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July 3, 2019

Mr. Girish Desai
New York State Department of Environmental Conservation
Division of Environmental Remediation
Building 40 – SUNY, Stony Brook
Stony Brook, New York 11790-2356

**Re: Groundwater Sampling Results**
**Operable Unit No. 2**
**Former Columbia Cement Company Facility**
**Freeport, New York**
**Site ID No. 130052**

Dear Mr. Desai:

The purpose of this letter is to present to the New York State Department of Environmental Conservation (NYSDEC) the results of groundwater sampling conducted in March 2019 at Operable Unit Operable Unit No. 2 (OU-2) of the former Columbia Cement Company site (site ID No. 130052) in Freeport, New York, (Site). AECOM (formerly URS) conducted the sampling on behalf of Burmah Castrol Holdings, Inc. (Burmah Castrol).

Operable Unit No. 1 (OU-1), located at 159 Hanse Avenue, has undergone several rounds of investigation and remediation. In March 2009, NYSDEC issued a Record of Decision (ROD) for OU-1. In the OU-1 ROD, in-situ chemical oxidation (ISCO) was selected to remediate source area soil and groundwater, aerobic bioremediation to treat downgradient groundwater and a sub-slab depressurization system (SSDS) was selected to address vapor intrusion in the Site building. Several rounds of ISCO injections have been conducted in the OU-1 spill area and downgradient Site boundary (loading dock area). The most recent injections took place in October and November 2016. Post-injection sampling was performed through February 2017. A Remedial Action Report for the 2016 injections was submitted to NYSDEC in March 2017.

In March 2016, AECOM submitted a Revised Feasibility Study (FS) Report for OU-2 to NYSDEC. In the Revised FS Report, No Further Action with Groundwater Monitoring (NFA-GW) was recommended as the remedy to manage groundwater impacts in OU-2 resulting from releases at OU-1. In November 2016, NYSDEC published a Proposed Remedial Action Plan (PRAP) for OU-2, naming NFA-GW as the proposed remedy for OU-2. NYSDEC issued a ROD for OU-2 that was published on March 16, 2017, in which NFA-GW was selected as the OU-2 remedy. Subsequently, in March 2016, one additional monitoring well (MW-17-27S) was installed in OU-2 and 13 wells were sampled. In May 2017, two additional wells (MW-17-28S

and MW-17-29D) were installed to replace MW-07-16S and MW-07-17D, which were inaccessible.

The Site is underlain by the Upper Glacial deposits, which consists of a sand unit, as well as fill material related to the former use of the area as a municipal landfill, and tidal march deposits (peat). These units extend to a depth of approximately 35 feet. From approximately 35 to 50 feet below grade, is a gray clay which acts as a lower confining layer. Beneath the clay is the Magothy Aquifer. Well MW-00-11A is a double-cased well in the OU-1 spill area that is screened in the Magothy aquifer. No Site-related VOCs have been detected in MW-00-11A to date, suggesting the lower clay prevents vertical migration of contaminants from the Upper Glacial deposits to the Magothy aquifer.

Groundwater flow at the Site is generally east to west, toward Freeport Creek (Figure 1). Close to Freeport Creek, groundwater flow is influenced by tidal fluctuations in the creek, resulting in cyclical flow reversals adjacent to the creek. Freeport is also along the southern shore of Long Island and subject to salt water encroachment. For these reasons, the water table (Upper Glacial) aquifer at the Site is not utilized for water supply. The Village of Freeport obtains its water supply from 11 supply wells drilled into the Magothy Aquifer, ranging from 550 to 750 feet below grade. The wells are at multiple locations in Freeport, the well field closest to the Site being at Lakeview Avenue and Jessie Street, which is located approximately 1.3 miles north (side-gradient) from the Site. Thus, the groundwater constituents do not represent a risk to, nor do they have the potential to impact public water supply.

## GROUNDWATER SAMPLING

On March 17 and 18, 2019, AECOM collected groundwater samples from 15 monitoring wells in OU-2. All groundwater samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) by USEPA Method 8260C. Samples were collected using low-flow methods and were submitted to Eurofins–Lancaster Laboratories (New York Certification # 10670). Wells were purged and sampled using a peristaltic pump with polyethylene and silicon tubing. In addition, readings for temperature, pH, conductivity, dissolved oxygen (DO), and redox potential were taken during purging of the wells. Groundwater sampling logs are presented in Appendix A.

In addition to the samples collected from the monitoring wells, a field duplicate sample, a field blank and a trip blank were analyzed for quality control purposes. The field duplicate is a second sample collected from a selected well at the same time as the “parent” sample and submitted to the laboratory “blind” for analysis. The field blank (rinsate) was prepared by passing distilled water (opened in the field) through disposable polyethylene sample tubing and into laboratory-provided sample containers. Field blanks provide an additional check of possible sources of contamination from ambient air and sampling equipment. The laboratory data packages are presented on a CD in Appendix B, and the data validation report is presented as Appendix C.

## Regulatory Criteria

The groundwater sampling results are presented in Table 1. The results are compared to the NYSDEC Class GA Water Quality Standards (GWQS).

## Data Quality Review

The laboratory data packages were subject to QA/QC review, and a data usability summary reports (DUSR) was prepared. The DUSR is presented in Appendix C. If QA/QC issues were identified, the results were qualified as estimated; detections are qualified with a "J" and non-detections are qualified with a "UJ." The primary findings of the QA/QC review were:

- Acetone was detected in the field blank, so the positive detections of acetone in the other samples were negated..
- The percent difference (%D>20) between initial and continuing calibration for several VOCs was high. The affected results were qualified as estimated "UJ."
- Detections below the Reporting Limit are considered estimated and were flagged "J".

Overall the data quality is acceptable with the qualifications stated above. Further details are presented in the DUSR in Appendix C.

# RESULTS

## OU-2

### Volatile Organic Compounds

The OU-2 groundwater VOC sampling results are presented in Table 1 and shown on Figure 2. Samples were collected from 15 OU-2 monitoring wells. Chlorobenzene was detected in wells MW-09-21D (7.0 µg/l) and MW-09-26D (13 µg/l) at concentrations exceeding the GWQS of 5.0 µg/l. The source of the chlorobenzene impacts is unknown. Chloroethane was detected well MW-09-25D at a concentration of 31 µg/l, which exceeds the GWQS of 5.0 µg/l. Chloroethane was not detected in shallow well MW-09-24S adjacent to MW-09-25D. Chloroethane was also detected in four other OU-2 wells at concentrations ranging from 0.70 µg/l to 5.0 µg/l. No other VOCs were detected at levels over their respective GWQS

In September 2018, methylene chloride (26 µg/l), tetrachloroethene (17 µg/l), 1,1,1-trichloroethane (12 µg/l) and trichloroethene (11 µg/l) were detected in well MW-17-27S at concentrations exceeding the GWQS of 5.0 µg/l, after not being detected during three previous sampling events. In March 2019, tetrachloroethene was detected at 2.0 µg/l and the other compounds were not detected at laboratory detection limits. It is not clear what caused the September 2018 detections.

**Field Measurements**

Field measurements made at the conclusion of well purging are presented in Table 1. OU-2 pH values were all between 6.24 and 7.02, with the exception of MW-05-15D which was 4.43. The pH in this well was 3.80 in September 2017, 3.86 in March 2017 and 4.29 in September 2018. The reason for this acidic pH is not known. The conductivity measurements in well MW-17-29D was 56.1 millisiemens per centimeter (mS/cm), which is much higher than other wells sampled. The elevated conductivity could be related to the proximity of the well to Freeport Creek, although wells MW-09-23D (0.998 mS/cm) and MW-09-25D (4.08 mS/cm) were not similarly elevated. Other wells along Freeport Creek have exhibited high conductivity values in the past, possibly as a result of saline water intrusion. Dissolved oxygen (DO) measurements in OU-2 wells were all less the 0.0 milligrams per liter (mg/l). Redox potential ranged from -191 milliVolts (mV) in MW-09-29D to 364 mV in MW-09-22S. With the exception of MW-09-22S, the ORP measurements ranged from -42 mV to -195 mV. The field measurements in some OU-2 wells are likely due, at least in part, to groundwater interaction with saline water in Freeport Creek.

## CONCLUSIONS

Groundwater samples were collected from 15 monitoring wells in OU-2 in March 2019. From the results of this sampling event, the following conclusions can be drawn:

- The only VOC detection in OU-2 related to the OU-1 spill was chloroethane in MW-09-25D at 31 µg/l. Chloroethane was not detected in adjacent shallow well MW-09-24S. Chloroethane was also detected in wells MW-09-15D (5.0 µg/l), MW-09-18S (4.0 µg/l) and MW-09-23D (4.0 µg/l).

- Chlorobenzene was detected at concentrations exceeding the GWQS in wells MW-09-26D and MW-17-28S.

- All OU-2 properties receive water from Freeport Water, whose supply wells are located over a mile from the Site and are over 500 feet deep in a different aquifer.

## SUMMARY

In March 2019, 15 monitoring wells were sampled at OU-2 of the former Columbia Cement Company Site. The only exceedance of the GWQS related to the OU-1 spill was chloroethane in MW-09-25D. The OU-2 monitoring wells and selected OU-1 monitoring wells will be sampled in September 2019.

If you have any comments or questions, please contact me at (973) 883-8696 or by email at mark.becker@aecom.com.

Very truly yours,

**AECOM**

Mark T. Becker, P.G.
Senior Geologist

MTB/mtb

cc: Scarlett McLaughlin, NYSDOH
File

**Attachments:**

| | |
|---|---|
| Table 1 | Summary of Groundwater Analytical Data, March 17-18, 2019 |
| Figure 1 | Site Location Map |
| Figure 2 | Site Plan with Groundwater VOC Sampling Results –OU-2 |
| Appendix A | Groundwater Purge Logs |
| Appendix B | Laboratory Data Package |
| Appendix C | Data Validation Report |

# TABLES

**TABLE 1**
**SUMMARY OF GROUNDWATER SAMPLING RESULTS - MARCH 17-18, 2019**
**OPERABLE UNIT No. 2**
**COLUMBIA CEMENT SITE**

| SAMPLE ID | NYSDEC | MW-03-13S | MW-05-14S | MW-05-15D | MW-09-18S | MW-09-19D | MW-09-20S |
|---|---|---|---|---|---|---|---|
| LAB SAMPLE ID | CLASS GA | 1012095 | 1012096 | 1012097 | 1012098 | 1012099 | 1012100 |
| SAMPLE DATE | WATER | 3/17/2019 | 3/17/2019 | 3/17/2019 | 3/17/2019 | 3/17/2019 | 3/17/2019 |
| DILUTION FACTOR | QUAL. STD. | 1 | 1 | 1 | 1 | 1 | 1 |
| UNITS | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l |
| **Volatile Organic Compounds** | | | | | | | |
| Acetone | 50 | 0.70 U | 0.70 U | 0.70 U | 0.70 U | 0.70 U | 0.70 U |
| Benzene | 1 | 0.20 U | 0.20 U | 0.20 J | 0.20 U | 0.20 U | 0.20 U |
| Bromodichloromethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Bromoform | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Bromomethane | 5 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| 2-Butanone | 50 | 0.30 U | 0.40 J | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Carbon Disulfide | NE | 0.20 U | 0.20 U | 7.0 | 0.20 U | 0.20 U | 0.20 U |
| Carbon Tetrachloride | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Chlorobenzene | 5 | 0.20 U | 0.80 J | 1.0 | 2.0 | 5.0 | 0.40 J |
| Chloroethane | 5 | 0.20 U | 0.20 U | 5.0 | 4.0 | 0.20 U | 0.20 U |
| Chloroform | 7 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Chloromethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Cyclohexane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,2-Dibromo-3-chloropropane | NE | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Dibromochloromethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,2-Dibromoethane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,2-Dichlorobenzene | 0.6 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,3-Dichlorobenzene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,4-Dichlorobenzene | NE | 0.20 U | 0.20 U | 0.30 J | 1.0 J | 2.0 J | 0.80 J |
| Dichlorodifluoromethane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,1-Dichloroethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,2-Dichloroethane | 0.6 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| 1,1-Dichloroethene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| cis-1,2-Dichloroethene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| trans-1,2-Dichloroethene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,2-Dichloropropane | 1 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| cis-1,3-Dichloropropene | 0.4 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| trans-1,3-Dichloropropene | 0.4 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Ethylbenzene | 5 | 0.40 U | 0.40 U | 0.40 U | 0.40 U | 0.40 U | 0.40 U |
| Freon 113 | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 2-Hexanone | 50 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Isopropylbenzene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Methyl Acetate | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Methyl Tertiary Butyl Ether | NE | 0.30 J | 0.20 U | 0.20 U | 0.90 J | 6.0 | 0.20 U |
| 4-Methyl-2-pentanone | NE | 0.50 U | 0.50 U | 0.50 U | 0.50 U | 0.50 U | 0.50 U |
| Methylcyclohexane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Methylene Chloride | 5 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| Styrene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,1,2,2-Tetrachloroethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Tetrachloroethene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Toluene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| 1,2,4-Trichlorobenzene | NE | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| 1,1,1-Trichloroethane | 5 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 0.30 U |
| 1,1,2-Trichloroethane | 1 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Trichloroethene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Trichlorofluoromethane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Vinyl Chloride | 2 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U |
| Xylene (Total) | 5 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| Total Target VOCs | NE | 0.3 J | 1.2 J | 13.3 J | 7.9 J | 13.0 J | 1.2 J |
| **Field Measurments** | | | | | | | |
| pH (s.u.) | NE | 7.02 | 6.24 | 4.43 | 6.72 | 6.68 | 6.48 |
| Conductivity (mS/cm) | NE | 0.387 | 5.46 | 6.94 | 2.97 | 2.36 | 0.64 |
| Dissolved Oxygen (mg/l) | NE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Temperature (°C) | NE | 14.15 | 11.63 | 13.03 | 10.53 | 13.49 | 13.43 |
| Redox Potential (mV) | NE | -82 | -44 | 149 | -87 | -57 | -67 |

