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Limited Soil, Groundwater, and Soil Gas Investigation

George Mayeda #1 Oil and Gas Well Site
Longmont, Colorado

December 19, 2017
Terracon Project No. 22177019

Prepared for:
City of Longmont
Longmont, Colorado

Prepared by:
Terracon Consultants, Inc.
Longmont, Colorado

December 19, 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
George Mayeda #1 Oil and Gas Well Site
Longmont, Colorado
Terracon Project No. 22177019

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 (P22177019), dated August 8, 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.
Senior Principal/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. P22177019, dated August 8, 2017. A total of three soil borings (SB-01 through SB-03), which were converted to groundwater monitoring wells (MW-01 through MW-03), and three soil vapor points (SVP-01 through SVP-03) were installed at the site to evaluate potential petroleum impacted soil, groundwater, and soil gas based on historical oil and gas (O&G) extraction operations at the site. Soil, groundwater, and soil vapor samples were collected and analyzed in accordance with the procedures outlined in Section 3 of this report.

The original scope of services called for the installation and sampling of two SVPs. Due to former well location discrepancies between Colorado Oil and Gas Conservation Commission (COGCC) records and Ute Creek Golf Course blueprints; on the day of field activities, the client requested Terracon to install an additional SVP (SVP-03) during drilling activities. After preliminary analytical results from SVP-01 through SVP-03 were received from the laboratory and discussed with the client, Terracon was directed to install three additional SVPs (SVP-04 through SVP-06) to assist in further delineation of soil vapor contaminants of concern at the site. The details and laboratory analytical results of the installation and sampling of the additional SVPs are discussed in this report.

Additionally, the client requested a ground penetrating radar (GPR) survey be completed to assess if any underground flowlines still existed in the vicinity of the former well head location or along the eastern edge of the property along Pace Street.

A summary of our findings, conclusions, and recommendations is provided below. 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 consists of firm silt from approximately 0 to 6 feet bgs, underlain by well graded sand and gravel to approximately 12 feet bgs. Layers of saturated sands and gravel with some small clay lenses were observed to approximately 13 feet bgs and weathered claystone was observed to soil boring termination at approximately 15 feet bgs. The depth to groundwater ranged from 9 to 13 feet bgs observed during drilling activities.

No evidence of possible utilities or buried metallic objects were identified in the areas scanned during the GPR survey.

Volatile organic compound (VOC) constituents were reported at concentrations above laboratory detection limits in the groundwater samples collected from monitoring well MW-01 (toluene and 1,2,4-trimethylbenzene) and MW-02 (1,2,4-trimethylbenzene). These reported concentrations did not exceed their respective regulatory action levels for groundwater.

VOC constituents detected in the soil gas samples were compared to the 2016 Colorado Department of Public Health and Environment (CDPHE) Indoor Air Screening Concentrations (ASC) – Residential and Worker Remediation Goals, and the June 2017 United States Environmental Protection Agency (USEPA) 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 2 of Appendix A 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, benzyl chloride, chloroform, ethylbenzene, and 1,1,2,2 tetrachloroethane were reported in soil gas at concentrations exceeding USEPA residential RSLs. Chloroform can be a by-product to the use of chlorine, which is commonly used as a sterilizer found in potable water from water treatment processes. Ethylbenzene and 1,1,2,2 tetrachloroethane are hydrocarbons typically associated with production of O&G constituents. Benzyl chloride in gaseous phase can commonly be an off-gas byproduct of the reaction between toluene (O&G production) and chlorine (potable water). Methane was not reported in any of the soil gas samples collected as part of this investigation above its respective laboratory detection limit. Based on laboratory analytical detections, the site soil gas is potentially impacted with VOCs.

Conclusions

Soil gas at the site has been impacted by a potential release characteristic of petroleum spills. Benzyl chloride, chloroform, ethylbenzene, and 1,1,2,2 tetrachloroethane were detected in soil gas at concentrations exceeding their respective USEPA residential RSLs. The potential source of constituents in the soil gas concentrations could have originated from former oil and gas operations on the property, although the source of these constituents is currently unknown and soil and groundwater samples did not report levels of constituents above their respective regulatory action levels. Sampling points are currently only installed on City of Longmont property. Due to the limited sampling points, it is currently unknown if any soil, groundwater, or soil gas is impacted off-site. Although concentrations of benzyl chloride, ethylbenzene, and 1,1,2,2 tetrachloroethane were reported above respective regulatory action levels, based on the proximity to off-site buildings, vapor intrusion risk for concentrations reported at SVP-01 is currently considered low.

Recommendations

Terracon recommends pursuing additional investigation on off-site properties to the north of the former well head location to assist in identifying any potential off-site impacts and to evaluate any potential concerns for human health and environment.

1.0 SITE DESCRIPTION

Site Name	George Mayeda #1 O&G Well Site
Site Location	South of 689 Glenarbor Circle, 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 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, groundwater, and soil gas at select locations.

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

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.

3.2 Sampling and Analytical Program Summary

On October 18, 2017, a total of three soil borings (SB-01 through SB-03), which were converted to groundwater monitoring wells (MW-01 through MW-03), and three soil vapor points (SVP-01 through SVP-03) were installed at the site. 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. Refer to the attached Site Diagram (Exhibit 2, Appendix A) for a depiction of the sample locations and pertinent site features.

On October 30, 2017, three additional SVPs (SVP-04 through SVP-06) were installed at the site as requested by the client. The SVP locations were selected to assist in further delineation of soil vapor contaminants of concern at the site. The sampling and analytical program is outlined below.

SAMPLING AND ANALYTICAL PROGRAM	
Area of Concern	**George Mayeda #1 O&G Well Site**
Soil Borings (Total Depth)	SB-01 through SB-03 (15 feet)
Groundwater	MW-01 through MW-03
Soil Vapor Points	SVP-01 through SVP-06
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 – SM 2320B Strontium – 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 4-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 attached 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. 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

After soil borings were completed to depth and soil samples were collected, the soil borings were completed as groundwater monitoring wells. 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. The monitoring wells were fitted with J-plug well caps and bolt-down, flush-mounted well covers set in concrete. The well construction details are provided on the soil boring logs presented in Appendix C.

On October 20, 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 9.67 feet below top of monitoring well casing (TOC) in MW-03 to 9.90 feet below TOC in MW-01. Monitoring wells MW-01 and MW-02 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 well MW-03 was installed as a 1-inch monitoring well and, therefore, was developed by removing water from the well until the well was void of water and was measured to be "dry". Monitoring wells MW-01 through MW-03 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 six SVPs at the site. SVP-01 through SVP-03 were installed on October 18, 2017 and SVP-04 through SVP-06 were installed on October 30, 2017. SVP-01 through SVP-03 were installed in the vicinity of the former O&G well head for collection of soil gas samples for laboratory analysis. After receiving results from SVP-01 through SVP-03, the client requested Terracon install additional SVPs. SVP-04 through SVP-06 were installed along the perimeter of the City of Longmont property to expand the radius of the soil gas investigation. 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 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 by an Environmental Professional on October 20 (SVP-01 through SVP-03) and November 2 (SVP-04 through SVP-06, allowing the soil gas points time to equilibrate. 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.

3.3.4 Ground Penetrating Radar Survey

The purpose of this geophysical exploration was to gather information to aid in identifying the presence and approximate locations of any anomalies consistent with a metal flowline piping from historical O&G activities by using ground penetrating radar (GPR).

Terracon used a GPR system consisting of a 400 MHz antenna and cart developed by Geophysical Survey Systems, Inc. (GSSI) to perform an upper profile geophysical survey. In general, field data collection followed the procedures referenced in ASTM D6432.

GPR data was collected using a rough 5-foot by 5-foot grid in a 100-foot radius of the former well head location and an area approximately 20-feet wide by 300-feet long from Wyndemere Drive to the south along the west side of Pace Street. Any anomalies found were marked on site with white flags. No post-processing was conducted on the GPR data.

Subsurface anomalies indicated by the geophysical survey result from variability in subsurface conditions. Subsurface investigations would be needed to confirm actual characteristics of anomalies indicated by the geophysical surveys.

4.0 FIELD INVESTIGATION RESULTS

4.1 Geology/Hydrogeology

The boring logs contained in Appendix C detail the observed soil stratigraphy. In general, Terracon encountered firm silt from approximately 0 to 6 feet bgs, underlain by well graded sand and gravel to approximately 12 feet bgs. Layers of saturated sands and gravel with some small clay lenses were observed to approximately 13 feet bgs and weathered claystone was observed to soil boring termination at approximately 15 feet bgs. The depth to groundwater ranged from approximately 9 to 13 feet bgs observed during drilling activities.

4.2 Field Screening

The field screening results are summarized on the boring logs contained in Appendix C. PID readings were not observed above 1 part per million (ppm) in any of the soil samples collected from the soil borings as part of this investigation.

4.3 Ground Penetrating Radar

Effective depth of penetration for the GPR survey with the 400 MHz antenna was approximately 4 to 5 feet bgs. No evidence of possible utilities or buried metallic objects were identified in the areas scanned. Several small anomalies not associated with utilities were found throughout the site and flagged. Based on the non-contiguous nature of the anomalies, these anomalies indicate possible buried metallic objects, not necessarily a metal pipe.

It should be noted the GPR survey process relies on instrument signals to indicate physical conditions in the field. Signal information can be affected by on-site conditions beyond the control of the operator, such as, but not limited to, surface features, concrete/soil types, soil moisture, groundwater table depth, and/or reinforcing steel spacing. Interpretation of those signals is based on a combination of known factors combined with the experience of the operator and geophysical scientist evaluating the results. Conventional observation, sampling, and testing of select areas would be needed to confirm the results from the geophysical surveys. As with all geophysical methods, the geophysical results provide a level of confidence, but should not be considered absolute.

The results presented in this report are based upon the data obtained from the geophysical surveys and from other information discussed in this report. This report does not reflect variations that may occur in areas inaccessible to the geophysical equipment, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident without subsurface investigations.

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, USEPA, Residential and Industrial RSLs, and USEPA 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 Air Screening Concentrations (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

VOC, TPH-GRO, TPH-DRO, and TPH-ORO constituents were not reported at concentrations above laboratory detection limits in any of the soil samples collected during this investigation.

5.2 Groundwater Sample Results

The groundwater 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 groundwater samples collected from monitoring well MW-01 (toluene and 1,2,4-trimethylbenzene) and MW-02 (1,2,4-trimethylbenzene). These reported concentrations did not exceed their respective regulatory action levels for groundwater.

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-01 (420,000 µg/L), MW-02 (416,000 µg/L), and MW-03 (395,000 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 1.245 to 1.543 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 in a range from 7.64 to 7.94.

5.3 Soil Gas Sample Results

VOC constituents reported 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 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 2 (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: benzyl chloride, chloroform, ethylbenzene, and 1,1,2,2-tetrachloroethane.

