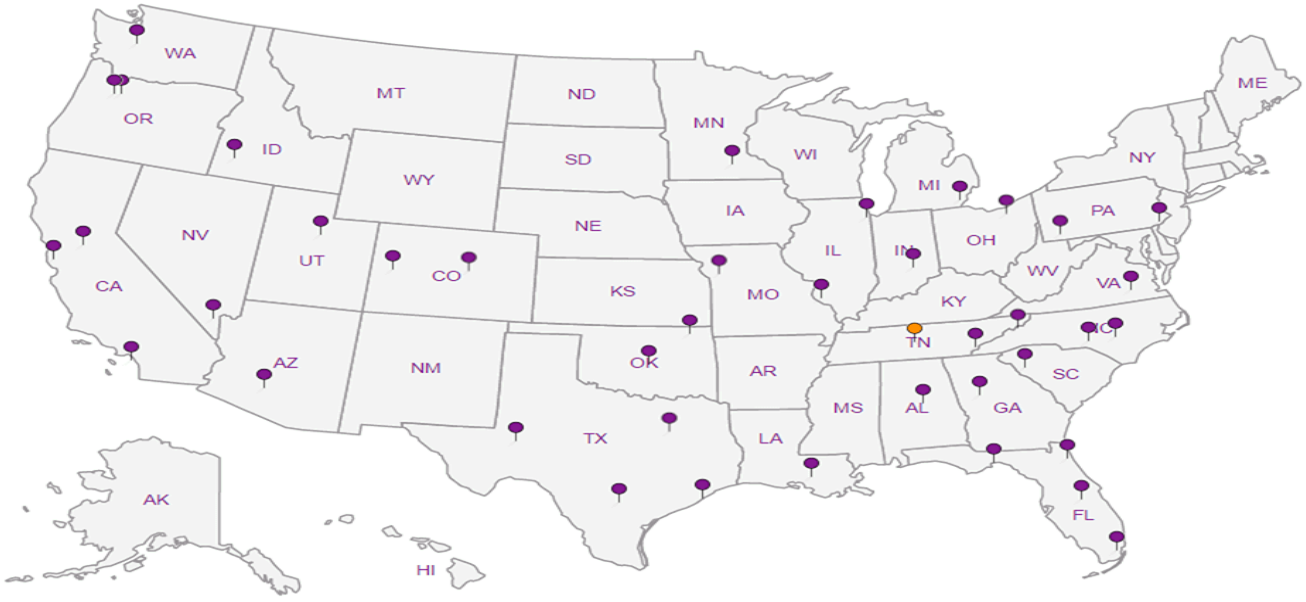
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	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.**



Chain of Custody Page 1 of 1

ESC LAB SCIENCES
a subsidiary of Pace Analytical

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 945588

Table #

Acctnum: TERRALCO

Template: T128889

Prelogin: P622465

TSR: Daphne Richards

PB: TG 10-11-17

Shipped Via: Ground

Company Name/Address:
Terracon - Longmont
1242 Bramwood Place
Longmont, CO 80501

Billing Information:
SAME

Report to: Michael Skridulis

Email To: mjskridulis@terracon.com

Project Description: Rider #1

City/State Collected: Longmont, CO

Phone: 303-454-5249
Fax: 303-776-4041

Client Project # 22177021

Lab Project #

Collected by (print): M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature): M. Sk

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: STANDARD

Email? ___No X Yes
FAX? X No ___Yes

Canister Pressure/Vacuum

Analysis: VOC's - TO-15; fixed gasses (methane) - D1946

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	Rem./Contaminant	Sample # (lab only)
SVP-04	Soil Vapor	7339	10/19/17	1540	23"	8"		01
SVP-05	Soil Vapor	8562	10/19/17	1600	26"	7"		02

Remarks: Fed ex: 7466 1468 3202

Hold #

Condition: (lab use only)

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
M. Sk	10/20/17	1500	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Jean Mills