**TABLE 1**
**SUMMARY OF GROUNDWATER SAMPLING RESULTS - MARCH 17-18, 2019**
**OPERABLE UNIT No. 2**
**COLUMBIA CEMENT SITE**

| SAMPLE ID | NYSDEC | MW-09-21D | MW-09-22S | MW-09-23D | MW-09-24S | MW-09-25D | MW-09-26D |
|---|---|---|---|---|---|---|---|
| LAB SAMPLE ID | CLASS GA | 1012101 | 1012102 | 1012103 | 1012104 | 1012105 | 1012106 |
| SAMPLE DATE | WATER | 3/17/2019 | 3/18/2019 | 3/18/2019 | 3/18/2019 | 3/18/2019 | 3/17/2019 |
| DILUTION FACTOR | QUAL. STD. | 1 | 1 | 1 | 1 | 10 | 1 |
| UNITS | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l |
| **Volatile Organic Compounds** | | | | | | | |
| Acetone | 50 | 0.70 U | 0.70 U | 0.70 U | 0.70 U | 7.0 U | 0.70 U |
| Benzene | 1 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Bromodichloromethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Bromoform | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Bromomethane | 5 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| 2-Butanone | 50 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| Carbon Disulfide | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Carbon Tetrachloride | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Chlorobenzene | 5 | **7.0** | 0.20 U | 3.0 | 2.0 | 5.0 J | **13 J** |
| Chloroethane | 5 | 0.20 U | 0.20 U | 1.0 | 0.20 U | **31** | 0.70 J |
| Chloroform | 7 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Chloromethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Cyclohexane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,2-Dibromo-3-chloropropane | NE | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| Dibromochloromethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,2-Dibromoethane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,2-Dichlorobenzene | 0.6 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,3-Dichlorobenzene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,4-Dichlorobenzene | NE | 0.70 J | 0.20 U | 1.0 J | 1.0 J | 2.0 U | 2.0 J |
| Dichlorodifluoromethane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 UJ | 0.20 UJ |
| 1,1-Dichloroethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,2-Dichloroethane | 0.6 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| 1,1-Dichloroethene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| cis-1,2-Dichloroethene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| trans-1,2-Dichloroethene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,2-Dichloropropane | 1 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| cis-1,3-Dichloropropene | 0.4 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| trans-1,3-Dichloropropene | 0.4 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Ethylbenzene | 5 | 0.40 U | 0.40 U | 0.40 U | 0.40 U | 4.0 U | 0.40 U |
| Freon 113 | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 UJ | 0.20 UJ |
| 2-Hexanone | 50 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| Isopropylbenzene | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.50 J |
| Methyl Acetate | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Methyl Tertiary Butyl Ether | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 6.0 J | 0.20 U |
| 4-Methyl-2-pentanone | NE | 0.50 U | 0.50 U | 0.50 U | 0.50 U | 5.0 U | 0.50 U |
| Methylcyclohexane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 J |
| Methylene Chloride | 5 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| Styrene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,1,2,2-Tetrachloroethane | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Tetrachloroethene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 UJ | 0.20 UJ |
| Toluene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| 1,2,4-Trichlorobenzene | NE | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| 1,1,1-Trichloroethane | 5 | 0.30 U | 0.30 U | 0.30 U | 0.30 U | 3.0 U | 0.30 U |
| 1,1,2-Trichloroethane | 1 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Trichloroethene | 5 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Trichlorofluoromethane | NE | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Vinyl Chloride | 2 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 2.0 U | 0.20 U |
| Xylene (Total) | 5 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 10 U | 1.0 U |
| Total Target VOCs | NE | 7.7 J | ND | 5.0 J | 3.0 J | 36 J | 16.4 J |
| **Field Measurments** | | | | | | | |
| pH (s.u.) | NE | 6.48 | 6.45 | 6.63 | 6.7 | 6.72 | 6.48 |
| Conductivity (mS/cm) | NE | 1.17 | 1.17 | 0.998 | 0.743 | 4.08 | 0.961 |
| Dissolved Oxygen (mg/l) | NE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Temperature (°C) | NE | 15.41 | 13.27 | 14.84 | 10.81 | 13.1 | 14.42 |
| Redox Potential (mV) | NE | -57 | 364 | -66 | -42 | -43 | -56 |

**TABLE 1**
**SUMMARY OF GROUNDWATER SAMPLING RESULTS - MARCH 17-18, 2019**
**OPERABLE UNIT No. 2**
**COLUMBIA CEMENT SITE**

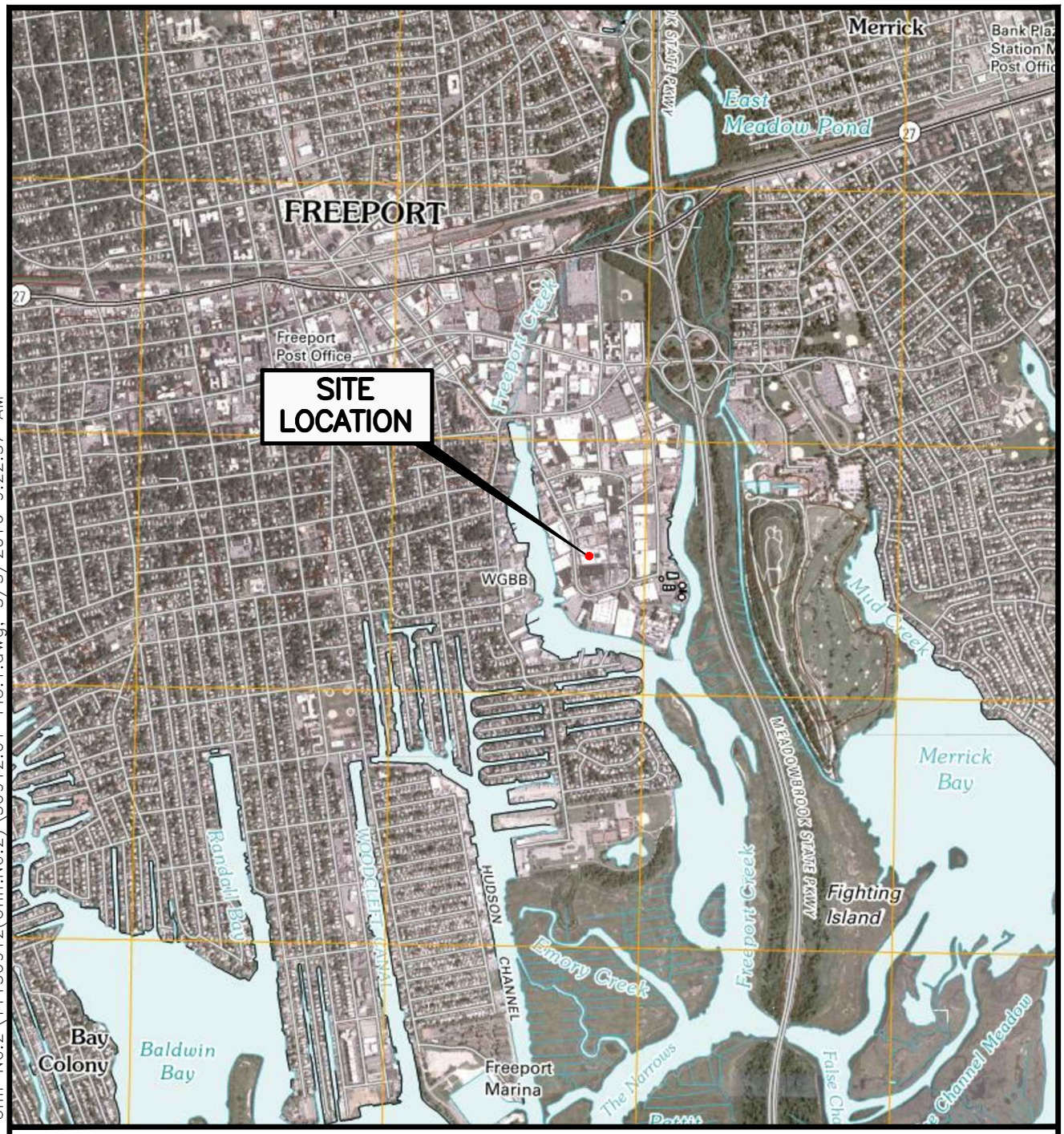
| SAMPLE ID | NYSDEC | MW-17-27S | DUP031719 | MW-17-28S | MW-17-29D | FB031819 | TB031819 |
|---|---|---|---|---|---|---|---|
| LAB SAMPLE ID | CLASS GA | 1012107 | 1012110 | 1012108 | 1012109 | 1012111 | 1012112 |
| SAMPLE DATE | WATER | 3/17/2019 | 3/18/2019 | 3/18/2019 | 3/18/2019 | 3/18/2019 | 3/18/2019 |
| DILUTION FACTOR | QUAL. STD. | 10 | 10 | 10 | 10 | 1 | 1 |
| UNITS | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l | µg/l |
| **Volatile Organic Compounds** | | | | | | | |
| Acetone | 50 | 7.0 U | 7.0 U | 7.0 U | 7.0 U | 0.70 U | 3.0 J |
| Benzene | 1 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Bromodichloromethane | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Bromoform | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Bromomethane | 5 | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| 2-Butanone | 50 | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| Carbon Disulfide | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Carbon Tetrachloride | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Chlorobenzene | 5 | 2.0 U | 2.0 U | 5.0 J | 2.0 U | 0.20 U | 0.20 U |
| Chloroethane | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Chloroform | 7 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 1.0 J | 0.20 U |
| Chloromethane | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Cyclohexane | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,2-Dibromo-3-chloropropane | NE | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| Dibromochloromethane | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,2-Dibromoethane | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,2-Dichlorobenzene | 0.6 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,3-Dichlorobenzene | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,4-Dichlorobenzene | NE | 2.0 U | 2.0 U | 3.0 J | 2.0 U | 0.20 U | 0.20 U |
| Dichlorodifluoromethane | NE | 2.0 UJ | 2.0 U | 2.0 U | 2.0 U | 0.20 UJ | 0.20 UJ |
| 1,1-Dichloroethane | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,2-Dichloroethane | 0.6 | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| 1,1-Dichloroethene | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| cis-1,2-Dichloroethene | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| trans-1,2-Dichloroethene | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,2-Dichloropropane | 1 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| cis-1,3-Dichloropropene | 0.4 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| trans-1,3-Dichloropropene | 0.4 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Ethylbenzene | 5 | 4.0 U | 4.0 U | 4.0 U | 4.0 U | 0.40 U | 0.40 U |
| Freon 113 | 5 | 2.0 UJ | 2.0 U | 2.0 U | 2.0 U | 0.20 UJ | 0.20 UJ |
| 2-Hexanone | 50 | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| Isopropylbenzene | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Methyl Acetate | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Methyl Tertiary Butyl Ether | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 4-Methyl-2-pentanone | NE | 5.0 U | 5.0 U | 5.0 U | 5.0 U | 0.50 U | 0.50 U |
| Methylcyclohexane | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Methylene Chloride | 5 | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| Styrene | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,1,2,2-Tetrachloroethane | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Tetrachloroethene | 5 | 2.0 UJ | 2.0 U | 2.0 U | 2.0 U | 0.20 UJ | 0.20 UJ |
| Toluene | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| 1,2,4-Trichlorobenzene | NE | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| 1,1,1-Trichloroethane | 5 | 3.0 U | 3.0 U | 3.0 U | 3.0 U | 0.30 U | 0.30 U |
| 1,1,2-Trichloroethane | 1 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Trichloroethene | 5 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Trichlorofluoromethane | NE | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Vinyl Chloride | 2 | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 0.20 U | 0.20 U |
| Xylene (Total) | 5 | 10 U | 10 U | 10 U | 10 U | 1.0 U | 1.0 U |
| Total Target VOCs | NE | ND | ND | 8.0 J | ND | 1.0 J | 3.0 J |
| **Field Measurments** | | | | | | | |
| pH (s.u.) | NE | 6.31 | N/A | 6.56 | 6.73 | N/A | N/A |
| Conductivity (mS/cm) | NE | 0.596 | N/A | 2.62 | 56.1 | N/A | N/A |
| Dissolved Oxygen (mg/l) | NE | 0.0 | N/A | 0.0 | 0.0 | N/A | N/A |
| Temperature (°C) | NE | 13.96 | N/A | 13.64 | 12.94 | N/A | N/A |
| Redox Potential (mV) | NE | -164 | N/A | -116 | -195 | N/A | N/A |

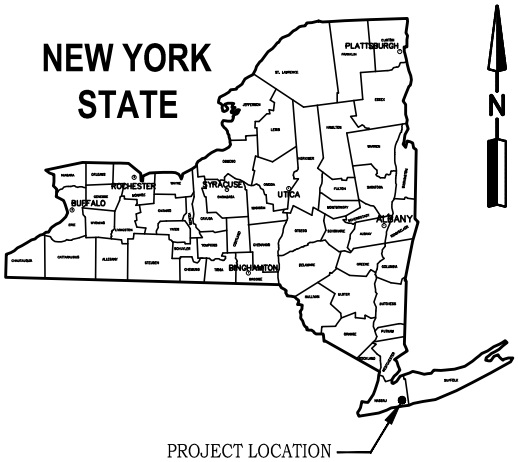
**TABLE 1**
**SUMMARY OF GROUNDWATER SAMPLING RESULTS - MARCH 17-18, 2019**
**OPERABLE UNIT No. 2**
**COLUMBIA CEMENT SITE**

**NOTES:**

U - Indicates compound was analyzed for but not detected
J - Indicates an estimated value due to limitations identified during the Quality Assurance (QA) review.
B - This flag is used when the analyte is found in the associated blank as well as in the sample.
E - This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis and therefore, are regarded as estimated values.
D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
NS - Not sampled
ND - Not Detected
NE - No existing Groundwater Quality Standard
Total VOCs - This row presents the sum total concentration level of target compound list (TCL) volatile organic compounds (VOCs) reported in the sample.
Total VOC TICs - This row presents the sum total estimated concentration of non-target tentatively identified compounds.
**100** (Bold) - Concentration exceeds NYSDEC Class GA Groundwater Quality Standard.