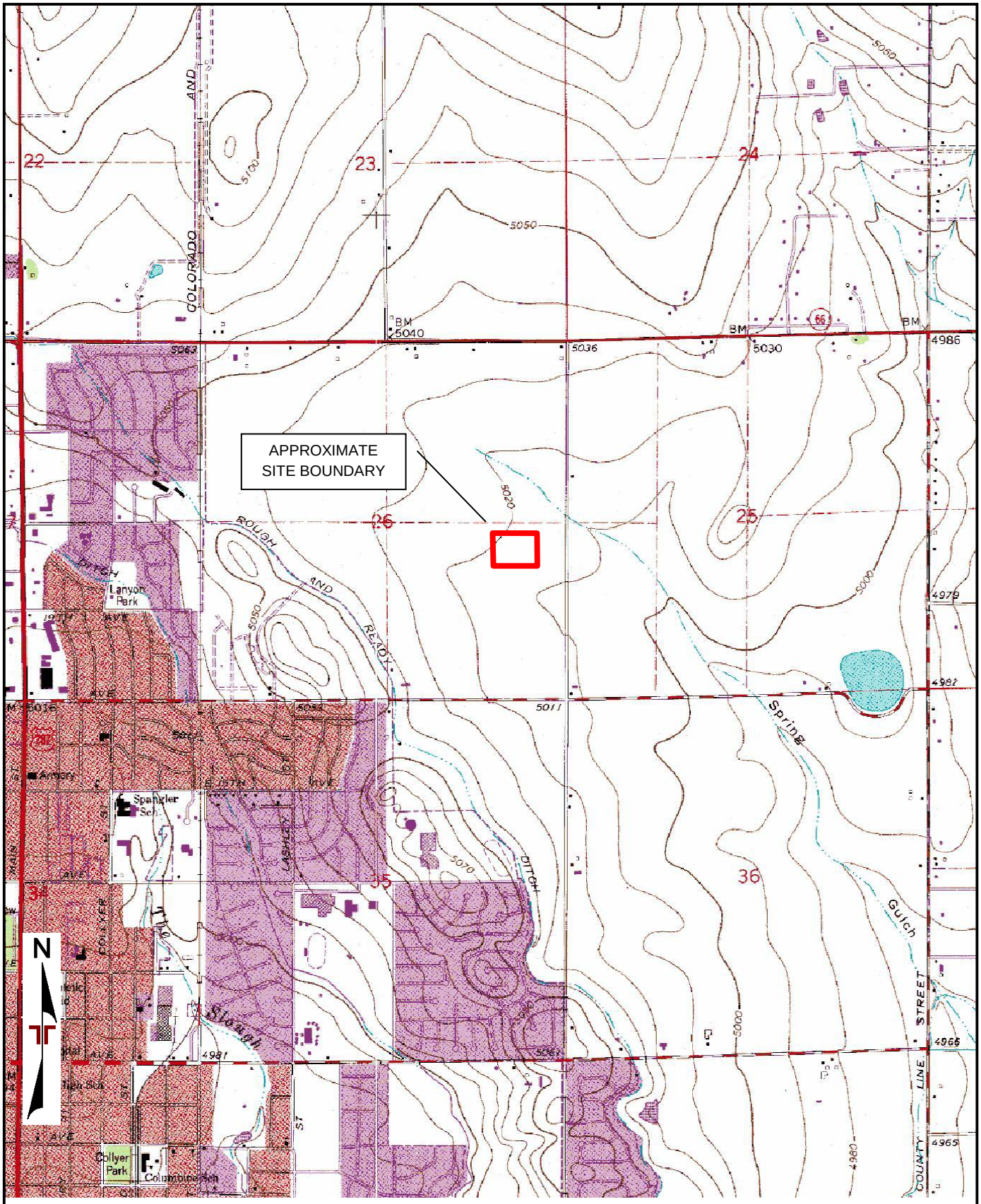
Methane was not detected in any of the soil gas samples collected as part of this investigation above its respective laboratory detection limit.

APPENDIX A – EXHIBITS

Exhibit 1 – Topographic Map

Exhibit 2 – Site Diagram

Exhibit 3 – Groundwater Contour Map



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

Project Manager: MJS	Project No. 22177019	Terracon 1242 Bramwood Pl Longmont, CO 80501-6100	TOPOGRAPHIC MAP	Exhibit
Drawn by: MJS	Scale: 1"=2,000'		George Mayeda #1 Well Site Investigation Longmont, CO	1
Checked by: DAB	File Name: 22177019			
Approved by: JCG	Date: 12/18/2017			

0 20' 40' 80'

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.	22177019
Scale:	AS-SHOWN
File No.	22177019.DWG
Date:	12.12.2017

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

SITE DIAGRAM

GEORGE MAYEDA #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No. 2

0 20' 40' 80'

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
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Date:	12.12.2017

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POTENTIOMETRIC SURFACE MAP (4Q 2017)

GEORGE MAYEDA #1
CITY OF LONGMONT
LONGMONT, COLORADO

EXHIBIT No.
3

APPENDIX B – TABLES

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

Table 1
Groundwater Analytical Summary
George Mayeda #1 Well Site
Longmont, Colorado
Terracon Project No. 22177019

Sample ID			MW-01	MW-02	MW-03
Collect Date			**10/20/17**	**10/20/17**	**10/20/17**
Parameter	**CDPHE Reg. 41 Groundwater Standard[1]**	**COGCC Concentration Levels[2]**	**µg/L**	**µg/L**	**µg/L**
VOC (8260B)					
Toluene	**560 to 1,000**	**560 to 1,000[M]**	**1.02**	<100	<100
1,2,4-Trimethylbenzene	**NE**	**NE**	**1.35**	**1.47**	<100
Other Organics					
Methane	**NE**	**NE**	<10	<10	<10
Ethane	**NE**	**NE**	<13	<13	<13
Ethene	**NE**	**NE**	<13	<13	<13
Inorganic Parameters					
Calcium, Dissolved	**NE**	**NE**	**120,000**	**122,000**	**110,000**
Iron, Dissolved	**300 to 5,000[M]**	**NE**	<100	<100	<100
Magnesium, Dissolved	**NE**	**NE**	**85,800**	**70,200**	**90,400**
Potassium, Dissolved	**NE**	**NE**	**9,330**	**12,100**	**5,230**
Sodium, Dissolved	**NE**	**NE**	**131,000**	**129,000**	**131,000**
Strontium	**NE**	**NE**	**2,500**	**1,970**	**2,860**
Alkalinity, Carbonate (CaCO3)	**NE**	**NE**	**343,000**	**306,000**	**331,000**
Bromide	**NE**	**NE**	<1,000	<1,000	<1,000
Chloride	**250,000**	**52,160***	**42,300**	**48,500**	**38,500**
Nitrogen as Nitrate	**10,000**	**NE**	**3,600**	**3,410**	**4,150**
Nitrogen as Nitrite	**1,000**	**NE**	<100	<100	<100
Nitrogen as Nitrate and Nitrite	**10,000**	**NE**	**3,600**	**3,410**	**4,150**
Sulfate	**250,000**	**832,400***	**420,000**	**416,000**	**395,000**
Sulfide, Total	**NE**	**NE**	**420,000**	**416,000**	**395,000**
General Parameters					
Specific Conductance (mmhos)	**NE**	**NE**	1.543	1.496	1.245
Temperature (°C)	**NE**	**NE**	16.83	16.56	16.64
Dissolved Oxygen (mg/L)	**NE**	**NE**	4.95	5.21	7.12
ORP	**NE**	**NE**	-151.8	-64.5	-47.2
pH	**6.5-8.5**	**NE**	7.75	7.94	7.64

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 2
Soil Gas Analytical Summary
George Mayeda #1 Well Site
Longmont, Colorado
Terracon Project No. 22177019

Sample ID			SVP-01	SVP-02	SVP-03	SVP-04	SVP-05	SVP-06
Collect Date			10/20/2017	10/20/2017	10/20/2017	11/2/2017	11/2/2017	11/2/2017
Parameter	Residential RSL	Residential VISL[1]	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
VOC (TO-15)								
Acetone	**32,000**	**1,066,667**	**48.2**	**51.2**	**45.2**	**42.3**	**49.5**	**32.7**
Benzene	**0.36**	**12**	**9.8**	**6.11**	<1.28	**4.83**	**5.79**	**2.51**
Benzyl Chloride	**0.057**	**2**	**6.17**	<2.08	<2.08	<2.08	<2.08	<2.08
Carbon disulfide	**73**	**2,433**	**2.16**	**10.3**	<1.24	**4.27**	**3.53**	**1.83**
Chloroform	**0.12**	**4**	**5.6**	**4.78**	<1.95	**5.5**	**11.3**	<1.95
2-Chlorotoluene	**NE**	**NE**	**4.65**	<2.06	<2.06	**2.74**	<2.06	<2.06
Cyclohexane	**630**	**21,000**	**4.61**	**1.88**	<1.38	<1.38	**11.9**	**2.3**
1,3-Dichlorobenzene	**NE**	**NE**	**11.9**	**22.6**	**4.84**	<2.4	<2.4	<2.4
Ethanol	**NE**	**NE**	**12.9**	**18.7**	**32**	**1.11**	**7.77**	**17.6**
Ethylbenzene	**1.1**	**37**	**38.5**	**11.1**	**2.36**	**7.9**	**8.66**	**5.17**
4-Ethyltoluene	**NE**	**NE**	**107**	**19.1**	**2.13**	**5.87**	**6.02**	**4.25**
Dichlorodifluoromethane	**100**	**3,333**	**4.05**	<1.98	<1.98	**2.3**	<1.98	**2.55**
Heptane	**NE**	**NE**	**7.28**	**8.13**	<1.64	**3.82**	**6.37**	**4.31**
n-Hexane	**730**	**24,333**	**5.18**	**4.11**	**2.67**	**9.06**	**12.1**	**12.4**
Isopropylbenzene	**420**	**14,000**	**4.72**	**2.2**	<1.97	<1.97	<1.97	<1.97
Methylene Chloride	**100**	**3,333**	**2.09**	**9.34**	**10.2**	<1.39	<1.39	<1.39
Methyl Butyl Ketone	**31**	**1,033**	**12.9**	**21.5**	<10.2	<10.2	<10.2	<10.2
2-Butanone (MEK)	**5,200**	**173,333**	<7.37	<7.37	<7.37	<7.37	**8.85**	<7.37
Methyl methacrylate	**730**	**24,333**	<1.64	<1.64	<1.64	<1.64	**2.49**	<1.64
2-Propanol	**210**	**7,000**	**35**	**50.3**	**33**	**13**	**12.7**	**12**
Propene	**3,100**	**103,333**	**1.53**	<1.38	**1.55**	<1.38	**1.53**	**6.69**
1,1,2,2-Tetrachloroethane	**0.048**	**2**	**2.79**	<2.75	<2.75	<2.75	<2.75	<2.75
Tetrahydrofuran	**2,100**	**70,000**	**3.59**	**2.83**	<1.18	**2.25**	**4.17**	**1.99**
Toluene	**5,200**	**173,333**	**91.4**	**57.7**	**21.5**	**50.5**	**54.5**	**24.8**
Trichloroethylene	**0.48**	**16**	<2.14	<2.14	<2.14	**2.36**	<2.14	<2.14
1,2,4-Trimethylbenzene	**7.3**	**243**	**142**	**28**	**2.94**	**7.53**	**7.53**	**4.82**
1,3,5-Trimethylbenzene	**NE**	**NE**	**44.5**	**8.15**	<1.96	**2.16**	**2.84**	<1.96
2,2,4-Trimethylpentane	**NE**	**NE**	**8.39**	**5.24**	<1.87	**5.87**	**21.7**	**2.4**
m&p-Xylene	**100**	**3,333**	**161**	**44.1**	**8.66**	**29**	**31.8**	**19.5**
o-Xylene	**100**	**3,333**	**51.2**	**14.6**	**3.02**	**8.71**	**9.47**	**5.71**
Methane by D1946 (%)								
Methane	**NE**	**NE**	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4