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____

Temp: Amb °C Bottles Received: 5

Date: 10/21/17 Time: 0845

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: TERRALCO	SDG#	945588
Cooler Received/Opened On: 10/2/17	Temperature:	Amb
Received by: Sean Mills		
Signature: Sean Mills		

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

ANALYTICAL REPORT

November 10, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L949174
Samples Received:	10/20/2017
Project Number:	22177021
Description:	Rider #1

Report To: Mike Skridulis
1242 Bramwood Place
Longmont, CO 80501

Entire Report Reviewed By:

Jason Romer
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SB-11 10-12 L949174-01 Solid

Collected by	Collected date/time	Received date/time
M. Skridulis	10/18/17 10:40	10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1040844	1	11/09/17 14:25	11/10/17 01:41	KMP

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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Jason Romer
Technical Service Representative

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Acenaphthene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Acenaphthylene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Benzo(a)anthracene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Benzo(a)pyrene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Benzo(b)fluoranthene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Benzo(g,h,i)perylene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Benzo(k)fluoranthene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Chrysene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Dibenz(a,h)anthracene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Fluoranthene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Fluorene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Indeno(1,2,3-cd)pyrene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Naphthalene	ND	T8	0.0200	1	11/10/2017 01:41	WG1040844
Phenanthrene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
Pyrene	ND	T8	0.00600	1	11/10/2017 01:41	WG1040844
1-Methylnaphthalene	ND	T8	0.0200	1	11/10/2017 01:41	WG1040844
2-Methylnaphthalene	ND	T8	0.0200	1	11/10/2017 01:41	WG1040844
2-Chloronaphthalene	ND	T8	0.0200	1	11/10/2017 01:41	WG1040844
(S) p-Terphenyl-d14	*48.3*		*23.0-120*		*11/10/2017 01:41*	WG1040844
(S) Nitrobenzene-d5	*66.7*		*14.0-149*		*11/10/2017 01:41*	WG1040844
(S) 2-Fluorobiphenyl	*44.5*		*34.0-125*		*11/10/2017 01:41*	WG1040844

Method Blank (MB)

(MB) R3264557-3 11/09/17 19:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	*90.2*			*14.0-149*
(S) 2-Fluorobiphenyl	*94.3*			*34.0-125*
(S) p-Terphenyl-d14	*84.1*			*23.0-120*

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

(LCS) R3264557-1 11/09/17 18:44 • (LCSD) R3264557-2 11/09/17 19:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0679	0.0571	84.8	71.4	50.0-125			17.2	20
Acenaphthene	0.0800	0.0674	0.0567	84.2	70.9	52.0-120			17.2	20
Acenaphthylene	0.0800	0.0675	0.0571	84.3	71.3	51.0-120			16.7	20
Benzo(a)anthracene	0.0800	0.0665	0.0549	83.2	68.6	46.0-121			19.2	20
Benzo(a)pyrene	0.0800	0.0596	0.0506	74.5	63.3	42.0-121			16.2	20
Benzo(b)fluoranthene	0.0800	0.0627	0.0534	78.4	66.8	42.0-123			16.0	20
Benzo(g,h,i)perylene	0.0800	0.0681	0.0575	85.1	71.9	43.0-128			16.9	20
Benzo(k)fluoranthene	0.0800	0.0726	0.0611	90.8	76.3	45.0-128			17.3	20
Chrysene	0.0800	0.0671	0.0562	83.8	70.3	48.0-127			17.6	20
Dibenz(a,h)anthracene	0.0800	0.0707	0.0589	88.4	73.6	43.0-132			18.2	20
Fluoranthene	0.0800	0.0711	0.0602	88.9	75.2	49.0-129			16.7	20