# FIGURES




N

0 2000 4000

SCALE IN FEET

**REFERENCE:**
**U.S.G.S. 7.5 MINUTE QUADRANGLE:**
**FREEPORT, NY (2010)**

# SITE LOCATION MAP
# FORMER COLUMBIA CEMENT COMPANY, INC.
## SITE NO. 130052
## 159 HANSE AVENUE
## FREEPORT, NEW YORK

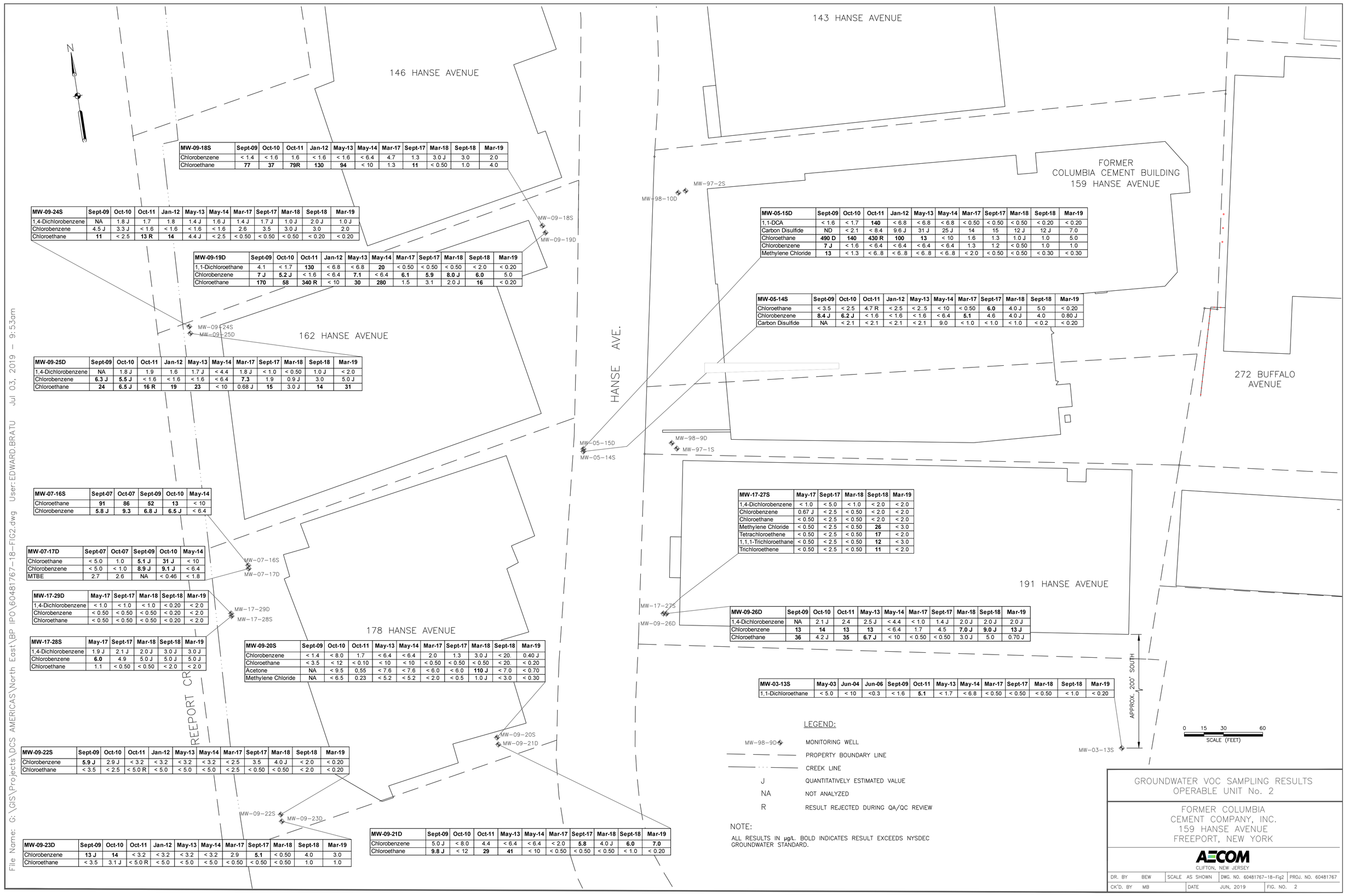
AECOM
1255 Broad Street
Clifton, New Jersey 07013
PHONE: (973) 883-8500
FAX: (973) 883-8501

DATE: 01/23/15

JOB: 11130912

**FIGURE 1**

K:\Cadd\Columbia Cement\Columbia Cement-Unit No.2\11130912(Unit.No.2)\30912.01-FIG.1.dwg, 5/5/2016 9:22:57 AM




| MW-09-18S | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | < 1.4 | < 1.6 | 1.6 | < 1.6 | < 1.6 | < 6.4 | 4.7 | 1.3 | 3.0 J | 3.0 | 2.0 |
| Chloroethane | **77** | **37** | **79R** | **130** | **94** | < 10 | 1.3 | **11** | < 0.50 | 1.0 | 4.0 |

| MW-09-24S | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | NA | 1.8 J | 1.7 | 1.8 | 1.4 J | 1.6 J | 1.4 J | 1.7 J | 1.0 J | 2.0 J | 1.0 J |
| Chlorobenzene | 4.5 J | 3.3 J | < 1.6 | < 1.6 | < 1.6 | < 1.6 | 2.6 | 3.5 | 3.0 J | 3.0 | 2.0 |
| Chloroethane | **11** | < 2.5 | **13 R** | **14** | 4.4 J | < 2.5 | < 0.50 | < 0.50 | < 0.50 | < 0.20 | < 0.20 |

| MW-09-19D | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 4.1 | < 1.7 | **130** | < 6.8 | < 6.8 | **20** | < 0.50 | < 0.50 | < 0.50 | < 2.0 | < 0.20 |
| Chlorobenzene | **7 J** | **5.2 J** | < 1.6 | < 6.4 | **7.1** | < 6.4 | **6.1** | **5.9** | **8.0 J** | **6.0** | 5.0 |
| Chloroethane | **170** | **58** | **340 R** | < 10 | **30** | **280** | 1.5 | 3.1 | 2.0 J | **16** | < 0.20 |

| MW-09-25D | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | NA | 1.8 J | 1.9 | 1.6 | 1.7 J | < 4.4 | 1.8 J | < 1.0 | < 0.50 | 1.0 J | < 2.0 |
| Chlorobenzene | **6.3 J** | **5.5 J** | < 1.6 | < 1.6 | < 1.6 | < 6.4 | **7.3** | 1.9 | 0.9 J | 3.0 | 5.0 J |
| Chloroethane | **24** | **6.5 J** | **16 R** | **19** | **23** | < 10 | 0.68 J | **15** | 3.0 J | **14** | **31** |

| MW-05-15D | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-DCA | < 1.6 | < 1.7 | **140** | < 6.8 | < 6.8 | < 6.8 | < 0.50 | < 0.50 | < 0.50 | < 0.20 | < 0.20 |
| Carbon Disulfide | ND | < 2.1 | < 8.4 | 9.6 J | 31 J | 25 J | 14 | 15 | 12 J | 12 J | 7.0 |
| Chloroethane | **490 D** | **140** | **430 R** | **100** | **13** | < 10 | 1.6 | 1.3 | 1.0 J | 1.0 | 5.0 |
| Chlorobenzene | **7 J** | < 1.6 | < 6.4 | < 6.4 | < 6.4 | < 6.4 | 1.3 | 1.2 | < 0.50 | 1.0 | 1.0 |
| Methylene Chloride | **13** | < 1.3 | < 6..8 | < 6..8 | < 6..8 | < 6..8 | < 2.0 | < 0.50 | < 0.50 | < 0.30 | < 0.30 |

| MW-05-14S | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloroethane | < 3.5 | < 2.5 | 4.7 R | < 2.5 | < 2..5 | < 10 | < 0.50 | **6.0** | 4.0 J | 5.0 | < 0.20 |
| Chlorobenzene | **8.4 J** | **6.2 J** | < 1.6 | < 1.6 | < 1.6 | < 6.4 | **5.1** | 4.6 | 4.0 J | 4.0 | 0.80 J |
| Carbon Disulfide | NA | < 2.1 | < 2.1 | < 2.1 | < 2.1 | 9.0 | < 1.0 | < 1.0 | < 1.0 | < 0.2 | < 0.20 |

| MW-07-16S | Sept-07 | Oct-07 | Sept-09 | Oct-10 | May-14 |
|---|---|---|---|---|---|
| Chloroethane | **91** | **86** | **52** | **13** | < 10 |
| Chlorobenzene | **5.8 J** | **9.3** | **6.8 J** | **6.5 J** | < 6.4 |

| MW-07-17D | Sept-07 | Oct-07 | Sept-09 | Oct-10 | May-14 |
|---|---|---|---|---|---|
| Chloroethane | < 5.0 | 1.0 | **5.1 J** | **31 J** | < 10 |
| Chlorobenzene | < 5.0 | < 1.0 | **8.9 J** | **9.1 J** | < 6.4 |
| MTBE | 2.7 | 2.6 | NA | < 0.46 | < 1.8 |

| MW-17-29D | May-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | < 1.0 | < 1.0 | < 1.0 | < 0.20 | < 2.0 |
| Chlorobenzene | < 0.50 | < 0.50 | < 0.50 | < 0.20 | < 2.0 |
| Chloroethane | < 0.50 | < 0.50 | < 0.50 | < 0.20 | < 2.0 |

| MW-17-28S | May-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | 1.9 J | 2.1 J | 2.0 J | 3.0 J | 3.0 J |
| Chlorobenzene | **6.0** | 4.9 | 5.0 J | 5.0 J | 5.0 J |
| Chloroethane | 1.1 | < 0.50 | < 0.50 | < 2.0 | < 2.0 |

| MW-09-20S | Sept-09 | Oct-10 | Oct-11 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | < 1.4 | < 8.0 | 1.7 | < 6.4 | < 6.4 | 2.0 | 1.3 | 3.0 J | < 20. | 0.40 J |
| Chloroethane | < 3.5 | < 12 | < 0.10 | < 10 | < 10 | < 0.50 | < 0.50 | < 0.50 | < 20. | < 0.20 |
| Acetone | NA | < 9.5 | 0.55 | < 7.6 | < 7.6 | < 6.0 | < 6.0 | **110 J** | < 7.0 | < 0.70 |
| Methylene Chloride | NA | < 6.5 | 0.23 | < 5.2 | < 5.2 | < 2.0 | < 0.5 | 1.0 J | < 3.0 | < 0.30 |

| MW-09-22S | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | **5.9 J** | 2.9 J | < 3.2 | < 3.2 | < 3.2 | < 3.2 | < 2.5 | 3.5 | 4.0 J | < 2.0 | < 0.20 |
| Chloroethane | < 3.5 | < 2.5 | < 5.0 R | < 5.0 | < 5.0 | < 5.0 | < 2.5 | < 0.50 | < 0.50 | < 2.0 | < 0.20 |

| MW-09-23D | Sept-09 | Oct-10 | Oct-11 | Jan-12 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | **13 J** | **14** | < 3.2 | < 3.2 | < 3.2 | < 3.2 | 2.9 | **5.1** | < 0.50 | 4.0 | 3.0 |
| Chloroethane | < 3.5 | 3.1 J | < 5.0 R | < 5.0 | < 5.0 | < 5.0 | < 0.50 | < 0.50 | < 0.50 | 1.0 | 1.0 |

| MW-09-21D | Sept-09 | Oct-10 | Oct-11 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | 5.0 J | < 8.0 | 4.4 | < 6.4 | < 6.4 | < 2.0 | **5.8** | 4.0 J | **6.0** | **7.0** |
| Chloroethane | **9.8 J** | < 12 | **29** | **41** | < 10 | < 0.50 | < 0.50 | < 0.50 | < 1.0 | < 0.20 |

| MW-17-27S | May-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | < 1.0 | < 5.0 | < 1.0 | < 2.0 | < 2.0 |
| Chlorobenzene | 0.67 J | < 2.5 | < 0.50 | < 2.0 | < 2.0 |
| Chloroethane | < 0.50 | < 2.5 | < 0.50 | < 2.0 | < 2.0 |
| Methylene Chloride | < 0.50 | < 2.5 | < 0.50 | **26** | < 3.0 |
| Tetrachloroethene | < 0.50 | < 2.5 | < 0.50 | **17** | < 2.0 |
| 1,1,1-Trichloroethane | < 0.50 | < 2.5 | < 0.50 | **12** | < 3.0 |
| Trichloroethene | < 0.50 | < 2.5 | < 0.50 | **11** | < 2.0 |

| MW-09-26D | Sept-09 | Oct-10 | Oct-11 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dichlorobenzene | NA | 2.1 J | 2.4 | 2.5 J | < 4.4 | < 1.0 | 1.4 J | 2.0 J | 2.0 J | 2.0 J |
| Chlorobenzene | **13** | **14** | **13** | **13** | < 6.4 | 1.7 | 4.5 | **7.0 J** | **9.0 J** | **13 J** |
| Chloroethane | **36** | 4.2 J | **35** | **6.7 J** | < 10 | < 0.50 | < 0.50 | 3.0 J | 5.0 | 0.70 J |

| MW-03-13S | May-03 | Jun-04 | Jun-06 | Sept-09 | Oct-11 | May-13 | May-14 | Mar-17 | Sept-17 | Mar-18 | Sept-18 | Mar-19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | < 5.0 | < 10 | <0.3 | < 1.6 | **5.1** | < 1.7 | < 6.8 | < 0.50 | < 0.50 | < 0.50 | < 1.0 | < 0.20 |

LEGEND:

- MW-98-9D — MONITORING WELL
- PROPERTY BOUNDARY LINE
- CREEK LINE
- J — QUANTITATIVELY ESTIMATED VALUE
- NA — NOT ANALYZED
- R — RESULT REJECTED DURING QA/QC REVIEW

NOTE:

ALL RESULTS IN µg/L. BOLD INDICATES RESULT EXCEEDS NYSDEC GROUNDWATER STANDARD.