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)
ASC = CDPHE Air Screening Concentrations, Remediation Goals (January 2016)
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. SVP-01

PROJECT: George Mayeda #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: Well Completion:	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		SILT (ML), brown, dry	Top cap Bentonite seal Screen pack in sand					
	5.0	***Boring Terminated at 5 Feet***		5				

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 monitoring point

Notes:

WATER LEVEL OBSERVATIONS

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.: 22177019
Exhibit: B-1

WELL LOG NO. SVP-02

PROJECT: George Mayeda #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: Well Completion:	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		SILT (ML), brown, dry	Top cap Bentonite seal Screen pack in sand					
	5.0	***Boring Terminated at 5 Feet***		5				

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 monitoring point

Notes:

WATER LEVEL OBSERVATIONS

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.: 22177019 | Exhibit: B-2

WELL LOG NO. SVP-03

PROJECT: George Mayeda #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: Well Completion:	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		SILT (ML), brown, dry	Top cap; Bentonite seal; Screen pack in sand					
	5.0	***Boring Terminated at 5 Feet***		5				

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 monitoring point

Notes:

WATER LEVEL OBSERVATIONS

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.: 22177019 | Exhibit: B-3

WELL LOG NO. SVP-04

PROJECT: George Mayeda #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: Well Completion:	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		SILT (ML), brown, dry	Top cap Bentonite seal Screen pack in sand					
	5.0	***Boring Terminated at 5 Feet***		5				

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 monitoring point

Notes:

WATER LEVEL OBSERVATIONS

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-30-2017
Well Completed: 10-30-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177019
Exhibit: B-4

WELL LOG NO. SVP-05

PROJECT: George Mayeda #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)
		SILT (ML), brown, dry	Well Completion: Top cap; Bentonite seal; Screen pack in sand					
	5.0	***Boring Terminated at 5 Feet***		5				

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 monitoring point

Notes:

WATER LEVEL OBSERVATIONS

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-30-2017
Well Completed: 10-30-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177019
Exhibit: B-5

WELL LOG NO. SVP-06

PROJECT: George Mayeda #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: Well Completion:	DEPTH (ft)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	OVA/PID (ppm)	PID (ppm)
		SILT (ML), brown, dry	Top cap Bentonite seal Screen pack with sand					
	5.0	***Boring Terminated at 5 Feet***		5				

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 monitoring point

Notes:

WATER LEVEL OBSERVATIONS

Terracon
1901 Sharp Point Dr Ste C
Fort Collins, CO

Well Started: 10-30-2017
Well Completed: 10-30-2017
Drill Rig: Geoprobe
Driller: Drill Pro
Project No.: 22177019
Exhibit: B-6

WELL LOG NO. SB-01/MW-01

PROJECT: George Mayeda #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
	SILT (ML), brown, dry	Flush mount; Bentonite chips with riser pipe
4.0	**SILT (ML)**, tan, dry, brick fragments at 4'	Solid pipe in sand
8.0	**WELL GRADED SAND WITH GRAVEL (SW)**, tannish white, dry, fine to coarse grained	Screen pack in sand
12.0	**WELL GRADED SAND WITH GRAVEL (SW)**, tannish white, wet	
13.0	**CLAYSTONE**, brown, dry, weathered bedrock	
15.0	***Boring Terminated at 15 Feet***	

Well Completion:

DEPTH (ft): 5, 10, 15

WATER LEVEL OBSERVATIONS: ▽ 13.0, during exploration; ▽ 9.90 on 10/20/2017

SAMPLE TYPE

OVA/PID (ppm): ND

PID (ppm)

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

▽ *13.0, during exploration*

▽ *9.90 on 10/20/2017*

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.: 22177019
Exhibit: B-7

WELL LOG NO. SB-02/MW-02

PROJECT: George Mayeda #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)
	FILL - SILT (ML), brown, dry	Flush mount; Bentonite chips with riser pipe; Solid pipe in sand	5				
6.0	**WELL GRADED SAND WITH GRAVEL (SW)**, brown, dry to wet, fine to coarse grained	Screen pack in sand	10	▽ ▽		ND	
13.0	**CLAYSTONE**, brown, dry, weathered bedrock		15				
15.0	***Boring Terminated at 15 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 groundwater monitoring

Notes:

WATER LEVEL OBSERVATIONS

▽ *9.0, during exploration*

▽ *9.80 on 10/20/2017*

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.: 22177019 | Exhibit: B-8

WELL LOG NO. SB-03/MW-03

PROJECT: George Mayeda #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
	SILT (ML), brown, dry	Flush mount Bentonite ships with riser pipe Solid pipe in sand
6.0	**POORLY GRADED SAND WITH GRAVEL (SP)**, tan, dry to wet at 9-10', fine to coarse grained	Screen pack in sand
10.0	**POORLY GRADED SAND WITH CLAY AND GRAVEL (SP-SC)**, brown, wet, layers of clay, sand, gravel	
12.0	**CLAYSTONE**, brown, dry, weathered bedrock	
15.0	***Boring Terminated at 15 Feet***	

Well Completion:

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

OVA/PID (ppm): ND

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

- 9.5, during exploration
- 9.67 on 10/20/2017

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.: 22177019
Exhibit: B-9

APPENDIX D – ANALYTICAL REPORTS AND CHAINS OF CUSTODY

ANALYTICAL REPORT

October 30, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L945402
Samples Received:	10/20/2017
Project Number:	22177019
Description:	George Mayeda #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-01 11-13 L945402-01 Solid

Collected by	Collected date/time	Received date/time
M. Skridulis	10/18/17 14:00	10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034274	1	10/21/17 16:22	10/22/17 23:36	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034261	1.03	10/21/17 16:22	10/24/17 05:48	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 16:50	MTJ

SB-02 6-8 L945402-02 Solid

Collected by	Collected date/time	Received date/time
M. Skridulis	10/18/17 14:20	10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034274	1	10/21/17 16:22	10/23/17 00:11	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034261	1.04	10/21/17 16:22	10/24/17 06:08	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 17:05	MTJ

SB-03 4-6 L945402-03 Solid

Collected by	Collected date/time	Received date/time
M. Skridulis	10/18/17 15:00	10/20/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1034274	1	10/21/17 16:22	10/23/17 00:45	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034261	1.03	10/21/17 16:22	10/24/17 06:28	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1036360	1	10/27/17 08:49	10/27/17 17:19	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.

Jason Romer
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	ND		0.100	1	10/22/2017 23:36	WG1034274
(S) a,a,a-Trifluorotoluene(FID)	*91.3*		*77.0-120*		*10/22/2017 23:36*	WG1034274

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0515	1.03	10/24/2017 05:48	WG1034261
Acrylonitrile	ND		0.0103	1.03	10/24/2017 05:48	WG1034261
Benzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Bromobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Bromodichloromethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Bromoform	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Bromomethane	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
n-Butylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
sec-Butylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
tert-Butylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Carbon tetrachloride	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Chlorobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Chlorodibromomethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Chloroethane	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
Chloroform	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
Chloromethane	ND		0.00258	1.03	10/24/2017 05:48	WG1034261
2-Chlorotoluene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
4-Chlorotoluene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,2-Dibromo-3-Chloropropane	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
1,2-Dibromoethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Dibromomethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,2-Dichlorobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,3-Dichlorobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,4-Dichlorobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Dichlorodifluoromethane	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
1,1-Dichloroethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,2-Dichloroethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,1-Dichloroethene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
cis-1,2-Dichloroethene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
trans-1,2-Dichloroethene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,2-Dichloropropane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,1-Dichloropropene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,3-Dichloropropane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
cis-1,3-Dichloropropene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
trans-1,3-Dichloropropene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
2,2-Dichloropropane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Di-isopropyl ether	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Ethylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Hexachloro-1,3-butadiene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Isopropylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
p-Isopropyltoluene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
2-Butanone (MEK)	ND		0.0103	1.03	10/24/2017 05:48	WG1034261
Methylene Chloride	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
4-Methyl-2-pentanone (MIBK)	ND		0.0103	1.03	10/24/2017 05:48	WG1034261
Methyl tert-butyl ether	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Naphthalene	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
n-Propylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Styrene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,1,1,2-Tetrachloroethane	ND		0.00103	1.03	10/24/2017 05:48	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		0.00103	1.03	10/24/2017 05:48	WG1034261
1,1,2-Trichlorotrifluoroethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Tetrachloroethene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Toluene	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
1,2,3-Trichlorobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,2,4-Trichlorobenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,1,1-Trichloroethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,1,2-Trichloroethane	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Trichloroethene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Trichlorofluoromethane	ND		0.00515	1.03	10/24/2017 05:48	WG1034261
1,2,3-Trichloropropane	ND		0.00258	1.03	10/24/2017 05:48	WG1034261
1,2,4-Trimethylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,2,3-Trimethylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
1,3,5-Trimethylbenzene	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Vinyl chloride	ND		0.00103	1.03	10/24/2017 05:48	WG1034261
Xylenes, Total	ND		0.00309	1.03	10/24/2017 05:48	WG1034261
(S) Toluene-d8	*91.0*		*80.0-120*		*10/24/2017 05:48*	WG1034261
(S) Dibromofluoromethane	*117*		*74.0-131*		*10/24/2017 05:48*	WG1034261
(S) 4-Bromofluorobenzene	*96.3*		*64.0-132*		*10/24/2017 05:48*	WG1034261

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 16:50	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 16:50	WG1036360
(S) o-Terphenyl	*60.3*		*18.0-148*		*10/27/2017 16:50*	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	10/23/2017 00:11	WG1034274
(S) a,a,a-Trifluorotoluene(FID)	*89.9*		*77.0-120*		*10/23/2017 00:11*	WG1034274