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

(LCS) R3264557-1 11/09/17 18:44 • (LCSD) R3264557-2 11/09/17 19:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0667	0.0557	83.4	69.7	50.0-120			17.9	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0687	0.0580	85.8	72.4	44.0-131			16.9	20
Naphthalene	0.0800	0.0662	0.0563	82.8	70.4	50.0-120			16.2	20
Phenanthrene	0.0800	0.0655	0.0552	81.8	69.0	48.0-120			17.0	20
Pyrene	0.0800	0.0629	0.0521	78.7	65.1	48.0-135			18.9	20
1-Methylnaphthalene	0.0800	0.0647	0.0578	80.9	72.2	52.0-122			11.4	20
2-Methylnaphthalene	0.0800	0.0625	0.0560	78.1	70.0	52.0-120			11.1	20
2-Chloronaphthalene	0.0800	0.0689	0.0584	86.1	73.1	50.0-120			16.4	20
(S) Nitrobenzene-d5				*91.9*	*78.3*	*14.0-149*				
(S) 2-Fluorobiphenyl				*96.3*	*80.8*	*34.0-125*				
(S) p-Terphenyl-d14				*88.2*	*73.2*	*23.0-120*				

L948804-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L948804-02 11/09/17 21:40 • (MS) R3264557-4 11/09/17 22:02 • (MSD) R3264557-5 11/09/17 22:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0347	0.0348	37.8	37.9	1	20.0-136			0.310	24
Acenaphthene	0.0800	ND	0.0277	0.0258	32.4	30.0	1	29.0-124			7.17	20
Acenaphthylene	0.0800	ND	0.0261	0.0240	32.7	30.0	1	35.0-120	J6	J6	8.68	20
Benzo(a)anthracene	0.0800	ND	0.0431	0.0414	50.9	48.7	1	13.0-132			4.02	27
Benzo(a)pyrene	0.0800	ND	0.0451	0.0441	54.3	53.2	1	14.0-138			2.12	27
Benzo(b)fluoranthene	0.0800	ND	0.0371	0.0379	43.4	44.4	1	10.0-129			2.18	31
Benzo(g,h,i)perylene	0.0800	ND	0.0422	0.0409	49.2	47.5	1	10.0-133			3.28	30
Benzo(k)fluoranthene	0.0800	ND	0.0487	0.0454	59.8	55.7	1	15.0-131			7.00	27
Chrysene	0.0800	ND	0.0517	0.0490	62.2	58.9	1	15.0-137			5.37	25
Dibenz(a,h)anthracene	0.0800	ND	0.0512	0.0499	64.0	62.4	1	15.0-132			2.57	27
Fluoranthene	0.0800	ND	0.0375	0.0359	39.4	37.4	1	13.0-139			4.35	28
Fluorene	0.0800	0.00888	0.0338	0.0327	31.2	29.7	1	27.0-122			3.46	22
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0445	0.0434	53.7	52.3	1	11.0-133			2.63	29
Naphthalene	0.0800	0.0412	0.0762	0.0704	43.7	36.5	1	18.0-136			7.87	21
Phenanthrene	0.0800	0.0233	0.0485	0.0465	31.5	29.0	1	15.0-133			4.22	25
Pyrene	0.0800	0.00907	0.0404	0.0392	39.2	37.6	1	11.0-146			3.12	29
1-Methylnaphthalene	0.0800	0.0387	0.0646	0.0659	32.4	34.1	1	24.0-137			2.04	22
2-Methylnaphthalene	0.0800	0.0617	0.0856	0.0859	29.9	30.3	1	23.0-136			0.340	22
2-Chloronaphthalene	0.0800	ND	0.0302	0.0276	37.7	34.5	1	36.0-120		J6	9.07	20
(S) Nitrobenzene-d5					*81.7*	*72.1*		*14.0-149*				
(S) 2-Fluorobiphenyl					*39.6*	*31.1*		*34.0-125*		J2		
(S) p-Terphenyl-d14					*67.0*	*55.5*		*23.0-120*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
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.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