GROUNDWATER VOC SAMPLING RESULTS
OPERABLE UNIT No. 2

FORMER COLUMBIA CEMENT COMPANY, INC.
159 HANSE AVENUE
FREEPORT, NEW YORK

AECOM
CLIFTON, NEW JERSEY

| DR. BY | BEW | SCALE | AS SHOWN | DWG. NO. | 60481767-18-Fig2 | PROJ. NO. | 60481767 |
|---|---|---|---|---|---|---|---|
| CK'D. BY | MB | DATE | JUN, 2019 | FIG. NO. | 2 | | |

File Name: G:\GIS\Projects\DCS AMERICAS\North East\BP IPO\60481767-18-FIG2.dwg User:EDWARD.BRATU Jul 03, 2019 - 9:53am

# APPENDIX A
# GROUNDWATER PURGE LOGS

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-03-13S Date: 3/17/19

Well Depth: 24.3' Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly Water Level: 6.39

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 300 ml/min

Other Info.: PID = 0.1 ppm Brown particles in water

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 16:03 | start | | | | | | |
| 16:06 | 7.11 | 14.04 | 0.359 | 0.65 | 191 | -3 | |
| 16:09 | 7.08 | 14.12 | 0.360 | 0.0 | 156 | -76 | 6.48 |
| 16:12 | 7.06 | 14.18 | 0.361 | 0.0 | 68.2 | -78 | |
| 16:15 | 7.05 | 13.77 | 0.367 | 0.0 | 53.2 | -80 | 6.44 |
| 16:18 | 7.04 | 13.97 | 0.368 | 0.0 | 61.2 | -81 | |
| 16:21 | 7.03 | 14.05 | 0.375 | 0.0 | 59.2 | -81 | 6.44 |
| 16:24 | 7.02 | 14.18 | 0.385 | 0.0 | 59.9 | -82 | |
| 16:27 | 7.02 | 14.15 | 0.387 | 0.0 | 60.2 | -82 | 6.44 |
| 16:30 | Sample | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Sample Time: 16:30

Purge Volume: 2 gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: mw-05-14S Date: 3/17/19

Well Depth: 23.65 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly Water Level: 5.20

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 250 ml/min

Other Info.: PID = 0.0 ppm

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 10:52 | start | | | | | | |
| 10:54 | 6.52 | 9.50 | 4.07 | 1.61 | 180 | -31 | |
| 10:57 | 6.52 | 10.30 | 4.54 | 0.0 | 107 | -40 | 5.71 |
| 11:00 | 6.48 | 10.55 | 5.12 | 0.0 | 111 | -43 | |
| 11:03 | 6.40 | 10.87 | 5.36 | 0.0 | 104 | -42 | 6.50 |
| 11:06 | 6.35 | 11.11 | 5.41 | 0.0 | 74.7 | -42 | |
| 11:09 | 6.30 | 11.24 | 5.50 | 0.0 | 66.1 | -42 | 6.53 |
| 11:12 | 6.27 | 11.58 | 5.46 | 0.0 | 61.3 | -43 | |
| 11:15 | 6.25 | 11.62 | 5.48 | 0.0 | 59.6 | -43 | 6.56 |
| 11:18 | 6.24 | 11.63 | 5.46 | 0.0 | 58.9 | -44 | |
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Sample Time: 11:20

Purge Volume: 1.6 gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-05-15D Date: 3/17/19

Well Depth: 38.08 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly Water Level: 5.31

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 300 ml/min

Other Info.: PID = 0.3 ppm

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 10:07 | Start | | | | | | |
| 10:09 | 3.32 | 12.87 | 7.33 | 4.48 | 337 | 387 | |
| 10:12 | 4.12 | 13.28 | 7.12 | 0.12 | 177 | 270 | 5.45 |
| 10:15 | 4.15 | 13.02 | 7.10 | 0.00 | 147 | 239 | |
| 10:18 | 4.19 | 12.99 | 7.03 | 0.0 | 126 | 220 | 5.45 |
| 10:21 | 4.26 | 12.89 | 6.96 | 0.0 | 103 | 199 | |
| 10:24 | 4.30 | 12.78 | 6.93 | 0.0 | 61 | 187 | 5.45 |
| 10:27 | 4.32 | 12.91 | 6.92 | 0.0 | 51.5 | 176 | |
| 10:30 | 4.38 | 12.93 | 6.91 | 0.0 | 33.1 | 163 | 5.42 |
| 10:33 | 4.41 | 12.98 | 6.93 | 0.0 | 32.6 | 153 | |
| 10:36 | 4.43 | 13.02 | 6.94 | 0.0 | 30.3 | 151 | 5.41 |
| 1039 | 4.43 | 13.03 | 6.94 | 0.0 | 29.6 | 149 | |
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Sample Time: 10:40

Purge Volume: 2.25 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-18S Date: 3/17/19

Well Depth: 15.2 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly Water Level: 6.80

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 250 ml/min ↓200

Other Info.: PID = 0.8 ppm

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 08:30 | Start | | | | | | |
| 08:33 | 6.91 | 9.74 | 3.20 | 0.81 | 83.4 | -70 | |
| 08:36 | 6.82 | 10.46 | 3.14 | 0.20 | 30.7 | -87 | |
| 08:39 | 6.79 | 10.43 | 3.09 | 0.0 | 12.3 | -87 | 6.95 |
| 08:42 | 6.77 | 10.44 | 3.06 | 0.0 | 12.8 | -89 | |
| 08:45 | 6.74 | 10.52 | 3.02 | 0.0 | 12.5 | -88 | 6.98 |
| 08:48 | 6.73 | 10.52 | 3.00 | 0.0 | 12.3 | -89 | |
| 08:51 | 6.72 | 10.53 | 2.97 | 0.0 | 12.1 | -87 | 6.98 |
| 08:55 | Sample | | | | | | |
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Sample Time: 08:55

Purge Volume: 1.5 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-19D Date: 3/17/19

Well Depth: 35.2 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly LDPE Water Level: 6.91

Measuring Point: TOC Sampling Personnel: MTB Pumping rate: 250 ml/min

Other Info.: 0.0 ppm

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 09:06 | Start | | | | | | |
| 09:09 | 6.74 | 13.09 | 2.54 | 1.04 | 1.5 | -46 | 6.85 |
| 09:12 | 6.70 | 12.76 | 2.45 | 0.0 | 0.0 | -50 | |
| 09:15 | 6.69 | 13.06 | 2.41 | 0.0 | 1.7 | -52 | 6.90 |
| 09:18 | 6.69 | 13.26 | 2.40 | 0.0 | 2.1 | -55 | |
| 09:21 | 6.68 | 13.22 | 2.40 | 0.0 | 3.5 | -55 | 6.90 |
| 09:24 | 6.68 | 13.47 | 2.37 | 0.0 | 3.6 | -55 | |
| 09:27 | 6.68 | 13.48 | 2.37 | 0.0 | 3.5 | -56 | 6.91 |
| 0930 | 6.68 | 13.47 | 2.37 | 0.0 | 3.3 | -56 | |
| 09:33 | 6.68 | 13.49 | 2.36 | 0.0 | 3.2 | -57 | 6.93 |
| 0935 | Sample | | | | | | |
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Sample Time: 09:35

Purge Volume: 2.0 gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-20 S Date: 3/17/19

Well Depth: 20.45 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: LDPE Water Level: 8.05

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 300ml/min

Other Info.: PID = 0.0

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 12:30 | Start | | | | | | |
| 12:33 | 6.55 | 12.96 | 0.649 | 1.04 | 1.7 | -40 | 8.58 |
| 12:36 | 6.51 | 13.23 | 0.638 | 0.0 | 0.9 | -52 | |
| 12:39 | 6.50 | 13.23 | 0.639 | 0.0 | 0.6 | -55 | 8.48 |
| 12:42 | 6.50 | 13.28 | 0.639 | 0.0 | 1.1 | -59 | |
| 12:45 | 6.50 | 13.14 | 0.639 | 0.0 | 2.1 | -62 | 8.48 |
| 12:48 | 6.49 | 13.33 | 0.638 | 0.0 | 3.5 | -64 | |
| 12:51 | 6.49 | 13.41 | 0.639 | 0.0 | 3.9 | -66 | 8.48 |
| 12:54 | 6.48 | 13.43 | 0.640 | 0.0 | 4.0 | -67 | |
| 12:58 | Sample | | | | | | |
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Sample Time: 12:55

Purge Volume: 1.5 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-21D Date: 3/17/19

Well Depth: 34.21 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: TOC Tubing Type: LDPE Poly Water Level: 8.23

Measuring Point: TOC Sampling Personnel: MTS Pumping rate: 250 ml/min

Other Info.: PID = 0.0 ppm

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 11:55 | Start | | | | | | |
| 11:57 | 6.75 | 13.53 | 1.11 | 3.77 | 44.7 | -24 | |
| 12:00 | 6.63 | 14.61 | 1.14 | 1.00 | 52.9 | -32 | 8.30 |
| 12:03 | 6.54 | 15.20 | 1.17 | 0.13 | 9.7 | -43 | |
| 12:06 | 6.52 | 15.24 | 1.17 | 0.02 | 3.5 | -47 | 8.31 |
| 12:09 | 6.50 | 15.21 | 1.18 | 0.00 | 3.2 | -51 | |
| 12:12 | 6.49 | 15.33 | 1.18 | 0.0 | 6.2 | -54 | 8.32 |
| 12:15 | 6.48 | 15.38 | 1.17 | 0.0 | 7.1 | -56 | |
| 12:18 | 6.48 | 15.41 | 1.17 | 0.0 | 7.3 | -57 | 8.35 |
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Sample Time: 12:20

Purge Volume: 1.6 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-225 Date: 3/18/19

Well Depth: 20.35 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly LDPE Water Level: 8.90

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 250 ml/min

Other Info.: P.D 20.0 Water Cloudy Replace tubing

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 12:42 | Start | | | | | | |
| 12:45 | 6.42 | 13.35 | 1.04 | 1.66 | 432 | -125 | |
| 12:48 | 6.48 | 13.03 | 1.06 | 0.30 | 433 | -161 | 8.90 |
| 12:51 | 6.46 | 13.08 | 1.12 | 0.0 | 441 | -201 | |
| 12:54 | 6.46 | 13.06 | 1.15 | 0.0 | 433 | -209 | 8.99 |
| 12:57 | 6.45 | 13.25 | 1.17 | 0.0 | 405 | -220 | |
| 13:00 | 6.45 | 13.27 | 1.17 | 0.0 | 366 | -222 | 9.02 |
| 13:03 | 6.45 | 13.27 | 1.17 | 0.0 | 364 | -224 | |
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Sample Time: 13:05

Purge Volume: 1.25 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW09-23D Date: 3/18/19

Well Depth: 34.65 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly Water Level: 8.34

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 250 ml/min

Other Info.: PID 20.0 Dirt in manhole Black particles in water

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 12:02 | start | | | | | | |
| 12:03 | 6.76 | 14.02 | 1.20 | 3.30 | 47.8 | -64 | |
| 12:06 | 6.76 | 14.52 | 0.913 | 0.07 | 23.4 | -64 | 8.56 |
| 12:09 | 6.65 | 14.65 | 0.945 | 0.0 | 6.2 | -64 | |
| 12:12 | 6.63 | 14.89 | 0.976 | 0.0 | 4.1 | -65 | 8.80 |
| 12:15 | 6.63 | 14.86 | 0.996 | 0.0 | 0.6 | -66 | |
| 12:18 | 6.63 | 14.84 | 0.998 | 0.0 | 0.5 | -66 | |
| 12:20 | Sample | | | | | | |
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Sample Time: 12:20

Purge Volume: 1.25 gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-24S Date: 3/18/19

Well Depth: 19.90 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: GeoPump Tubing Type: Poly Water Level: 4.55

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 220ml/min

Other Info.: PID=0.0 Tide high but going out. Dust in manhole.