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0520	1.04	10/24/2017 06:08	WG1034261
Acrylonitrile	ND		0.0104	1.04	10/24/2017 06:08	WG1034261
Benzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Bromobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Bromodichloromethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Bromoform	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Bromomethane	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
n-Butylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
sec-Butylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
tert-Butylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Carbon tetrachloride	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Chlorobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Chlorodibromomethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Chloroethane	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
Chloroform	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
Chloromethane	ND		0.00260	1.04	10/24/2017 06:08	WG1034261
2-Chlorotoluene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
4-Chlorotoluene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,2-Dibromo-3-Chloropropane	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
1,2-Dibromoethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Dibromomethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,2-Dichlorobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,3-Dichlorobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,4-Dichlorobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Dichlorodifluoromethane	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
1,1-Dichloroethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,2-Dichloroethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,1-Dichloroethene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
cis-1,2-Dichloroethene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
trans-1,2-Dichloroethene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,2-Dichloropropane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,1-Dichloropropene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,3-Dichloropropane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
cis-1,3-Dichloropropene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
trans-1,3-Dichloropropene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
2,2-Dichloropropane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Di-isopropyl ether	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Ethylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Hexachloro-1,3-butadiene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Isopropylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
p-Isopropyltoluene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
2-Butanone (MEK)	ND		0.0104	1.04	10/24/2017 06:08	WG1034261
Methylene Chloride	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
4-Methyl-2-pentanone (MIBK)	ND		0.0104	1.04	10/24/2017 06:08	WG1034261
Methyl tert-butyl ether	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Naphthalene	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
n-Propylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Styrene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,1,1,2-Tetrachloroethane	ND		0.00104	1.04	10/24/2017 06:08	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		0.00104	1.04	10/24/2017 06:08	WG1034261
1,1,2-Trichlorotrifluoroethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Tetrachloroethene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Toluene	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
1,2,3-Trichlorobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,2,4-Trichlorobenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,1,1-Trichloroethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,1,2-Trichloroethane	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Trichloroethene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Trichlorofluoromethane	ND		0.00520	1.04	10/24/2017 06:08	WG1034261
1,2,3-Trichloropropane	ND		0.00260	1.04	10/24/2017 06:08	WG1034261
1,2,4-Trimethylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,2,3-Trimethylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
1,3,5-Trimethylbenzene	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Vinyl chloride	ND		0.00104	1.04	10/24/2017 06:08	WG1034261
Xylenes, Total	ND		0.00312	1.04	10/24/2017 06:08	WG1034261
(S) Toluene-d8	*90.9*		*80.0-120*		*10/24/2017 06:08*	WG1034261
(S) Dibromofluoromethane	*121*		*74.0-131*		*10/24/2017 06:08*	WG1034261
(S) 4-Bromofluorobenzene	*95.6*		*64.0-132*		*10/24/2017 06:08*	WG1034261

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 17:05	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 17:05	WG1036360
(S) o-Terphenyl	*61.3*		*18.0-148*		*10/27/2017 17:05*	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	10/23/2017 00:45	WG1034274
(S) a,a,a-Trifluorotoluene(FID)	*90.8*		*77.0-120*		*10/23/2017 00:45*	WG1034274

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acetone	ND		0.0515	1.03	10/24/2017 06:28	WG1034261
Acrylonitrile	ND		0.0103	1.03	10/24/2017 06:28	WG1034261
Benzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Bromobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Bromodichloromethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Bromoform	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Bromomethane	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
n-Butylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
sec-Butylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
tert-Butylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Carbon tetrachloride	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Chlorobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Chlorodibromomethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Chloroethane	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
Chloroform	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
Chloromethane	ND		0.00258	1.03	10/24/2017 06:28	WG1034261
2-Chlorotoluene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
4-Chlorotoluene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,2-Dibromo-3-Chloropropane	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
1,2-Dibromoethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Dibromomethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,2-Dichlorobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,3-Dichlorobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,4-Dichlorobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Dichlorodifluoromethane	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
1,1-Dichloroethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,2-Dichloroethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,1-Dichloroethene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
cis-1,2-Dichloroethene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
trans-1,2-Dichloroethene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,2-Dichloropropane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,1-Dichloropropene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,3-Dichloropropane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
cis-1,3-Dichloropropene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
trans-1,3-Dichloropropene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
2,2-Dichloropropane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Di-isopropyl ether	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Ethylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Hexachloro-1,3-butadiene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Isopropylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
p-Isopropyltoluene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
2-Butanone (MEK)	ND		0.0103	1.03	10/24/2017 06:28	WG1034261
Methylene Chloride	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
4-Methyl-2-pentanone (MIBK)	ND		0.0103	1.03	10/24/2017 06:28	WG1034261
Methyl tert-butyl ether	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Naphthalene	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
n-Propylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Styrene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,1,1,2-Tetrachloroethane	ND		0.00103	1.03	10/24/2017 06:28	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		0.00103	1.03	10/24/2017 06:28	WG1034261
1,1,2-Trichlorotrifluoroethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Tetrachloroethene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Toluene	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
1,2,3-Trichlorobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,2,4-Trichlorobenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,1,1-Trichloroethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,1,2-Trichloroethane	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Trichloroethene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Trichlorofluoromethane	ND		0.00515	1.03	10/24/2017 06:28	WG1034261
1,2,3-Trichloropropane	ND		0.00258	1.03	10/24/2017 06:28	WG1034261
1,2,4-Trimethylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,2,3-Trimethylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
1,3,5-Trimethylbenzene	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Vinyl chloride	ND		0.00103	1.03	10/24/2017 06:28	WG1034261
Xylenes, Total	ND		0.00309	1.03	10/24/2017 06:28	WG1034261
(S) Toluene-d8	*90.4*		*80.0-120*		*10/24/2017 06:28*	WG1034261
(S) Dibromofluoromethane	*119*		*74.0-131*		*10/24/2017 06:28*	WG1034261
(S) 4-Bromofluorobenzene	*95.5*		*64.0-132*		*10/24/2017 06:28*	WG1034261

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 17:19	WG1036360
C28-C40 Oil Range	ND		4.00	1	10/27/2017 17:19	WG1036360
(S) o-Terphenyl	*45.8*		*18.0-148*		*10/27/2017 17:19*	WG1036360

Method Blank (MB)

(MB) R3259671-5 10/22/17 07:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0268	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*94.5*			*77.0-120*

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

(LCS) R3259671-3 10/22/17 06:13 • (LCSD) R3259671-4 10/22/17 06:35

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	5.12	4.96	93.2	90.3	70.0-136			3.19	20
(S) a,a,a-Trifluorotoluene(FID)				*109*	*109*	*77.0-120*				

L945380-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L945380-02 10/23/17 02:59 • (MS) R3259671-8 10/23/17 04:06 • (MSD) R3259671-9 10/23/17 04:28

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	453	785	788	60.2	60.9	100	10.0-147			0.470	30
(S) a,a,a-Trifluorotoluene(FID)					*99.0*	*99.2*		*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) 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

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.

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		

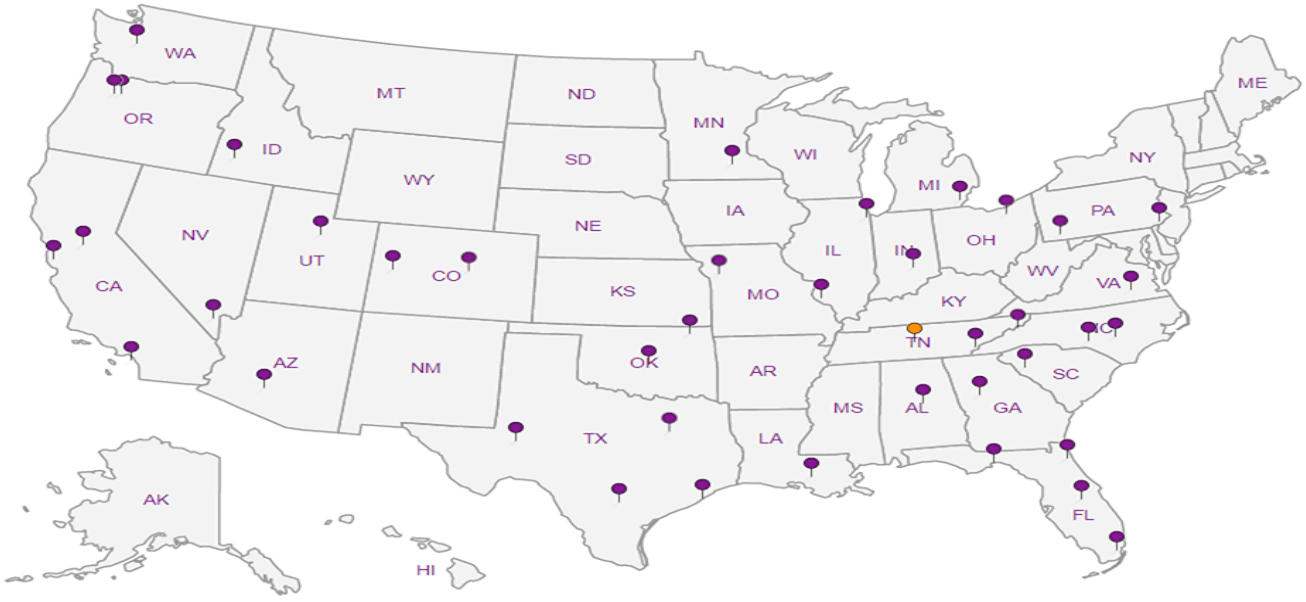
Third Party & Federal Accreditations

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: George Mayeda #1

City/State Collected: Longmont, CO

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

Client Project #
22177019

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 No
___ 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 - 4oz Soil Jar	TPH-GRO - 2oz Soil Jar	TPH-DRO - 4oz Soil Jar	TPH-ORO - 4oz Soil Jar	Rem./Contaminant	Sample # (lab only)
SB-01(11-13)	G	SS		10/18/17	1400	4	X	X	X	X		-01
SB-02(6-8)	↓	SS			1420	4	X	X	X	X		02
SB-03(4-6)	↓	SS		↓	1500	4	X	X	X	X		03

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# L945402

Table E019

Acctnum: TERRALCO

Template:

Prelogin:

TSR:

PB:

Shipped Via:

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

Remarks: Fed ex: 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: 12

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

Condition: (lab use only) OK 4011

COC Seal Intact: ✓ ___Y ___N ___NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: TERRACO	SDG#	L9415402	
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:	L945441
Samples Received:	10/21/2017
Project Number:	22177019
Description:	George Mayeda #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.