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		

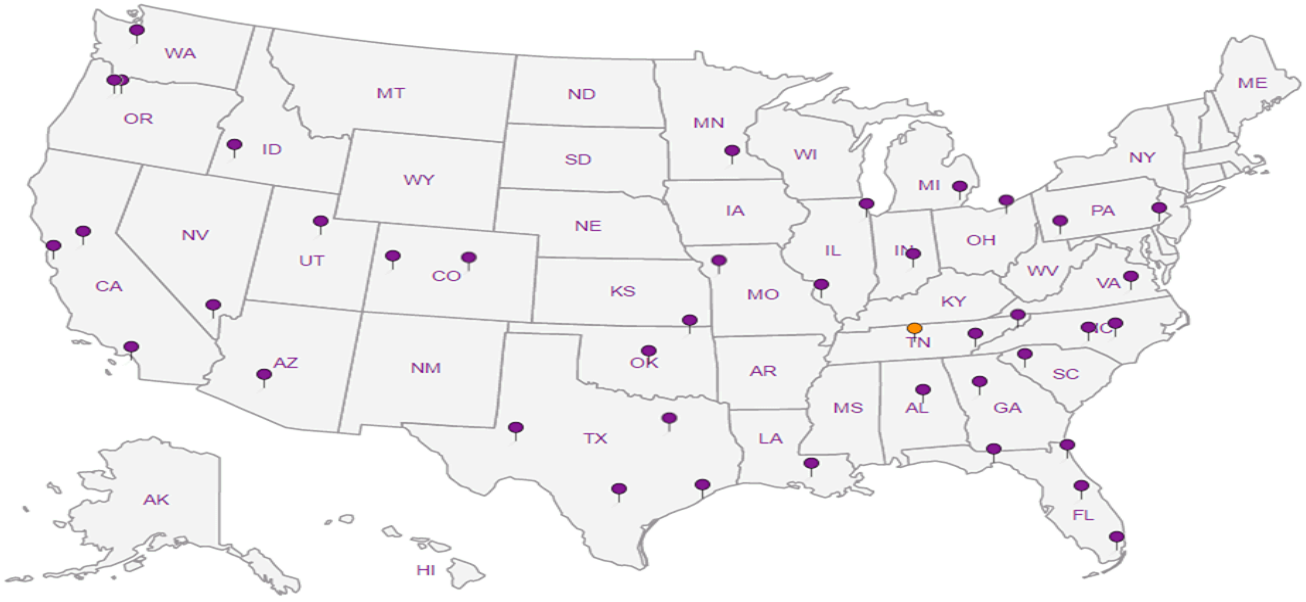
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	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.**



Company Name/Address:
Terracon - Longmont
1242 Bramwood Pl.
Longmont, CO 80501

Billing Information:
SAME

Report to:
Michael Skridulis

Email To:
mjskridulis@terracon.com

Project Description: Rider #1

City/State Collected: Longmont CO

Phone: 303-776-3921
Fax: 303-776-4041

Client Project #
22177021

Lab Project #

Collected by (print):
M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature):
M. Sk
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed
STANDARD

Email? ___No ✓Yes
FAX? ___No ___Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VB260 - 4oz Soil Jar	TPH-GRO - 2oz Soil Jar	TPH-DRO - 4oz Soil Jar	TPH-ORO - 4oz Soil Jar	Sample # (lab only)
SB-07 (10-12)	G	SS		10/18/17	0845	4	X	X	X	X	-01
SB-08 (6-8)		SS			0910	4	X	X	X	X	-02
SB-09 (6-8)		SS			0940	4	X	X	X	X	-03
SB-10 (7-9)		SS			1010	4	X	X	X	X	-04
SB-11 (10-12)		SS			1040	4	X	X	X	X	-05

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

ESC LAB SCIENCES
YOUR LAB OF CHOICE
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L949540
Table #
Acctnum: TERRALCO
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Remk./Containment

N 11/8/17
E020
L949174

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Fedex: 4094 8307 3870

pH ____ Temp ____
Flow ____ Other ____

Hold #

Condition: (lab use only) TOU OK

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
M. Sk	10/19/17	1000	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____

Temp: 2.1 °C Bottles Received: 20

Date: 10/20/17 Time: 8:45

Andy Vann

From: Daphne Richards
Sent: Wednesday, November 08, 2017 10:15 AM
To: Login
Subject: Relog L945404 TERRALCO

Please relog L945404-05 for SV8270PAHSIM

Thanks

Daphne Richards
Project Manager
ESC Lab Sciences-a subsidiary of Pace Analytical
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