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 08:43 | start | | | | | | |
| 08:45 | 6.71 | 10.89 | 0.660 | 1.57 | 409 | -8 | |
| 08:48 | 6.66 | 10.63 | 0.710 | 0.0 | 207 | -20 | 5.02 |
| 08:51 | 6.67 | 10.59 | 0.714 | 0.0 | 110 | -26 | |
| 08:54 | 6.68 | 10.61 | 0.724 | 0.0 | 92.9 | -33 | 5.08 |
| 08:57 | 6.69 | 10.75 | 0.742 | 0.0 | 91.2 | -38 | |
| 09:00 | 6.70 | 10.78 | 0.743 | 0.0 | 92.9 | -41 | 5.11 |
| 09:03 | 6.70 | 10.81 | 0.743 | 0.0 | 92.5 | -42 | |
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Sample Time: 09:05

Purge Volume: 1.5 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-09-25D Date: 3/18/19

Well Depth: 35.80 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly Water Level: 4.47

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 300 ml/min

Other Info.: PID = 0.0 High tide in Freeport Creek

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 08:01 | Stand | | | | | | |
| 08:03 | 6.71 | 12.59 | 0.818 | 1.65 | 19.1 | 66 | |
| 08:06 | 6.69 | 12.86 | 0.890 | 0.34 | 4.3 | 30 | 4.58 |
| 08:09 | 6.71 | 12.99 | 1.71 | 0.0 | 2.3 | -14 | |
| 08:12 | 6.75 | 13.04 | 3.14 | 0.0 | 1.5 | -31 | 4.64 |
| 08:15 | 6.74 | 13.06 | 3.62 | 0.0 | 0.0 | -36 | |
| 08:18 | 6.73 | 13.16 | 3.92 | 0.0 | 0.0 | -40 | 4.71 |
| 08:21 | 6.73 | 13.12 | 4.05 | 0.0 | 0.0 | -41 | |
| 08:24 | 6.72 | 13.08 | 4.07 | 0.0 | 0.0 | -42 | 4.75 |
| 08:27 | 6.72 | 13.10 | 4.08 | 0.0 | 0.0 | -43 | |
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Sample Time: 08:30

Purge Volume: 2 gal

# LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-05-26D Date: 3/17/19

Well Depth: 34.4 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: GeoPump Tubing Type: Poly Water Level: 6.65

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 250 ml/min

Other Info.: PID=0.0

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 15:00 | Start | | | | | | |
| 15:03 | 6.48 | 15.65 | 0.919 | 0.66 | 11.1 | -62 | |
| 15:06 | 6.48 | 15.40 | 0.923 | 0.05 | 9.6 | -59 | 6.68 |
| 15:09 | 6.47 | 14.53 | 0.941 | 0.0 | 1.4 | -55 | |
| 15:12 | 6.47 | 14.44 | 0.946 | 0.0 | 0.0 | -56 | 6.68 |
| 15:15 | 6.47 | 14.34 | 0.952 | 0.0 | 0.0 | -54 | |
| 15:18 | 6.48 | 14.56 | 0.956 | 0.0 | 0.2 | -55 | 6.68 |
| 15:21 | 6.47 | 14.49 | 0.958 | 0.0 | 0.3 | -55 | |
| 15:24 | 6.48 | 14.42 | 0.961 | 0.0 | 0.3 | -56 | |
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Sample Time: 15:25

Purge Volume: 1.5 gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-17-27S Date: 3/17/19

Well Depth: 20.25 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geo Pump Tubing Type: Poly LDPE Water Level: 6.73

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 280ml/min

Other Info.: PID=0.0 water is light tea colored Collect DUP031719

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 13:58 | Start | | | | | | |
| 14:00 | 6.38 | 12.85 | 0.641 | 3.35 | 37.2 | -20 | |
| 14:03 | 6.33 | 13.08 | 0.631 | 0.0 | 32.6 | -32 | 6.75 |
| 1405- | stop for | pump start | | | | | |
| 14:12 | 6.32 | 12.73 | 0.634 | 0.0 | 44.1 | -58 | 6.75 |
| 14:15 | 6.30 | 13.02 | 0.627 | 0.0 | 35.4 | -67 | |
| 14:18 | 6.30 | 13.34 | 0.620 | 0.0 | 48.9 | -85 | |
| 14:21 | 6.30 | 13.69 | 0.613 | 0.0 | 51.0 | -111 | 6.75 |
| 14:24 | 6.28 | 13.93 | 0.608 | 0.0 | 57.6 | -133 | |
| 14:27 | 6.28 | 13.83 | 0.608 | 0.0 | 58.5 | -149 | 6.75 |
| 14:30 | 6.45 | 13.87 | 0.603 | 0.0 | 57.8 | -155 | |
| 14:33 | 6.32 | 13.91 | 0.597 | 0.0 | 56.9 | -161 | |
| 14:36 | 6.31 | 13.94 | 0.597 | 0.0 | 56.1 | -163 | 6.75 |
| 14:39 | 6.31 | 13.96 | 0.596 | 0.0 | 55.9 | -164 | |
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Sample Time: 14:40

Purge Volume: 2gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-17-275 Date: 3/18/19

Well Depth: 25.32 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: Geopump Tubing Type: Poly HDPE Water Level: 7.84

Measuring Point: TOC Sampling Personnel: MSB Pumping rate: 300

Other Info.: PID=0.0

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 11:00 | start | | | | | | |
| 11:03 | 6.67 | 13.02 | 2.62 | 0.15 | 0.6 | -110 | |
| 11:06 | 6.62 | 13.30 | 2.62 | 0.0 | 0.3 | -113 | 8.02 |
| 11:09 | 6.59 | 13.47 | 2.63 | 0.0 | 0.0 | -115 | |
| 11:12 | 6.58 | 13.59 | 2.62 | 0.0 | 0.0 | -116 | 8.10 |
| 11:15 | 6.57 | 13.62 | 2.62 | 0.0 | 0.0 | -115 | |
| 11:18 | 6.56 | 13.64 | 2.62 | 0.0 | 0.0 | -116 | |
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Sample Time: 11:20

Purge Volume: 1.5 gal

## LOW-FLOW SAMPLING LOG

Project No.: 60481767 Site: Columbia Cement Well No.: MW-17-29D Date: 3/18/19

Well Depth: 35.05 Screen length: 10' Well Dia.: 2" Casing Type: PVC

Sampling Device: GeoPump Tubing Type: HDPE Water Level: 7.09

Measuring Point: TOC Sampling Personnel: MB Pumping rate: 300 ml/min

Other Info.:

| Time | Ph (s.u.) | Temp (C) | Cond. (mS/cm) | Diss. O2 (mg/l) | Turbidity (NTU) | ORP (mV) | Water Level |
|---|---|---|---|---|---|---|---|
| 10:18 | Start | | | | | | |
| 10:21 | 6.46 | 12.97 | 2.0 | 4.52 | 2.6 | -29 | |
| 10:24 | 6.62 | 13.38 | 52.1 | 0.0 | 0.6 | -82 | 7.23 |
| 10:27 | 6.65 | 13.43 | 52.9 | 0.0 | 0.0 | -90 | |
| 10:30 | 6.68 | 13.13 | 54.7 | 0.0 | 0.0 | -109 | 7.28 |
| 10:33 | 6.71 | 12.85 | 55.3 | 0.0 | 0.0 | -150 | |
| 10:36 | 6.72 | 12.98 | 55.2 | 0.0 | 0.0 | -185 | 7.35 |
| 10:39 | 6.73 | 12.88 | 55.6 | 0.0 | 0.0 | -191 | |
| 10:42 | 6.73 | 12.94 | 56.1 | 0.0 | 0.0 | -195 | |
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Sample Time: 10:45

Purge Volume: 1.75 gal

# APPENDIX B
# LABORATORY DATA PACKAGE

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

# ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

AECOM
P.O. Box 203970
Austin TX 78720

Report Date: March 27, 2019 19:34

**Project: Columbia Cement**

Account #: 12385
Group Number: 2034268
SDG: BEL50
PO Number: 83913ACM
State of Sample Origin: NY

Electronic Copy To URS Corporation Attn: Mark Becker

Respectfully Submitted,

Hannah L. Cottman
Project Manager

(717) 556-7383

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## SAMPLE INFORMATION

| Client Sample Description | Sample Collection Date/Time | ELLE# |
|---|---|---|
| MW-03-13S Grab Groundwater | 03/17/2019 16:30 | 1012095 |
| MW-05-14S Grab Groundwater | 03/17/2019 11:20 | 1012096 |
| MW-05-15D Grab Groundwater | 03/17/2019 10:40 | 1012097 |
| MW-19-17S Grab Groundwater | 03/17/2019 08:55 | 1012098 |
| MW-09-19D Grab Groundwater | 03/17/2019 09:35 | 1012099 |
| MW-09-20S Grab Groundwater | 03/17/2019 12:55 | 1012100 |
| MW-09-21D Grab Groundwater | 03/17/2019 12:20 | 1012101 |
| MW-09-22S Grab Groundwater | 03/18/2019 13:05 | 1012102 |
| MW-09-23D Grab Groundwater | 03/18/2019 12:20 | 1012103 |
| MW-09-24S Grab Groundwater | 03/18/2019 09:05 | 1012104 |
| MW-09-25D Grab Groundwater | 03/17/2019 08:30 | 1012105 |
| MW-09-26D Grab Groundwater | 03/17/2019 15:25 | 1012106 |
| MW-17-27S Grab Groundwater | 03/18/2019 14:40 | 1012107 |
| MW-17-28S Grab Groundwater | 03/18/2019 11:20 | 1012108 |
| MW-17-29D Grab Groundwater | 03/18/2019 10:45 | 1012109 |
| DUP031719 Grab Groundwater | 03/17/2019 | 1012110 |
| FB031819 Grab Water | 03/18/2019 10:00 | 1012111 |
| TB031819 Grab Water | 03/18/2019 | 1012112 |

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

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Project Name: Columbia Cement
ELLE Group #: 2034268

**General Comments:**

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

**Analysis Specific Comments:**

**SW-846 8260C, GC/MS Volatiles**

Sample #s: 1012105, 1012107, 1012108, 1012109, 1012110

Reporting limits were raised due to sample foaming.

Batch #: W190841AA (Sample number(s): 1012105-1012107, 1012111-1012112 UNSPK: 1012106)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Cyclohexane, Methylcyclohexane, Dichlorodifluoromethane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, Toluene, Tetrachloroethene, Isopropylbenzene, Xylene (Total), Freon 113, 1,1,2-Trichloroethane, Chlorobenzene, Ethylbenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene

Batch #: W190842AA (Sample number(s): 1012108-1012110 UNSPK: 1012108)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: 1,1,2-Trichloroethane

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Methylcyclohexane, Toluene, Tetrachloroethene, Isopropylbenzene, Freon 113

**Sample Description:** **MW-03-13S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 16:30
SDG#: BEL50-01

**AECOM**
**ELLE Sample #: WW 1012095**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.3 J | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-03-13S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 16:30
SDG#: BEL50-01

**AECOM**
**ELLE Sample #: WW 1012095**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 16:22 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 16:21 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-05-14S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 11:20
SDG#: BEL50-02

**AECOM**
**ELLE Sample #: WW 1012096**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 5 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | 0.4 J | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.8 J | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-05-14S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 11:20
SDG#: BEL50-02

**AECOM**
**ELLE Sample #: WW 1012096**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 16:44 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 16:43 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-05-15D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 10:40
SDG#: BEL50-03

**AECOM**
**ELLE Sample #: WW 1012097**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | 0.2 J | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | 7 | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 1 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 5 | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.3 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-05-15D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 10:40
SDG#: BEL50-03

**AECOM**
**ELLE Sample #: WW 1012097**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 17:05 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 17:04 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-19-17S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 08:55
SDG#: BEL50-04

**AECOM**
**ELLE Sample #: WW 1012098**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 15 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 2 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 4 | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 1 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 0.9 J | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-19-17S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 08:55
SDG#: BEL50-04

**AECOM**
**ELLE Sample #: WW 1012098**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 17:27 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 17:26 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-19D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 09:35
SDG#: BEL50-05

**AECOM**
**ELLE Sample #: WW 1012099**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 5 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 2 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 6 | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-19D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 09:35
SDG#: BEL50-05

**AECOM**
**ELLE Sample #: WW 1012099**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 17:49 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 17:48 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-20S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 12:55
SDG#: BEL50-06

**AECOM**
**ELLE Sample #: WW 1012100**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 0.4 J | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.8 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-20S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 12:55
SDG#: BEL50-06

**AECOM**
**ELLE Sample #: WW 1012100**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 18:11 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 18:10 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-21D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 12:20
SDG#: BEL50-07

**AECOM**
**ELLE Sample #: WW 1012101**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 5 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 7 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 0.7 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-21D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 12:20
SDG#: BEL50-07

**AECOM**
**ELLE Sample #: WW 1012101**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 18:33 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 18:32 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-22S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 13:05
SDG#: BEL50-08

**AECOM**
**ELLE Sample #: WW 1012102**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 5 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-22S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 13:05
SDG#: BEL50-08

**AECOM**
**ELLE Sample #: WW 1012102**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 18:55 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 18:54 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-23D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 12:20
SDG#: BEL50-09

**AECOM**
**ELLE Sample #: WW 1012103**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 3 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 1 | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 1 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-23D Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 12:20
SDG#: BEL50-09

**AECOM**
**ELLE Sample #: WW 1012103**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 19:16 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 19:15 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-24S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 09:05
SDG#: BEL50-10

**AECOM**
**ELLE Sample #: WW 1012104**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 2 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 1 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-24S Grab Groundwater**
**COC: 574557**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 09:05
SDG#: BEL50-10

**AECOM**
**ELLE Sample #: WW 1012104**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | L190822AA | 03/23/2019 19:38 | Linda C Pape | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | L190822AA | 03/23/2019 19:37 | Linda C Pape | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-25D Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 08:30
SDG#: BEL50-11