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MW-01 L945441-01 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/20/17 11:30	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 20:22	10/24/17 20:22	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1034042	1	10/24/17 20:22	10/24/17 20:22	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 15:01	10/21/17 15:01	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 01:28	10/25/17 01:28	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:54	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 14:12	10/24/17 14:12	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 02:07	10/26/17 02:07	JHH

MW-02 L945441-02 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/20/17 11:50	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1035251	1	10/25/17 11:10	10/25/17 11:10	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1035251	1	10/25/17 11:10	10/25/17 11:10	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 15:46	10/21/17 15:46	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 01:39	10/25/17 01:39	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 16:58	ST
Metals (ICP) by Method 6010B	WG1035670	5	10/26/17 08:47	10/27/17 01:53	CCE
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 14:14	10/24/17 14:14	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 02:26	10/26/17 02:26	JHH

MW-03 L945441-03 GW

Collected by	Collected date/time	Received date/time
M. Skridulis	10/20/17 12:10	10/21/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 2320 B-2011	WG1035251	1	10/25/17 11:28	10/25/17 11:28	CSU
Wet Chemistry by Method 4500CO2 D-2011	WG1035251	1	10/25/17 11:28	10/25/17 11:28	CSU
Wet Chemistry by Method 9056A	WG1034068	1	10/21/17 13:46	10/21/17 13:46	KCF
Wet Chemistry by Method 9056A	WG1034757	10	10/25/17 01:49	10/25/17 01:49	KCF
Metals (ICP) by Method 6010B	WG1035670	1	10/26/17 08:47	10/26/17 17:01	ST
Volatile Organic Compounds (GC) by Method RSK175	WG1034670	1	10/24/17 14:17	10/24/17 14:17	BG
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1034344	1	10/26/17 02:46	10/26/17 02:46	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	343		20.0	1	10/24/2017 20:22	WG1034042

Sample Narrative:
L945441-01 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	ND	T8	20.0	1	10/24/2017 20:22	WG1034042

Sample Narrative:
L945441-01 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 15:01	WG1034068
Chloride	42.3		1.00	1	10/21/2017 15:01	WG1034068
Nitrate as (N)	3.60		0.100	1	10/21/2017 15:01	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 15:01	WG1034068
Sulfate	420		50.0	10	10/25/2017 01:28	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	120		1.00	1	10/26/2017 16:54	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:54	WG1035670
Magnesium,Dissolved	85.8		1.00	1	10/26/2017 16:54	WG1035670
Potassium,Dissolved	9.33		1.00	1	10/26/2017 16:54	WG1035670
Sodium,Dissolved	131		1.00	1	10/26/2017 16:54	WG1035670
Strontium,Dissolved	2.50		0.0100	1	10/26/2017 16:54	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 14:12	WG1034670
Ethane	ND		0.0130	1	10/24/2017 14:12	WG1034670
Ethene	ND		0.0130	1	10/24/2017 14:12	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 02:07	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 02:07	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 02:07	WG1034344
Benzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 02:07	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 02:07	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 02:07	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 02:07	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 02:07	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 02:07	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 02:07	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 02:07	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 02:07	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 02:07	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 02:07	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 02:07	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 02:07	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 02:07	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 02:07	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 02:07	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 02:07	WG1034344
Ethylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Isopropylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
p-Isopropyltoluene	ND		0.00100	1	10/26/2017 02:07	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 02:07	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 02:07	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 02:07	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 02:07	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 02:07	WG1034344
n-Propylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Styrene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Toluene	0.00102		0.00100	1	10/26/2017 02:07	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 02:07	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 02:07	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 02:07	WG1034344
1,2,4-Trimethylbenzene	0.00135		0.00100	1	10/26/2017 02:07	WG1034344
1,2,3-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
1,3,5-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:07	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 02:07	WG1034344
Xylenes, Total	ND		0.00300	1	10/26/2017 02:07	WG1034344
(S) Toluene-d8	*111*		*80.0-120*		*10/26/2017 02:07*	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	*103*		*76.0-123*		*10/26/2017 02:07*	WG1034344
(S) 4-Bromofluorobenzene	*97.9*		*80.0-120*		*10/26/2017 02:07*	WG1034344

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	306		20.0	1	10/25/2017 11:10	WG1035251

Sample Narrative:
L945441-02 WG1035251: 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	10/25/2017 11:10	WG1035251

Sample Narrative:
L945441-02 WG1035251: 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 15:46	WG1034068
Chloride	48.5		1.00	1	10/21/2017 15:46	WG1034068
Nitrate as (N)	3.41		0.100	1	10/21/2017 15:46	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 15:46	WG1034068
Sulfate	416		50.0	10	10/25/2017 01:39	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	122		1.00	1	10/26/2017 16:58	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 16:58	WG1035670
Magnesium,Dissolved	70.2		1.00	1	10/26/2017 16:58	WG1035670
Potassium,Dissolved	12.1		5.00	5	10/27/2017 01:53	WG1035670
Sodium,Dissolved	129		1.00	1	10/26/2017 16:58	WG1035670
Strontium,Dissolved	1.97		0.0100	1	10/26/2017 16:58	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 14:14	WG1034670
Ethane	ND		0.0130	1	10/24/2017 14:14	WG1034670
Ethene	ND		0.0130	1	10/24/2017 14:14	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 02:26	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 02:26	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 02:26	WG1034344
Benzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 02:26	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 02:26	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 02:26	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 02:26	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 02:26	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 02:26	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 02:26	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 02:26	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 02:26	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 02:26	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 02:26	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 02:26	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 02:26	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 02:26	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 02:26	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 02:26	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 02:26	WG1034344
Ethylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Isopropylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
p-Isopropyltoluene	ND		0.00100	1	10/26/2017 02:26	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 02:26	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 02:26	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 02:26	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 02:26	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 02:26	WG1034344
n-Propylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Styrene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Toluene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 02:26	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 02:26	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 02:26	WG1034344
1,2,4-Trimethylbenzene	0.00147		0.00100	1	10/26/2017 02:26	WG1034344
1,2,3-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
1,3,5-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:26	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 02:26	WG1034344
Xylenes, Total	ND		0.00300	1	10/26/2017 02:26	WG1034344
(S) Toluene-d8	*112*		*80.0-120*		*10/26/2017 02:26*	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 02:26*	WG1034344
(S) 4-Bromofluorobenzene	*93.5*		*80.0-120*		*10/26/2017 02:26*	WG1034344

Wet Chemistry by Method 2320 B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Alkalinity	331		20.0	1	10/25/2017 11:28	WG1035251

Sample Narrative:
L945441-03 WG1035251: 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	10/25/2017 11:28	WG1035251

Sample Narrative:
L945441-03 WG1035251: 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 13:46	WG1034068
Chloride	38.5		1.00	1	10/21/2017 13:46	WG1034068
Nitrate as (N)	4.15		0.100	1	10/21/2017 13:46	WG1034068
Nitrite as (N)	ND		0.100	1	10/21/2017 13:46	WG1034068
Sulfate	395		50.0	10	10/25/2017 01:49	WG1034757

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium,Dissolved	110		1.00	1	10/26/2017 17:01	WG1035670
Iron,Dissolved	ND		0.100	1	10/26/2017 17:01	WG1035670
Magnesium,Dissolved	90.4		1.00	1	10/26/2017 17:01	WG1035670
Potassium,Dissolved	5.23		1.00	1	10/26/2017 17:01	WG1035670
Sodium,Dissolved	131		1.00	1	10/26/2017 17:01	WG1035670
Strontium,Dissolved	2.86		0.0100	1	10/26/2017 17:01	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 14:17	WG1034670
Ethane	ND		0.0130	1	10/24/2017 14:17	WG1034670
Ethene	ND		0.0130	1	10/24/2017 14:17	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 02:46	WG1034344
Acrolein	ND		0.0500	1	10/26/2017 02:46	WG1034344
Acrylonitrile	ND		0.0100	1	10/26/2017 02:46	WG1034344
Benzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Bromobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Bromodichloromethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
Bromoform	ND		0.00100	1	10/26/2017 02:46	WG1034344
Bromomethane	ND		0.00500	1	10/26/2017 02:46	WG1034344
n-Butylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
sec-Butylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
tert-Butylbenzene	ND		0.00100	1	10/26/2017 02:46	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 02:46	WG1034344
Chlorobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Chlorodibromomethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
Chloroethane	ND		0.00500	1	10/26/2017 02:46	WG1034344
Chloroform	ND		0.00500	1	10/26/2017 02:46	WG1034344
Chloromethane	ND		0.00250	1	10/26/2017 02:46	WG1034344
2-Chlorotoluene	ND		0.00100	1	10/26/2017 02:46	WG1034344
4-Chlorotoluene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	10/26/2017 02:46	WG1034344
1,2-Dibromoethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
Dibromomethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,3-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,4-Dichlorobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Dichlorodifluoromethane	ND		0.00500	1	10/26/2017 02:46	WG1034344
1,1-Dichloroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2-Dichloroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1-Dichloroethene	ND		0.00100	1	10/26/2017 02:46	WG1034344
cis-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 02:46	WG1034344
trans-1,2-Dichloroethene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2-Dichloropropane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1-Dichloropropene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,3-Dichloropropane	ND		0.00100	1	10/26/2017 02:46	WG1034344
cis-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 02:46	WG1034344
trans-1,3-Dichloropropene	ND		0.00100	1	10/26/2017 02:46	WG1034344
2,2-Dichloropropane	ND		0.00100	1	10/26/2017 02:46	WG1034344
Di-isopropyl ether	ND		0.00100	1	10/26/2017 02:46	WG1034344
Ethylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Hexachloro-1,3-butadiene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Isopropylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
p-Isopropyltoluene	ND		0.00100	1	10/26/2017 02:46	WG1034344
2-Butanone (MEK)	ND		0.0100	1	10/26/2017 02:46	WG1034344
Methylene Chloride	ND		0.00500	1	10/26/2017 02:46	WG1034344
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	10/26/2017 02:46	WG1034344
Methyl tert-butyl ether	ND		0.00100	1	10/26/2017 02:46	WG1034344
Naphthalene	ND		0.00500	1	10/26/2017 02:46	WG1034344
n-Propylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Styrene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1,1,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1,2,2-Tetrachloroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
Tetrachloroethene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Toluene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2,3-Trichlorobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2,4-Trichlorobenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1,1-Trichloroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,1,2-Trichloroethane	ND		0.00100	1	10/26/2017 02:46	WG1034344
Trichloroethene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Trichlorofluoromethane	ND		0.00500	1	10/26/2017 02:46	WG1034344
1,2,3-Trichloropropane	ND		0.00250	1	10/26/2017 02:46	WG1034344
1,2,4-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,2,3-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
1,3,5-Trimethylbenzene	ND		0.00100	1	10/26/2017 02:46	WG1034344
Vinyl chloride	ND		0.00100	1	10/26/2017 02:46	WG1034344
Xylenes, Total	ND		0.00300	1	10/26/2017 02:46	WG1034344
(S) Toluene-d8	*110*		*80.0-120*		*10/26/2017 02:46*	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	*102*		*76.0-123*		*10/26/2017 02:46*	WG1034344
(S) 4-Bromofluorobenzene	*96.7*		*80.0-120*		*10/26/2017 02:46*	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

L945441-02 Original Sample (OS) • Duplicate (DUP)

(OS) L945441-02 10/25/17 11:10 • (DUP) R3260800-1 10/25/17 11:20

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	306	311	1	2.00		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: Endpoint pH 4.5

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

(LCS) R3260800-3 10/25/17 12:30 • (LCSD) R3260800-5 10/25/17 14:22

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	107	92.2	107	92.0	85.0-115			15.0	20

Sample Narrative:

LCS: Endpoint pH 4.5

LCSD: Endpoint pH 4.5

L945441-02 Original Sample (OS) • Duplicate (DUP)

(OS) L945441-02 10/25/17 11:10 • (DUP) R3260800-2 10/25/17 11:20

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Free Carbon Dioxide	ND	ND	1	1.00		20

Sample Narrative:

OS: Endpoint pH 4.5

DUP: 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		

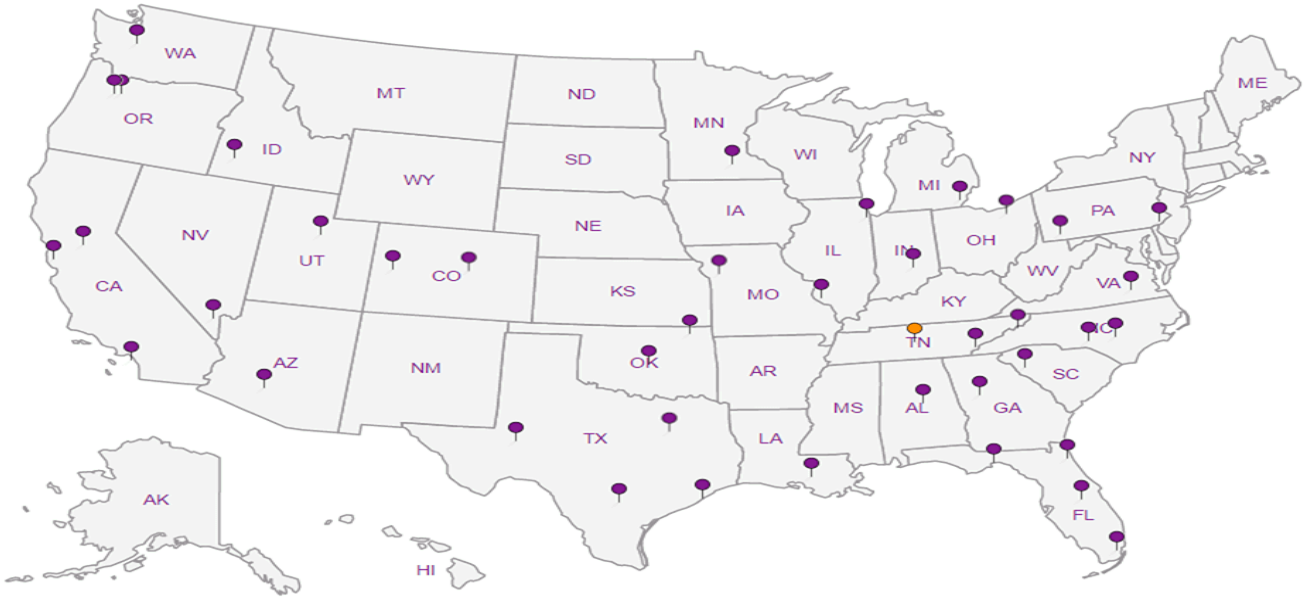
Third Party & Federal Accreditations

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:
Terracon - Longmont
1142 Bramwood Pl.
Longmont, CO 80501

Billing Information:
SAME

Report to:
Michael Skridulis

Email To:
mjskridulis@terracon.com

Project Description: George Mayeda #1

City/State Collected: Longmont CO

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

Client Project #
22177019

Lab Project #

Collected by (print):
M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature):
M.S.

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,S04,N02,N03 - 250ml HDPE No Pres	Alk - 125ml HDPENo PRes	CO2 - 250ml HDPE No Pres	Rem./Contaminant	Sample # (lab only)
MW-01	G	GW		10/20/17	1130	9	X	X	X	X	X	X		01
MW-02	↓	GW		↓	1150	9	X	X	X	X	X	X		02
MW-03	↓	GW		↓	1210	9	X	X	X	X	X	X		03

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# 945441
B123
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 #

Condition: (lab use only)

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
M.S. / TC	10/20/17	1500	
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: 2.8 °C Bottles Received: 27

Date: 10/21/17 Time: 0845

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF: X

8103

ESC LAB SCIENCES
Cooler Receipt Form

Client:	Terracon	SDG#	545441
Cooler Received/Opened On:	10/2/17	Temperature:	2.8
Received by: Kate Moffitt			
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?			

ESC Lab Sciences
Non-Conformance Form

Login #945441	Client: TERRALCO	Date:10/21/17	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:	L945511
Samples Received:	10/21/2017
Project Number:	22177019
Description:	George Mayeda #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.

TABLE OF CONTENTS

SVP-01 L945511-01 Air

Collected by	Collected date/time	Received date/time
M. Skridulis	10/20/17 12:35	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 22:58	10/23/17 22:58	AMC
Organic Compounds (GC) by Method D1946	WG1034280	1	10/23/17 10:47	10/23/17 10:47	AMC

SVP-02 L945511-02 Air

Collected by	Collected date/time	Received date/time
M. Skridulis	10/20/17 12:50	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 23:47	10/23/17 23:47	AMC
Organic Compounds (GC) by Method D1946	WG1034280	1	10/23/17 11:00	10/23/17 11:00	AMC

SVP-03 L945511-03 Air

Collected by	Collected date/time	Received date/time
M. Skridulis	10/20/17 13:15	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	10/24/17 00:31	10/24/17 00:31	AMC
Organic Compounds (GC) by Method D1946	WG1034280	1	10/23/17 11:13	10/23/17 11:13	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	20.3	48.2		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	3.07	9.80		2	WG1034524
Benzyl Chloride	100-44-7	127	0.400	2.08	1.19	6.17		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	0.695	2.16		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	1.15	5.60		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	0.903	4.65		2	WG1034524
Cyclohexane	110-82-7	84.20	0.400	1.38	1.34	4.61		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	1.99	11.9		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	6.83	12.9		2	WG1034524
Ethylbenzene	100-41-4	106	0.400	1.73	8.87	38.5		2	WG1034524
4-Ethyltoluene	622-96-8	120	0.400	1.96	21.7	107		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	0.818	4.05		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	1.78	7.28		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	1.47	5.18		2	WG1034524
Isopropylbenzene	98-82-8	120.20	0.400	1.97	0.960	4.72		2	WG1034524
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.602	2.09		2	WG1034524
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	3.14	12.9		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	14.2	35.0		2	WG1034524
Propene	115-07-1	42.10	0.800	1.38	0.889	1.53		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	0.406	2.79		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	1.22	3.59		2	WG1034524
Toluene	108-88-3	92.10	0.400	1.51	24.3	91.4		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	29.0	142		2	WG1034524
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	9.07	44.5		2	WG1034524
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	1.80	8.39		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	37.2	161		2	WG1034524
o-Xylene	95-47-6	106	0.400	1.73	11.8	51.2		2	WG1034524
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*100*				WG1034524

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	4.54		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	21.6	51.2		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	1.91	6.11		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	3.31	10.3		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	0.983	4.78		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	0.547	1.88		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	3.75	22.6		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	9.92	18.7		2	WG1034524
Ethylbenzene	100-41-4	106	0.400	1.73	2.56	11.1		2	WG1034524
4-Ethyltoluene	622-96-8	120	0.400	1.96	3.90	19.1		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	1.99	8.13		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	1.17	4.11		2	WG1034524
Isopropylbenzene	98-82-8	120.20	0.400	1.97	0.448	2.20		2	WG1034524
Methylene Chloride	75-09-2	84.90	0.400	1.39	2.69	9.34		2	WG1034524
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	5.25	21.5		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	20.5	50.3		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	0.960	2.83		2	WG1034524
Toluene	108-88-3	92.10	0.400	1.51	15.3	57.7		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	5.71	28.0		2	WG1034524
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	1.66	8.15		2	WG1034524
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	1.12	5.24		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	10.2	44.1		2	WG1034524
o-Xylene	95-47-6	106	0.400	1.73	3.36	14.6		2	WG1034524
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.0*				WG1034524

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	13.6		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	19.0	45.2		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	ND	ND		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	ND	ND		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	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	0.805	4.84		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	17.0	32.0		2	WG1034524
Ethylbenzene	100-41-4	106	0.400	1.73	0.545	2.36		2	WG1034524
4-Ethyltoluene	622-96-8	120	0.400	1.96	0.434	2.13		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	0.758	2.67		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	2.93	10.2		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	13.4	33.0		2	WG1034524
Propene	115-07-1	42.10	0.800	1.38	0.901	1.55		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	5.70	21.5		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	0.600	2.94		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	2.00	8.66		2	WG1034524
o-Xylene	95-47-6	106	0.400	1.73	0.697	3.02		2	WG1034524
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.0*				WG1034524

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	10.1		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		

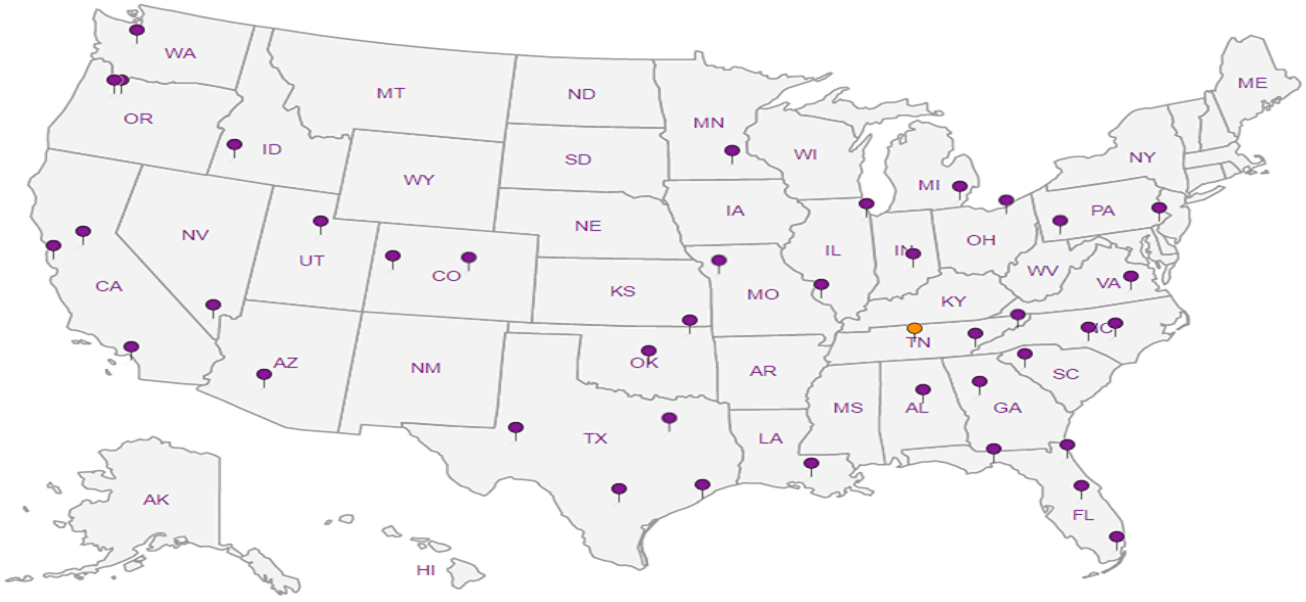
Third Party & Federal Accreditations

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.**



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

Billing Information:
SITME

Report to: Michael Skridulis

Email To: mjskridulis@terracon.com

Project Description: George Mayeda #1

City/State Collected: Longmont, CO

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

Client Project # 22177019

Lab Project #

Collected by (print): M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature): M. S