**AECOM**
**ELLE Sample #: WW 1012105**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | N.D. | 7 | 200 | 10 |
| 11997 | Benzene | 71-43-2 | N.D. | 2 | 10 | 10 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 2 | 10 | 10 |
| 11997 | Bromoform | 75-25-2 | N.D. | 2 | 40 | 10 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 3 | 10 | 10 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 3 | 100 | 10 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 2 | 50 | 10 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 2 | 10 | 10 |
| 11997 | Chlorobenzene | 108-90-7 | 5 J | 2 | 10 | 10 |
| 11997 | Chloroethane | 75-00-3 | 31 | 2 | 10 | 10 |
| 11997 | Chloroform | 67-66-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 2 | 10 | 10 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 2 | 50 | 10 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 3 | 50 | 10 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 2 | 50 | 10 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 2 | 10 | 10 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 2 | 10 | 10 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 4 | 10 | 10 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 2 | 100 | 10 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 3 | 100 | 10 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | 6 J | 2 | 10 | 10 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 5 | 100 | 10 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 2 | 50 | 10 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 3 | 10 | 10 |
| 11997 | Styrene | 100-42-5 | N.D. | 2 | 50 | 10 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 2 | 10 | 10 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 2 | 10 | 10 |
| 11997 | Toluene | 108-88-3 | N.D. | 2 | 10 | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-25D Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 08:30
SDG#: BEL50-11

**AECOM**
**ELLE Sample #: WW 1012105**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 3 | 50 | 10 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 2 | 10 | 10 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 2 | 10 | 10 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 2 | 10 | 10 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 2 | 10 | 10 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 10 | 50 | 10 |

Reporting limits were raised due to sample foaming.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190841AA | 03/25/2019 18:39 | Corie Mellinger | 10 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190841AA | 03/25/2019 18:38 | Corie Mellinger | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-26D Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 15:25
SDG#: BEL50-12

**AECOM**
**ELLE Sample #: WW 1012106**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 5 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | 13 | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | 0.7 J | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 2 J | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | 0.5 J | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | 0.2 J | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-09-26D Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019 15:25
SDG#: BEL50-12

**AECOM**
**ELLE Sample #: WW 1012106**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190841AA | 03/25/2019 13:28 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190841AA | 03/25/2019 13:27 | Corie Mellinger | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-17-27S Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 14:40
SDG#: BEL50-13

**AECOM**
**ELLE Sample #: WW 1012107**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | N.D. | 7 | 200 | 10 |
| 11997 | Benzene | 71-43-2 | N.D. | 2 | 10 | 10 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 2 | 10 | 10 |
| 11997 | Bromoform | 75-25-2 | N.D. | 2 | 40 | 10 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 3 | 10 | 10 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 3 | 100 | 10 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 2 | 50 | 10 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 2 | 10 | 10 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroform | 67-66-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 2 | 10 | 10 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 2 | 50 | 10 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 3 | 50 | 10 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 2 | 50 | 10 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 2 | 10 | 10 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 2 | 10 | 10 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 4 | 10 | 10 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 2 | 100 | 10 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 3 | 100 | 10 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 2 | 10 | 10 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 5 | 100 | 10 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 2 | 50 | 10 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 3 | 10 | 10 |
| 11997 | Styrene | 100-42-5 | N.D. | 2 | 50 | 10 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 2 | 10 | 10 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 2 | 10 | 10 |
| 11997 | Toluene | 108-88-3 | N.D. | 2 | 10 | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-17-27S Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 14:40
SDG#: BEL50-13

**AECOM**
**ELLE Sample #: WW 1012107**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 3 | 50 | 10 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 2 | 10 | 10 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 2 | 10 | 10 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 2 | 10 | 10 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 2 | 10 | 10 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 10 | 50 | 10 |

Reporting limits were raised due to sample foaming.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190841AA | 03/25/2019 19:03 | Corie Mellinger | 10 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190841AA | 03/25/2019 19:02 | Corie Mellinger | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-17-28S Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 11:20
SDG#: BEL50-14

**AECOM**
**ELLE Sample #: WW 1012108**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | N.D. | 7 | 200 | 10 |
| 11997 | Benzene | 71-43-2 | N.D. | 2 | 10 | 10 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 2 | 10 | 10 |
| 11997 | Bromoform | 75-25-2 | N.D. | 2 | 40 | 10 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 3 | 10 | 10 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 3 | 100 | 10 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 2 | 50 | 10 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 2 | 10 | 10 |
| 11997 | Chlorobenzene | 108-90-7 | 5 J | 2 | 10 | 10 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroform | 67-66-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 2 | 10 | 10 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 2 | 50 | 10 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 3 | 50 | 10 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | 3 J | 2 | 50 | 10 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 2 | 10 | 10 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 2 | 10 | 10 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 4 | 10 | 10 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 2 | 100 | 10 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 3 | 100 | 10 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 2 | 10 | 10 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 5 | 100 | 10 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 2 | 50 | 10 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 3 | 10 | 10 |
| 11997 | Styrene | 100-42-5 | N.D. | 2 | 50 | 10 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 2 | 10 | 10 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 2 | 10 | 10 |
| 11997 | Toluene | 108-88-3 | N.D. | 2 | 10 | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-17-28S Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 11:20
SDG#: BEL50-14

**AECOM**
**ELLE Sample #: WW 1012108**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 3 | 50 | 10 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 2 | 10 | 10 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 2 | 10 | 10 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 2 | 10 | 10 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 2 | 10 | 10 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 10 | 50 | 10 |

Reporting limits were raised due to sample foaming.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190842AA | 03/25/2019 23:41 | Don V Viray | 10 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190842AA | 03/25/2019 23:40 | Don V Viray | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-17-29D Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 10:45
SDG#: BEL50-15

**AECOM**
**ELLE Sample #: WW 1012109**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | N.D. | 7 | 200 | 10 |
| 11997 | Benzene | 71-43-2 | N.D. | 2 | 10 | 10 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 2 | 10 | 10 |
| 11997 | Bromoform | 75-25-2 | N.D. | 2 | 40 | 10 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 3 | 10 | 10 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 3 | 100 | 10 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 2 | 50 | 10 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 2 | 10 | 10 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroform | 67-66-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 2 | 10 | 10 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 2 | 50 | 10 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 3 | 50 | 10 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 2 | 50 | 10 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 2 | 10 | 10 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 2 | 10 | 10 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 4 | 10 | 10 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 2 | 100 | 10 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 3 | 100 | 10 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 2 | 10 | 10 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 5 | 100 | 10 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 2 | 50 | 10 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 3 | 10 | 10 |
| 11997 | Styrene | 100-42-5 | N.D. | 2 | 50 | 10 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 2 | 10 | 10 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 2 | 10 | 10 |
| 11997 | Toluene | 108-88-3 | N.D. | 2 | 10 | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **MW-17-29D Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 10:45
SDG#: BEL50-15

**AECOM**
**ELLE Sample #: WW 1012109**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 3 | 50 | 10 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 2 | 10 | 10 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 2 | 10 | 10 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 2 | 10 | 10 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 2 | 10 | 10 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 10 | 50 | 10 |

Reporting limits were raised due to sample foaming.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190842AA | 03/26/2019 01:17 | Don V Viray | 10 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190842AA | 03/26/2019 01:16 | Don V Viray | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP031719 Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019
SDG#: BEL50-16FD

**AECOM**
**ELLE Sample #: WW 1012110**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | N.D. | 7 | 200 | 10 |
| 11997 | Benzene | 71-43-2 | N.D. | 2 | 10 | 10 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 2 | 10 | 10 |
| 11997 | Bromoform | 75-25-2 | N.D. | 2 | 40 | 10 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 3 | 10 | 10 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 3 | 100 | 10 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 2 | 50 | 10 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 2 | 10 | 10 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloroform | 67-66-3 | N.D. | 2 | 10 | 10 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 2 | 10 | 10 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 2 | 50 | 10 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 3 | 50 | 10 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 2 | 50 | 10 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 2 | 50 | 10 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 2 | 10 | 10 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 2 | 10 | 10 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 2 | 10 | 10 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 2 | 10 | 10 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 2 | 10 | 10 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 4 | 10 | 10 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 2 | 100 | 10 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 3 | 100 | 10 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 2 | 50 | 10 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 2 | 10 | 10 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 5 | 100 | 10 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 2 | 50 | 10 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 3 | 10 | 10 |
| 11997 | Styrene | 100-42-5 | N.D. | 2 | 50 | 10 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 2 | 10 | 10 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 2 | 10 | 10 |
| 11997 | Toluene | 108-88-3 | N.D. | 2 | 10 | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **DUP031719 Grab Groundwater**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/17/2019
SDG#: BEL50-16FD

**AECOM**
**ELLE Sample #: WW 1012110**
**ELLE Group #: 2034268**
**Matrix: Groundwater**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 3 | 50 | 10 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 3 | 10 | 10 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 2 | 10 | 10 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 2 | 10 | 10 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 2 | 10 | 10 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 2 | 10 | 10 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 10 | 50 | 10 |

Reporting limits were raised due to sample foaming.

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190842AA | 03/26/2019 05:05 | Don V Viray | 10 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190842AA | 03/26/2019 05:04 | Don V Viray | 10 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **FB031819 Grab Water**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 10:00
SDG#: BEL50-17FB

**AECOM**
**ELLE Sample #: WW 1012111**
**ELLE Group #: 2034268**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 4 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | 1 J | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **FB031819 Grab Water**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019 10:00
SDG#: BEL50-17FB

**AECOM**
**ELLE Sample #:** **WW 1012111**
**ELLE Group #:** **2034268**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190841AA | 03/25/2019 12:17 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190841AA | 03/25/2019 12:16 | Corie Mellinger | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB031819 Grab Water**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019
SDG#: BEL50-18TB

**AECOM**
**ELLE Sample #: WW 1012112**
**ELLE Group #: 2034268**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | Acetone | 67-64-1 | 3 J | 0.7 | 20 | 1 |
| 11997 | Benzene | 71-43-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromodichloromethane | 75-27-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Bromoform | 75-25-2 | N.D. | 0.2 | 4 | 1 |
| 11997 | Bromomethane | 74-83-9 | N.D. | 0.3 | 1 | 1 |
| 11997 | 2-Butanone | 78-93-3 | N.D. | 0.3 | 10 | 1 |
| 11997 | Carbon Disulfide | 75-15-0 | N.D. | 0.2 | 5 | 1 |
| 11997 | Carbon Tetrachloride | 56-23-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chlorobenzene | 108-90-7 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroethane | 75-00-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloroform | 67-66-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Chloromethane | 74-87-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | Cyclohexane | 110-82-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,2-Dibromo-3-chloropropane | 96-12-8 | N.D. | 0.3 | 5 | 1 |
| 11997 | Dibromochloromethane | 124-48-1 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dibromoethane | 106-93-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichlorobenzene | 95-50-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,3-Dichlorobenzene | 541-73-1 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,4-Dichlorobenzene | 106-46-7 | N.D. | 0.2 | 5 | 1 |
| 11997 | Dichlorodifluoromethane | 75-71-8 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,1-Dichloroethane | 75-34-3 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloroethane | 107-06-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1-Dichloroethene | 75-35-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,2-Dichloroethene | 156-59-2 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,2-Dichloroethene | 156-60-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | 1,2-Dichloropropane | 78-87-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | cis-1,3-Dichloropropene | 10061-01-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | trans-1,3-Dichloropropene | 10061-02-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Ethylbenzene | 100-41-4 | N.D. | 0.4 | 1 | 1 |
| 11997 | Freon 113 | 76-13-1 | N.D. | 0.2 | 10 | 1 |
| 11997 | 2-Hexanone | 591-78-6 | N.D. | 0.3 | 10 | 1 |
| 11997 | Isopropylbenzene | 98-82-8 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Acetate | 79-20-9 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methyl Tertiary Butyl Ether | 1634-04-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | 4-Methyl-2-pentanone | 108-10-1 | N.D. | 0.5 | 10 | 1 |
| 11997 | Methylcyclohexane | 108-87-2 | N.D. | 0.2 | 5 | 1 |
| 11997 | Methylene Chloride | 75-09-2 | N.D. | 0.3 | 1 | 1 |
| 11997 | Styrene | 100-42-5 | N.D. | 0.2 | 5 | 1 |
| 11997 | 1,1,2,2-Tetrachloroethane | 79-34-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Tetrachloroethene | 127-18-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Toluene | 108-88-3 | N.D. | 0.2 | 1 | 1 |

*=This limit was used in the evaluation of the final result

**Sample Description:** **TB031819 Grab Water**
**COC: 574556**

**Project Name:** **Columbia Cement**

Submittal Date/Time: 03/19/2019 09:40
Collection Date/Time: 03/18/2019
SDG#: BEL50-18TB

**AECOM**
**ELLE Sample #:** **WW 1012112**
**ELLE Group #:** **2034268**
**Matrix: Water**

| CAT No. | Analysis Name | CAS Number | Result | Method Detection Limit* | Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC/MS Volatiles** | **SW-846 8260C** | | **ug/l** | **ug/l** | **ug/l** | |
| 11997 | 1,2,4-Trichlorobenzene | 120-82-1 | N.D. | 0.3 | 5 | 1 |
| 11997 | 1,1,1-Trichloroethane | 71-55-6 | N.D. | 0.3 | 1 | 1 |
| 11997 | 1,1,2-Trichloroethane | 79-00-5 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichloroethene | 79-01-6 | N.D. | 0.2 | 1 | 1 |
| 11997 | Trichlorofluoromethane | 75-69-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Vinyl Chloride | 75-01-4 | N.D. | 0.2 | 1 | 1 |
| 11997 | Xylene (Total) | 1330-20-7 | N.D. | 1 | 5 | 1 |