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 gases (Methane) - D1946

Chain of Custody Page 1 of 1

ESC LAB SCIENCES
a subsidiary of Paradigm

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

L# 945511

Tat: 1

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

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	VOC's	Fixed gases			Rem./Contaminant	Sample # (lab only)
SVP-01	Soil Vapor	5407	10/20/17	1235	25	4	X	X				01
SVP-02	Soil Vapor	6069	10/20/17	1250	25	8	X	X				02
SVP-03	Soil Vapor	5497	10/20/17	1315	20	7	X	X				03

Remarks: Fed ex: 7466 1468 3202

Hold #

	Date:	Time:		
Relinquished by: (Signature) M.S	10/20/17	1500	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: Amb °C Bottles Received: 53
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) Jean Mills	Date: 10/21/17 Time: 0845

Condition: (lab use only) OK

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: TERRALCO		SDG#	945571
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 20, 2017

Terracon Consultants, Inc - Longmont, CO

Sample Delivery Group:	L948478
Samples Received:	11/04/2017
Project Number:	22177019
Description:	Mayeda

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.

TABLE OF CONTENTS

SVP-04 L948478-01 Air

Collected by	Collected date/time	Received date/time
M. Skridulis	11/02/17 10:45	11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1039319	2	11/05/17 21:18	11/05/17 21:18	AMC
Organic Compounds (GC) by Method D1946	WG1043917	1	11/17/17 15:02	11/17/17 15:02	AMC

SVP-05 L948478-02 Air

Collected by	Collected date/time	Received date/time
M. Skridulis	11/02/17 11:00	11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1039319	2	11/05/17 22:08	11/05/17 22:08	AMC
Organic Compounds (GC) by Method D1946	WG1043917	1	11/17/17 15:07	11/17/17 15:07	AMC

SVP-06 L948478-03 Air

Collected by	Collected date/time	Received date/time
M. Skridulis	11/02/17 11:15	11/04/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1039319	2	11/05/17 22:53	11/05/17 22:53	AMC
Organic Compounds (GC) by Method D1946	WG1043917	1	11/17/17 15:13	11/17/17 15:13	AMC

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. 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	17.8	42.3		2	WG1039319
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1039319
Benzene	71-43-2	78.10	0.400	1.28	1.51	4.83		2	WG1039319
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1039319
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1039319
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1039319
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1039319
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1039319
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.37	4.27		2	WG1039319
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1039319
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1039319
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1039319
Chloroform	67-66-3	119	0.400	1.95	1.13	5.50		2	WG1039319
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1039319
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1039319
Cyclohexane	110-82-7	84.20	0.400	1.38	0.795	2.74		2	WG1039319
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1039319
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1039319
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1039319
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1039319
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1039319
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1039319
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1039319
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1039319
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1039319
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1039319
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1039319
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1039319
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1039319
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1039319
Ethanol	64-17-5	46.10	1.26	2.38	5.86	11.1		2	WG1039319
Ethylbenzene	100-41-4	106	0.400	1.73	1.82	7.90		2	WG1039319
4-Ethyltoluene	622-96-8	120	0.400	1.96	1.20	5.87		2	WG1039319
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1039319
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.466	2.30		2	WG1039319
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1039319
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1039319
Heptane	142-82-5	100	0.400	1.64	0.933	3.82		2	WG1039319
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1039319
n-Hexane	110-54-3	86.20	0.400	1.41	2.57	9.06		2	WG1039319
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1039319
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1039319
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1039319
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1039319
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1039319
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1039319
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1039319
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1039319
2-Propanol	67-63-0	60.10	2.50	6.15	5.31	13.0		2	WG1039319
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1039319
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1039319
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1039319
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1039319
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.764	2.25		2	WG1039319
Toluene	108-88-3	92.10	0.400	1.51	13.4	50.5		2	WG1039319
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1039319

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	WG1039319
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1039319
Trichloroethylene	79-01-6	131	0.400	2.14	0.440	2.36		2	WG1039319
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	1.53	7.53		2	WG1039319
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	0.440	2.16		2	WG1039319
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	1.26	5.87		2	WG1039319
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1039319
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1039319
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1039319
m&p-Xylene	1330-20-7	106	0.800	3.47	6.68	29.0		2	WG1039319
o-Xylene	95-47-6	106	0.400	1.73	2.01	8.71		2	WG1039319
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.5*				WG1039319

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	20.1		1	WG1043917
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1043917
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1043917
Methane	74-82-8	16	0.400	ND		1	WG1043917

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	20.9	49.5		2	WG1039319
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1039319
Benzene	71-43-2	78.10	0.400	1.28	1.81	5.79		2	WG1039319
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1039319
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1039319
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1039319
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1039319
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1039319
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.14	3.53		2	WG1039319
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1039319
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1039319
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1039319
Chloroform	67-66-3	119	0.400	1.95	2.33	11.3		2	WG1039319
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1039319
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1039319
Cyclohexane	110-82-7	84.20	0.400	1.38	3.47	11.9		2	WG1039319
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1039319
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1039319
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1039319
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1039319
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1039319
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1039319
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1039319
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1039319
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1039319
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1039319
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1039319
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1039319
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1039319
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1039319
Ethanol	64-17-5	46.10	1.26	2.38	4.12	7.77		2	WG1039319
Ethylbenzene	100-41-4	106	0.400	1.73	2.00	8.66		2	WG1039319
4-Ethyltoluene	622-96-8	120	0.400	1.96	1.23	6.02		2	WG1039319
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1039319
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1039319
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1039319
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1039319
Heptane	142-82-5	100	0.400	1.64	1.56	6.37		2	WG1039319
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1039319
n-Hexane	110-54-3	86.20	0.400	1.41	3.45	12.1		2	WG1039319
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1039319
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1039319
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1039319
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	3.00	8.85		2	WG1039319
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1039319
Methyl methacrylate	80-62-6	100.12	0.400	1.64	0.609	2.49		2	WG1039319
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1039319
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1039319
2-Propanol	67-63-0	60.10	2.50	6.15	5.17	12.7		2	WG1039319
Propene	115-07-1	42.10	0.800	1.38	0.887	1.53		2	WG1039319
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1039319
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1039319
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1039319
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	1.42	4.17		2	WG1039319
Toluene	108-88-3	92.10	0.400	1.51	14.5	54.5		2	WG1039319
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1039319

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	WG1039319
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1039319
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1039319
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	1.54	7.53		2	WG1039319
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	0.578	2.84		2	WG1039319
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	4.64	21.7		2	WG1039319
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1039319
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1039319
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1039319
m&p-Xylene	1330-20-7	106	0.800	3.47	7.34	31.8		2	WG1039319
o-Xylene	95-47-6	106	0.400	1.73	2.18	9.47		2	WG1039319
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*99.3*				WG1039319

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	20.1		1	WG1043917
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1043917
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1043917
Methane	74-82-8	16	0.400	ND		1	WG1043917

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	13.8	32.7		2	WG1039319
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1039319
Benzene	71-43-2	78.10	0.400	1.28	0.785	2.51		2	WG1039319
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1039319
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1039319
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1039319
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1039319
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1039319
Carbon disulfide	75-15-0	76.10	0.400	1.24	0.588	1.83		2	WG1039319
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1039319
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1039319
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1039319
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1039319
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1039319
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1039319
Cyclohexane	110-82-7	84.20	0.400	1.38	0.668	2.30		2	WG1039319
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1039319
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1039319
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1039319
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1039319
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1039319
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1039319
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1039319
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1039319
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1039319
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1039319
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1039319
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1039319
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1039319
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1039319
Ethanol	64-17-5	46.10	1.26	2.38	9.36	17.6		2	WG1039319
Ethylbenzene	100-41-4	106	0.400	1.73	1.19	5.17		2	WG1039319
4-Ethyltoluene	622-96-8	120	0.400	1.96	0.866	4.25		2	WG1039319
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1039319
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.515	2.55		2	WG1039319
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1039319
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1039319
Heptane	142-82-5	100	0.400	1.64	1.05	4.31		2	WG1039319
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1039319
n-Hexane	110-54-3	86.20	0.400	1.41	3.53	12.4		2	WG1039319
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1039319
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1039319
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1039319
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1039319
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1039319
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1039319
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1039319
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1039319
2-Propanol	67-63-0	60.10	2.50	6.15	4.90	12.0		2	WG1039319
Propene	115-07-1	42.10	0.800	1.38	3.89	6.69		2	WG1039319
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1039319
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1039319
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1039319
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	0.674	1.99		2	WG1039319
Toluene	108-88-3	92.10	0.400	1.51	6.58	24.8		2	WG1039319
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1039319

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	WG1039319
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1039319
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1039319
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	0.983	4.82		2	WG1039319
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1039319
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	0.513	2.40		2	WG1039319
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1039319
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1039319
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1039319
m&p-Xylene	1330-20-7	106	0.800	3.47	4.50	19.5		2	WG1039319
o-Xylene	95-47-6	106	0.400	1.73	1.32	5.71		2	WG1039319
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*98.3*				WG1039319

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	20.3		1	WG1043917
Carbon Monoxide	630-08-0	28	2.00	ND		1	WG1043917
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1043917
Methane	74-82-8	16	0.400	ND		1	WG1043917

Method Blank (MB)

(MB) R3263250-3 11/05/17 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) R3263250-3 11/05/17 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	*97.9*			*60.0-140*

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

(LCS) R3263250-1 11/05/17 07:44 • (LCSD) R3263250-2 11/05/17 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	3.90	3.88	104	104	52.0-158			0.360	25
Propene	3.75	3.71	3.71	98.9	99.0	54.0-155			0.0800	25
Dichlorodifluoromethane	3.75	3.77	3.73	101	99.5	69.0-143			1.11	25
1,2-Dichlorotetrafluoroethane	3.75	3.70	3.69	98.6	98.4	70.0-130			0.180	25
Chloromethane	3.75	3.52	3.42	93.8	91.2	70.0-130			2.81	25

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

(LCS) R3263250-1 11/05/17 07:44 • (LCSD) R3263250-2 11/05/17 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	3.62	3.62	96.5	96.4	70.0-130			0.0100	25
1,3-Butadiene	3.75	3.46	3.49	92.4	93.2	70.0-130			0.850	25
Bromomethane	3.75	3.02	3.05	80.4	81.3	70.0-130			1.06	25
Chloroethane	3.75	3.64	3.72	97.2	99.2	70.0-130			2.03	25
Trichlorofluoromethane	3.75	3.77	3.75	101	100	70.0-130			0.430	25
1,1,2-Trichlorotrifluoroethane	3.75	3.79	3.77	101	101	70.0-130			0.660	25
1,1-Dichloroethene	3.75	3.68	3.67	98.2	97.8	70.0-130			0.500	25
1,1-Dichloroethane	3.75	3.65	3.63	97.4	96.9	70.0-130			0.540	25
Acetone	3.75	3.64	3.59	97.0	95.8	70.0-130			1.25	25
2-Propanol	3.75	3.71	3.69	98.9	98.4	66.0-150			0.460	25
Carbon disulfide	3.75	3.66	3.65	97.5	97.3	70.0-130			0.260	25
Methylene Chloride	3.75	3.55	3.53	94.6	94.2	70.0-130			0.380	25
MTBE	3.75	3.67	3.67	97.9	97.8	70.0-130			0.0500	25
trans-1,2-Dichloroethene	3.75	3.65	3.64	97.3	97.1	70.0-130			0.190	25
n-Hexane	3.75	3.63	3.63	96.7	96.7	70.0-130			0.000	25
Vinyl acetate	3.75	3.79	3.77	101	101	70.0-130			0.390	25
Methyl Ethyl Ketone	3.75	3.71	3.70	98.9	98.8	70.0-130			0.180	25
cis-1,2-Dichloroethene	3.75	3.65	3.64	97.2	96.9	70.0-130			0.270	25
Chloroform	3.75	3.65	3.63	97.2	96.8	70.0-130			0.420	25
Cyclohexane	3.75	3.73	3.71	99.5	99.0	70.0-130			0.600	25
1,1,1-Trichloroethane	3.75	3.73	3.71	99.4	98.8	70.0-130			0.610	25
Carbon tetrachloride	3.75	3.76	3.74	100	99.7	70.0-130			0.690	25
Benzene	3.75	3.66	3.65	97.6	97.2	70.0-130			0.360	25
1,2-Dichloroethane	3.75	3.67	3.66	97.9	97.6	70.0-130			0.320	25
Heptane	3.75	3.71	3.64	99.0	97.1	70.0-130			1.86	25
Trichloroethylene	3.75	3.70	3.69	98.7	98.3	70.0-130			0.340	25
1,2-Dichloropropane	3.75	3.61	3.61	96.3	96.4	70.0-130			0.100	25
1,4-Dioxane	3.75	3.81	3.81	102	102	70.0-152			0.210	25
Bromodichloromethane	3.75	3.73	3.72	99.6	99.2	70.0-130			0.310	25
cis-1,3-Dichloropropene	3.75	3.79	3.77	101	101	70.0-130			0.480	25
4-Methyl-2-pentanone (MIBK)	3.75	3.79	3.80	101	101	70.0-142			0.0500	25
Toluene	3.75	3.76	3.77	100	100	70.0-130			0.190	25
trans-1,3-Dichloropropene	3.75	3.85	3.82	103	102	70.0-130			0.640	25
1,1,2-Trichloroethane	3.75	3.74	3.73	99.8	99.4	70.0-130			0.340	25
Tetrachloroethylene	3.75	3.80	3.79	101	101	70.0-130			0.180	25
Methyl Butyl Ketone	3.75	4.00	4.01	107	107	70.0-150			0.140	25
Dibromochloromethane	3.75	3.84	3.84	102	103	70.0-130			0.240	25
1,2-Dibromoethane	3.75	3.77	3.79	100	101	70.0-130			0.530	25
Chlorobenzene	3.75	3.74	3.75	99.6	100	70.0-130			0.360	25
Ethylbenzene	3.75	3.88	3.88	103	103	70.0-130			0.0200	25

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

(LCS) R3263250-1 11/05/17 07:44 • (LCSD) R3263250-2 11/05/17 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	7.75	7.76	103	103	70.0-130			0.0900	25
o-Xylene	3.75	3.93	3.92	105	104	70.0-130			0.420	25
Styrene	3.75	4.09	4.08	109	109	70.0-130			0.210	25
Bromoform	3.75	4.06	4.07	108	108	70.0-130			0.0600	25
1,1,2,2-Tetrachloroethane	3.75	3.80	3.81	101	102	70.0-130			0.280	25
4-Ethyltoluene	3.75	4.01	4.01	107	107	70.0-130			0.0300	25
1,3,5-Trimethylbenzene	3.75	4.03	4.04	107	108	70.0-130			0.140	25
1,2,4-Trimethylbenzene	3.75	4.00	4.01	107	107	70.0-130			0.270	25
1,3-Dichlorobenzene	3.75	4.03	4.03	107	107	70.0-130			0.110	25
1,4-Dichlorobenzene	3.75	4.09	4.11	109	109	70.0-130			0.400	25
Benzyl Chloride	3.75	4.19	4.22	112	112	70.0-144			0.660	25
1,2-Dichlorobenzene	3.75	3.97	3.97	106	106	70.0-130			0.210	25
1,2,4-Trichlorobenzene	3.75	4.29	4.38	114	117	70.0-155			1.91	25
Hexachloro-1,3-butadiene	3.75	4.19	4.22	112	112	70.0-145			0.640	25
Naphthalene	3.75	4.20	4.23	112	113	70.0-155			0.680	25
Allyl Chloride	3.75	3.67	3.65	97.7	97.4	70.0-130			0.390	25
2-Chlorotoluene	3.75	3.96	3.97	106	106	70.0-130			0.290	25
Methyl Methacrylate	3.75	3.71	3.71	98.9	99.0	70.0-130			0.0900	25
Tetrahydrofuran	3.75	3.59	3.60	95.8	96.0	70.0-140			0.290	25
2,2,4-Trimethylpentane	3.75	3.69	3.68	98.5	98.1	70.0-130			0.390	25
Vinyl Bromide	3.75	3.73	3.72	99.3	99.2	70.0-130			0.110	25
Isopropylbenzene	3.75	3.93	3.91	105	104	70.0-130			0.430	25
(S) 1,4-Bromofluorobenzene				*100*	*100*	*60.0-140*				

Method Blank (MB)

(MB) R3266652-3 11/17/17 14:01

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Oxygen	1.17	J	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) R3266652-1 11/17/17 13:48 • (LCSD) R3266652-2 11/17/17 13:55

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Oxygen	2.50	2.66	2.50	107	99.8	70.0-130			6.49	20
Carbon Monoxide	2.50	2.59	2.62	104	105	70.0-130			1.19	20
Carbon Dioxide	2.50	2.71	2.59	109	104	70.0-130			4.63	20
Methane	2.00	2.11	2.14	106	107	70.0-130			1.44	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
J	The identification of the analyte is acceptable; the reported value is an estimate.

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		

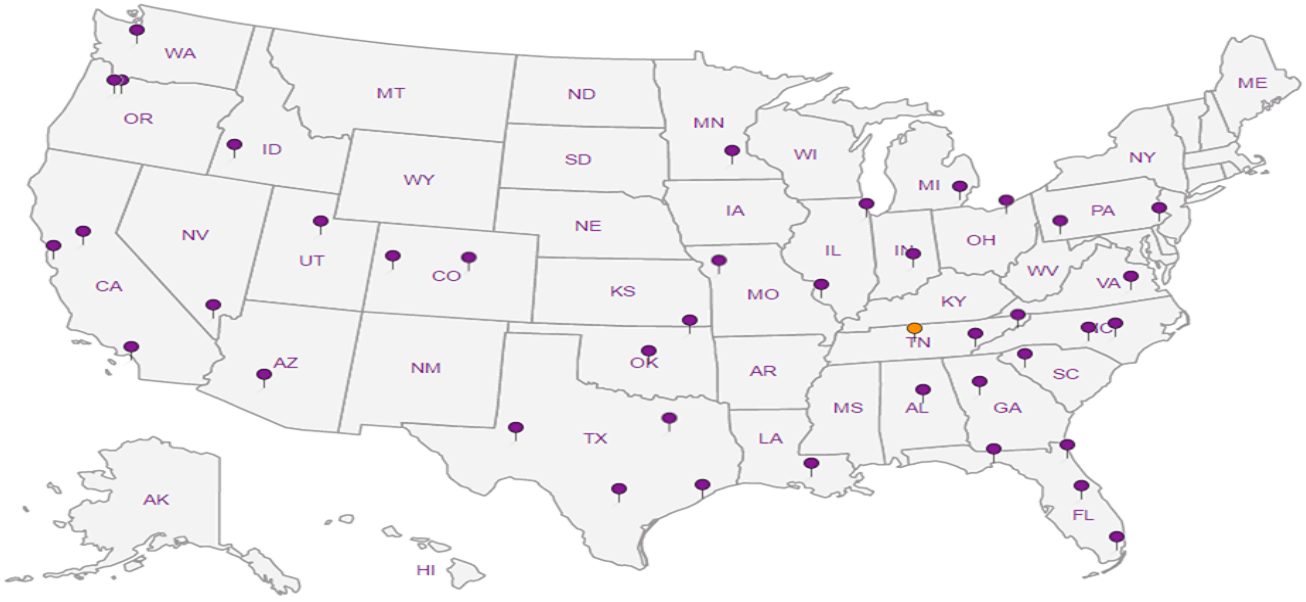
Third Party & Federal Accreditations

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: mjskridilus@terracon.com

Project Description: Mayeda

City/State Collected: Longmont, CO

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

Client Project # 22177019

Lab Project #

Collected by (print): M. Skridulis

Site/Facility ID #

P.O. #

Collected by (signature): M. S-

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

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# LG648478

M035

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

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	VOC's TO-15 & Fixed Gasses-Methane				Rem./Contaminant	Sample # (lab only)
SVP-04	Soil Gas	5171	11/2/17	1045	25	6	X					-01
SVP-05	↓	1255	↓	1100	25	6	X					02
SVP-06	↓	5238	↓	1115	20	6	X					03

Remarks: Fed ex: 4094 8307 7187

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____	Condition: (lab use only)
M.S-	11/3/17	1100			OK
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: AMB °C Bottles Received: 3	COC Seal Intact: ___Y ___N ___NA
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/4/17 Time: 8:45	pH Checked: NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: TERRALCO	SDG#	L948478	
Cooler Received/Opened On: 11/4/17	Temperature:	AMB	
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?			