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 11997 | VOCs TCL (4.3) 8260C | SW-846 8260C | 1 | W190841AA | 03/25/2019 12:41 | Corie Mellinger | 1 |
| 01163 | GC/MS VOA Water Prep | SW-846 5030C | 1 | W190841AA | 03/25/2019 12:40 | Corie Mellinger | 1 |

*=This limit was used in the evaluation of the final result

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

## Method Blank

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Batch number: L190822AA | Sample number(s): 1012095-1012104 | | |
| Acetone | N.D. | 0.7 | 20 |
| Benzene | N.D. | 0.2 | 1 |
| Bromodichloromethane | N.D. | 0.2 | 1 |
| Bromoform | N.D. | 0.2 | 4 |
| Bromomethane | N.D. | 0.3 | 1 |
| 2-Butanone | N.D. | 0.3 | 10 |
| Carbon Disulfide | N.D. | 0.2 | 5 |
| Carbon Tetrachloride | N.D. | 0.2 | 1 |
| Chlorobenzene | N.D. | 0.2 | 1 |
| Chloroethane | N.D. | 0.2 | 1 |
| Chloroform | N.D. | 0.2 | 1 |
| Chloromethane | N.D. | 0.2 | 1 |
| Cyclohexane | N.D. | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | N.D. | 0.3 | 5 |
| Dibromochloromethane | N.D. | 0.2 | 1 |
| 1,2-Dibromoethane | N.D. | 0.2 | 1 |
| 1,2-Dichlorobenzene | N.D. | 0.2 | 5 |
| 1,3-Dichlorobenzene | N.D. | 0.2 | 5 |
| 1,4-Dichlorobenzene | N.D. | 0.2 | 5 |
| Dichlorodifluoromethane | N.D. | 0.2 | 1 |
| 1,1-Dichloroethane | N.D. | 0.2 | 1 |
| 1,2-Dichloroethane | N.D. | 0.3 | 1 |
| 1,1-Dichloroethene | N.D. | 0.2 | 1 |
| cis-1,2-Dichloroethene | N.D. | 0.2 | 1 |
| trans-1,2-Dichloroethene | N.D. | 0.2 | 1 |
| 1,2-Dichloropropane | N.D. | 0.2 | 1 |
| cis-1,3-Dichloropropene | N.D. | 0.2 | 1 |
| trans-1,3-Dichloropropene | N.D. | 0.2 | 1 |
| Ethylbenzene | N.D. | 0.4 | 1 |
| Freon 113 | N.D. | 0.2 | 10 |
| 2-Hexanone | N.D. | 0.3 | 10 |
| Isopropylbenzene | N.D. | 0.2 | 5 |
| Methyl Acetate | N.D. | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | N.D. | 0.2 | 1 |
| 4-Methyl-2-pentanone | N.D. | 0.5 | 10 |
| Methylcyclohexane | N.D. | 0.2 | 5 |
| Methylene Chloride | N.D. | 0.3 | 1 |
| Styrene | N.D. | 0.2 | 5 |
| 1,1,2,2-Tetrachloroethane | N.D. | 0.2 | 1 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Tetrachloroethene | N.D. | 0.2 | 1 |
| Toluene | N.D. | 0.2 | 1 |
| 1,2,4-Trichlorobenzene | N.D. | 0.3 | 5 |
| 1,1,1-Trichloroethane | N.D. | 0.3 | 1 |
| 1,1,2-Trichloroethane | N.D. | 0.2 | 1 |
| Trichloroethene | N.D. | 0.2 | 1 |
| Trichlorofluoromethane | N.D. | 0.2 | 1 |
| Vinyl Chloride | N.D. | 0.2 | 1 |
| Xylene (Total) | N.D. | 1 | 5 |
| Batch number: W190841AA | Sample number(s): 1012105-1012107,1012111-1012112 | | |
| Acetone | N.D. | 0.7 | 20 |
| Benzene | N.D. | 0.2 | 1 |
| Bromodichloromethane | N.D. | 0.2 | 1 |
| Bromoform | N.D. | 0.2 | 4 |
| Bromomethane | N.D. | 0.3 | 1 |
| 2-Butanone | N.D. | 0.3 | 10 |
| Carbon Disulfide | N.D. | 0.2 | 5 |
| Carbon Tetrachloride | N.D. | 0.2 | 1 |
| Chlorobenzene | N.D. | 0.2 | 1 |
| Chloroethane | N.D. | 0.2 | 1 |
| Chloroform | N.D. | 0.2 | 1 |
| Chloromethane | N.D. | 0.2 | 1 |
| Cyclohexane | N.D. | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | N.D. | 0.3 | 5 |
| Dibromochloromethane | N.D. | 0.2 | 1 |
| 1,2-Dibromoethane | N.D. | 0.2 | 1 |
| 1,2-Dichlorobenzene | N.D. | 0.2 | 5 |
| 1,3-Dichlorobenzene | N.D. | 0.2 | 5 |
| 1,4-Dichlorobenzene | N.D. | 0.2 | 5 |
| Dichlorodifluoromethane | N.D. | 0.2 | 1 |
| 1,1-Dichloroethane | N.D. | 0.2 | 1 |
| 1,2-Dichloroethane | N.D. | 0.3 | 1 |
| 1,1-Dichloroethene | N.D. | 0.2 | 1 |
| cis-1,2-Dichloroethene | N.D. | 0.2 | 1 |
| trans-1,2-Dichloroethene | N.D. | 0.2 | 1 |
| 1,2-Dichloropropane | N.D. | 0.2 | 1 |
| cis-1,3-Dichloropropene | N.D. | 0.2 | 1 |
| trans-1,3-Dichloropropene | N.D. | 0.2 | 1 |
| Ethylbenzene | N.D. | 0.4 | 1 |
| Freon 113 | N.D. | 0.2 | 10 |
| 2-Hexanone | N.D. | 0.3 | 10 |
| Isopropylbenzene | N.D. | 0.2 | 5 |
| Methyl Acetate | N.D. | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | N.D. | 0.2 | 1 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| 4-Methyl-2-pentanone | N.D. | 0.5 | 10 |
| Methylcyclohexane | N.D. | 0.2 | 5 |
| Methylene Chloride | N.D. | 0.3 | 1 |
| Styrene | N.D. | 0.2 | 5 |
| 1,1,2,2-Tetrachloroethane | N.D. | 0.2 | 1 |
| Tetrachloroethene | N.D. | 0.2 | 1 |
| Toluene | N.D. | 0.2 | 1 |
| 1,2,4-Trichlorobenzene | N.D. | 0.3 | 5 |
| 1,1,1-Trichloroethane | N.D. | 0.3 | 1 |
| 1,1,2-Trichloroethane | N.D. | 0.2 | 1 |
| Trichloroethene | N.D. | 0.2 | 1 |
| Trichlorofluoromethane | N.D. | 0.2 | 1 |
| Vinyl Chloride | N.D. | 0.2 | 1 |
| Xylene (Total) | N.D. | 1 | 5 |
| Batch number: W190842AA | Sample number(s): 1012108-1012110 | | |
| Acetone | N.D. | 0.7 | 20 |
| Benzene | N.D. | 0.2 | 1 |
| Bromodichloromethane | N.D. | 0.2 | 1 |
| Bromoform | N.D. | 0.2 | 4 |
| Bromomethane | N.D. | 0.3 | 1 |
| 2-Butanone | N.D. | 0.3 | 10 |
| Carbon Disulfide | N.D. | 0.2 | 5 |
| Carbon Tetrachloride | N.D. | 0.2 | 1 |
| Chlorobenzene | N.D. | 0.2 | 1 |
| Chloroethane | N.D. | 0.2 | 1 |
| Chloroform | N.D. | 0.2 | 1 |
| Chloromethane | N.D. | 0.2 | 1 |
| Cyclohexane | N.D. | 0.2 | 5 |
| 1,2-Dibromo-3-chloropropane | N.D. | 0.3 | 5 |
| Dibromochloromethane | N.D. | 0.2 | 1 |
| 1,2-Dibromoethane | N.D. | 0.2 | 1 |
| 1,2-Dichlorobenzene | N.D. | 0.2 | 5 |
| 1,3-Dichlorobenzene | N.D. | 0.2 | 5 |
| 1,4-Dichlorobenzene | N.D. | 0.2 | 5 |
| Dichlorodifluoromethane | N.D. | 0.2 | 1 |
| 1,1-Dichloroethane | N.D. | 0.2 | 1 |
| 1,2-Dichloroethane | N.D. | 0.3 | 1 |
| 1,1-Dichloroethene | N.D. | 0.2 | 1 |
| cis-1,2-Dichloroethene | N.D. | 0.2 | 1 |
| trans-1,2-Dichloroethene | N.D. | 0.2 | 1 |
| 1,2-Dichloropropane | N.D. | 0.2 | 1 |
| cis-1,3-Dichloropropene | N.D. | 0.2 | 1 |
| trans-1,3-Dichloropropene | N.D. | 0.2 | 1 |
| Ethylbenzene | N.D. | 0.4 | 1 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## Method Blank (continued)

| Analysis Name | Result | MDL** | LOQ |
|---|---|---|---|
| | ug/l | ug/l | ug/l |
| Freon 113 | N.D. | 0.2 | 10 |
| 2-Hexanone | N.D. | 0.3 | 10 |
| Isopropylbenzene | N.D. | 0.2 | 5 |
| Methyl Acetate | N.D. | 0.2 | 5 |
| Methyl Tertiary Butyl Ether | N.D. | 0.2 | 1 |
| 4-Methyl-2-pentanone | N.D. | 0.5 | 10 |
| Methylcyclohexane | N.D. | 0.2 | 5 |
| Methylene Chloride | N.D. | 0.3 | 1 |
| Styrene | N.D. | 0.2 | 5 |
| 1,1,2,2-Tetrachloroethane | N.D. | 0.2 | 1 |
| Tetrachloroethene | N.D. | 0.2 | 1 |
| Toluene | N.D. | 0.2 | 1 |
| 1,2,4-Trichlorobenzene | N.D. | 0.3 | 5 |
| 1,1,1-Trichloroethane | N.D. | 0.3 | 1 |
| 1,1,2-Trichloroethane | N.D. | 0.2 | 1 |
| Trichloroethene | N.D. | 0.2 | 1 |
| Trichlorofluoromethane | N.D. | 0.2 | 1 |
| Vinyl Chloride | N.D. | 0.2 | 1 |
| Xylene (Total) | N.D. | 1 | 5 |

## LCS/LCSD

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Batch number: L190822AA | Sample number(s): 1012095-1012104 | | | | | | | | |
| Acetone | 150 | 170.22 | | | 113 | | 54-157 | | |
| Benzene | 20 | 21.93 | | | 110 | | 80-120 | | |
| Bromodichloromethane | 20 | 19.42 | | | 97 | | 71-120 | | |
| Bromoform | 20 | 16.13 | | | 81 | | 51-120 | | |
| Bromomethane | 20 | 16.87 | | | 84 | | 53-128 | | |
| 2-Butanone | 150 | 146.51 | | | 98 | | 59-135 | | |
| Carbon Disulfide | 20 | 18.63 | | | 93 | | 65-128 | | |
| Carbon Tetrachloride | 20 | 18.79 | | | 94 | | 64-134 | | |
| Chlorobenzene | 20 | 21.48 | | | 107 | | 80-120 | | |
| Chloroethane | 20 | 18.19 | | | 91 | | 55-123 | | |
| Chloroform | 20 | 21.25 | | | 106 | | 80-120 | | |
| Chloromethane | 20 | 18.68 | | | 93 | | 56-121 | | |
| Cyclohexane | 20 | 22.5 | | | 112 | | 68-126 | | |
| 1,2-Dibromo-3-chloropropane | 20 | 18.18 | | | 91 | | 47-131 | | |
| Dibromochloromethane | 20 | 18.43 | | | 92 | | 71-120 | | |
| 1,2-Dibromoethane | 20 | 21.76 | | | 109 | | 77-120 | | |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| 1,2-Dichlorobenzene | 20 | 21.68 | | | 108 | | 80-120 | | |
| 1,3-Dichlorobenzene | 20 | 21.24 | | | 106 | | 80-120 | | |
| 1,4-Dichlorobenzene | 20 | 21.54 | | | 108 | | 80-120 | | |
| Dichlorodifluoromethane | 20 | 17.86 | | | 89 | | 41-127 | | |
| 1,1-Dichloroethane | 20 | 20.82 | | | 104 | | 80-120 | | |
| 1,2-Dichloroethane | 20 | 20.98 | | | 105 | | 73-124 | | |
| 1,1-Dichloroethene | 20 | 24.01 | | | 120 | | 80-131 | | |
| cis-1,2-Dichloroethene | 20 | 21.91 | | | 110 | | 80-120 | | |
| trans-1,2-Dichloroethene | 20 | 22.11 | | | 111 | | 80-120 | | |
| 1,2-Dichloropropane | 20 | 21.35 | | | 107 | | 80-120 | | |
| cis-1,3-Dichloropropene | 20 | 19.69 | | | 98 | | 75-120 | | |
| trans-1,3-Dichloropropene | 20 | 17.93 | | | 90 | | 67-120 | | |
| Ethylbenzene | 20 | 21.41 | | | 107 | | 80-120 | | |
| Freon 113 | 20 | 25.3 | | | 126 | | 73-139 | | |
| 2-Hexanone | 100 | 99.08 | | | 99 | | 56-135 | | |
| Isopropylbenzene | 20 | 21.91 | | | 110 | | 80-120 | | |
| Methyl Acetate | 20 | 18.82 | | | 94 | | 54-136 | | |
| Methyl Tertiary Butyl Ether | 20 | 19.55 | | | 98 | | 69-122 | | |
| 4-Methyl-2-pentanone | 100 | 98.6 | | | 99 | | 62-133 | | |
| Methylcyclohexane | 20 | 21.99 | | | 110 | | 67-121 | | |
| Methylene Chloride | 20 | 21.86 | | | 109 | | 80-120 | | |
| Styrene | 20 | 21.5 | | | 107 | | 80-120 | | |
| 1,1,2,2-Tetrachloroethane | 20 | 21.71 | | | 109 | | 72-120 | | |
| Tetrachloroethene | 20 | 22.17 | | | 111 | | 80-120 | | |
| Toluene | 20 | 21.85 | | | 109 | | 80-120 | | |
| 1,2,4-Trichlorobenzene | 20 | 20.73 | | | 104 | | 63-120 | | |
| 1,1,1-Trichloroethane | 20 | 19.8 | | | 99 | | 67-126 | | |
| 1,1,2-Trichloroethane | 20 | 22.85 | | | 114 | | 80-120 | | |
| Trichloroethene | 20 | 21.41 | | | 107 | | 80-120 | | |
| Trichlorofluoromethane | 20 | 18.66 | | | 93 | | 55-135 | | |
| Vinyl Chloride | 20 | 19.48 | | | 97 | | 56-120 | | |
| Xylene (Total) | 60 | 63.87 | | | 106 | | 80-120 | | |
| Batch number: W190841AA | Sample number(s): 1012105-1012107,1012111-1012112 | | | | | | | | |
| Acetone | 150 | 148.97 | 150 | 157.05 | 99 | 105 | 54-157 | 5 | 30 |
| Benzene | 20 | 20.69 | 20 | 21.2 | 103 | 106 | 80-120 | 2 | 30 |
| Bromodichloromethane | 20 | 19.61 | 20 | 19.96 | 98 | 100 | 71-120 | 2 | 30 |
| Bromoform | 20 | 20.05 | 20 | 20.16 | 100 | 101 | 51-120 | 1 | 30 |
| Bromomethane | 20 | 15.3 | 20 | 16.44 | 77 | 82 | 53-128 | 7 | 30 |
| 2-Butanone | 150 | 128.52 | 150 | 132.54 | 86 | 88 | 59-135 | 3 | 30 |
| Carbon Disulfide | 20 | 18.74 | 20 | 19.56 | 94 | 98 | 65-128 | 4 | 30 |
| Carbon Tetrachloride | 20 | 20 | 20 | 20.43 | 100 | 102 | 64-134 | 2 | 30 |
| Chlorobenzene | 20 | 22.48 | 20 | 22.88 | 112 | 114 | 80-120 | 2 | 30 |
| Chloroethane | 20 | 15.36 | 20 | 16.26 | 77 | 81 | 55-123 | 6 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 20 | 20.47 | 20 | 20.71 | 102 | 104 | 80-120 | 1 | 30 |
| Chloromethane | 20 | 16.42 | 20 | 17.5 | 82 | 88 | 56-121 | 6 | 30 |
| Cyclohexane | 20 | 19.62 | 20 | 20.45 | 98 | 102 | 68-126 | 4 | 30 |
| 1,2-Dibromo-3-chloropropane | 20 | 18.51 | 20 | 19.7 | 93 | 99 | 47-131 | 6 | 30 |
| Dibromochloromethane | 20 | 21.52 | 20 | 22.05 | 108 | 110 | 71-120 | 2 | 30 |
| 1,2-Dibromoethane | 20 | 21.86 | 20 | 22.38 | 109 | 112 | 77-120 | 2 | 30 |
| 1,2-Dichlorobenzene | 20 | 22.16 | 20 | 23.22 | 111 | 116 | 80-120 | 5 | 30 |
| 1,3-Dichlorobenzene | 20 | 22.22 | 20 | 22.74 | 111 | 114 | 80-120 | 2 | 30 |
| 1,4-Dichlorobenzene | 20 | 22.58 | 20 | 22.88 | 113 | 114 | 80-120 | 1 | 30 |
| Dichlorodifluoromethane | 20 | 17.23 | 20 | 17.7 | 86 | 89 | 41-127 | 3 | 30 |
| 1,1-Dichloroethane | 20 | 20.07 | 20 | 20.8 | 100 | 104 | 80-120 | 4 | 30 |
| 1,2-Dichloroethane | 20 | 19.68 | 20 | 19.75 | 98 | 99 | 73-124 | 0 | 30 |
| 1,1-Dichloroethene | 20 | 22.21 | 20 | 23.2 | 111 | 116 | 80-131 | 4 | 30 |
| cis-1,2-Dichloroethene | 20 | 21.64 | 20 | 22.35 | 108 | 112 | 80-120 | 3 | 30 |
| trans-1,2-Dichloroethene | 20 | 21.7 | 20 | 21.84 | 108 | 109 | 80-120 | 1 | 30 |
| 1,2-Dichloropropane | 20 | 20.46 | 20 | 21 | 102 | 105 | 80-120 | 3 | 30 |
| cis-1,3-Dichloropropene | 20 | 20.1 | 20 | 19.85 | 101 | 99 | 75-120 | 1 | 30 |
| trans-1,3-Dichloropropene | 20 | 20 | 20 | 19.96 | 100 | 100 | 67-120 | 0 | 30 |
| Ethylbenzene | 20 | 21.53 | 20 | 22.01 | 108 | 110 | 80-120 | 2 | 30 |
| Freon 113 | 20 | 22.35 | 20 | 22.94 | 112 | 115 | 73-139 | 3 | 30 |
| 2-Hexanone | 100 | 89.14 | 100 | 92.51 | 89 | 93 | 56-135 | 4 | 30 |
| Isopropylbenzene | 20 | 21.98 | 20 | 22.13 | 110 | 111 | 80-120 | 1 | 30 |
| Methyl Acetate | 20 | 18.44 | 20 | 19.34 | 92 | 97 | 54-136 | 5 | 30 |
| Methyl Tertiary Butyl Ether | 20 | 20.5 | 20 | 21.8 | 102 | 109 | 69-122 | 6 | 30 |
| 4-Methyl-2-pentanone | 100 | 85.11 | 100 | 88.51 | 85 | 89 | 62-133 | 4 | 30 |
| Methylcyclohexane | 20 | 19.65 | 20 | 20.45 | 98 | 102 | 67-121 | 4 | 30 |
| Methylene Chloride | 20 | 20.43 | 20 | 21.65 | 102 | 108 | 80-120 | 6 | 30 |
| Styrene | 20 | 21.82 | 20 | 22.16 | 109 | 111 | 80-120 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | 20 | 21.57 | 20 | 22.03 | 108 | 110 | 72-120 | 2 | 30 |
| Tetrachloroethene | 20 | 23.59 | 20 | 23.58 | 118 | 118 | 80-120 | 0 | 30 |
| Toluene | 20 | 22.53 | 20 | 22.89 | 113 | 114 | 80-120 | 2 | 30 |
| 1,2,4-Trichlorobenzene | 20 | 21.01 | 20 | 20.97 | 105 | 105 | 63-120 | 0 | 30 |
| 1,1,1-Trichloroethane | 20 | 20.17 | 20 | 20.23 | 101 | 101 | 67-126 | 0 | 30 |
| 1,1,2-Trichloroethane | 20 | 23.01 | 20 | 23.26 | 115 | 116 | 80-120 | 1 | 30 |
| Trichloroethene | 20 | 21.09 | 20 | 21.51 | 105 | 108 | 80-120 | 2 | 30 |
| Trichlorofluoromethane | 20 | 16.76 | 20 | 17.38 | 84 | 87 | 55-135 | 4 | 30 |
| Vinyl Chloride | 20 | 17.61 | 20 | 18.78 | 88 | 94 | 56-120 | 6 | 30 |
| Xylene (Total) | 60 | 66.73 | 60 | 67.76 | 111 | 113 | 80-120 | 2 | 30 |
| Batch number: W190842AA | Sample number(s): 1012108-1012110 | | | | | | | | |
| Acetone | 150 | 142.96 | 150 | 141.61 | 95 | 94 | 54-157 | 1 | 30 |
| Benzene | 20 | 20.97 | 20 | 20.26 | 105 | 101 | 80-120 | 3 | 30 |
| Bromodichloromethane | 20 | 19.98 | 20 | 19.6 | 100 | 98 | 71-120 | 2 | 30 |
| Bromoform | 20 | 20.39 | 20 | 19.76 | 102 | 99 | 51-120 | 3 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|
| Bromomethane | 20 | 15.87 | 20 | 15.55 | 79 | 78 | 53-128 | 2 | 30 |
| 2-Butanone | 150 | 133.58 | 150 | 133.19 | 89 | 89 | 59-135 | 0 | 30 |
| Carbon Disulfide | 20 | 18.3 | 20 | 17.95 | 91 | 90 | 65-128 | 2 | 30 |
| Carbon Tetrachloride | 20 | 19.65 | 20 | 20 | 98 | 100 | 64-134 | 2 | 30 |
| Chlorobenzene | 20 | 22.69 | 20 | 22.38 | 113 | 112 | 80-120 | 1 | 30 |
| Chloroethane | 20 | 15.7 | 20 | 15.93 | 79 | 80 | 55-123 | 1 | 30 |
| Chloroform | 20 | 20.67 | 20 | 20.6 | 103 | 103 | 80-120 | 0 | 30 |
| Chloromethane | 20 | 16.49 | 20 | 16.12 | 82 | 81 | 56-121 | 2 | 30 |
| Cyclohexane | 20 | 19.47 | 20 | 19.93 | 97 | 100 | 68-126 | 2 | 30 |
| 1,2-Dibromo-3-chloropropane | 20 | 20.25 | 20 | 18.71 | 101 | 94 | 47-131 | 8 | 30 |
| Dibromochloromethane | 20 | 21.95 | 20 | 21.6 | 110 | 108 | 71-120 | 2 | 30 |
| 1,2-Dibromoethane | 20 | 22.47 | 20 | 22.34 | 112 | 112 | 77-120 | 1 | 30 |
| 1,2-Dichlorobenzene | 20 | 22.82 | 20 | 22.61 | 114 | 113 | 80-120 | 1 | 30 |
| 1,3-Dichlorobenzene | 20 | 22.53 | 20 | 22.25 | 113 | 111 | 80-120 | 1 | 30 |
| 1,4-Dichlorobenzene | 20 | 22.76 | 20 | 22.64 | 114 | 113 | 80-120 | 1 | 30 |
| Dichlorodifluoromethane | 20 | 16.78 | 20 | 16.61 | 84 | 83 | 41-127 | 1 | 30 |
| 1,1-Dichloroethane | 20 | 20.45 | 20 | 20.34 | 102 | 102 | 80-120 | 1 | 30 |
| 1,2-Dichloroethane | 20 | 19.94 | 20 | 19.72 | 100 | 99 | 73-124 | 1 | 30 |
| 1,1-Dichloroethene | 20 | 22.13 | 20 | 22.01 | 111 | 110 | 80-131 | 1 | 30 |
| cis-1,2-Dichloroethene | 20 | 22.19 | 20 | 21.51 | 111 | 108 | 80-120 | 3 | 30 |
| trans-1,2-Dichloroethene | 20 | 21.54 | 20 | 21.43 | 108 | 107 | 80-120 | 1 | 30 |
| 1,2-Dichloropropane | 20 | 21.48 | 20 | 20.93 | 107 | 105 | 80-120 | 3 | 30 |
| cis-1,3-Dichloropropene | 20 | 20.42 | 20 | 20.08 | 102 | 100 | 75-120 | 2 | 30 |
| trans-1,3-Dichloropropene | 20 | 20.36 | 20 | 20.03 | 102 | 100 | 67-120 | 2 | 30 |
| Ethylbenzene | 20 | 21.89 | 20 | 21.79 | 109 | 109 | 80-120 | 0 | 30 |
| Freon 113 | 20 | 22.29 | 20 | 21.58 | 111 | 108 | 73-139 | 3 | 30 |
| 2-Hexanone | 100 | 91.61 | 100 | 91.33 | 92 | 91 | 56-135 | 0 | 30 |
| Isopropylbenzene | 20 | 22.33 | 20 | 22.08 | 112 | 110 | 80-120 | 1 | 30 |
| Methyl Acetate | 20 | 18.44 | 20 | 18.39 | 92 | 92 | 54-136 | 0 | 30 |
| Methyl Tertiary Butyl Ether | 20 | 21.62 | 20 | 21.29 | 108 | 106 | 69-122 | 2 | 30 |
| 4-Methyl-2-pentanone | 100 | 89.55 | 100 | 87.12 | 90 | 87 | 62-133 | 3 | 30 |
| Methylcyclohexane | 20 | 19.76 | 20 | 20.05 | 99 | 100 | 67-121 | 1 | 30 |
| Methylene Chloride | 20 | 21.23 | 20 | 20.39 | 106 | 102 | 80-120 | 4 | 30 |
| Styrene | 20 | 22.06 | 20 | 21.65 | 110 | 108 | 80-120 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | 20 | 21.83 | 20 | 21.88 | 109 | 109 | 72-120 | 0 | 30 |
| Tetrachloroethene | 20 | 23.87 | 20 | 23.54 | 119 | 118 | 80-120 | 1 | 30 |
| Toluene | 20 | 22.97 | 20 | 22.43 | 115 | 112 | 80-120 | 2 | 30 |
| 1,2,4-Trichlorobenzene | 20 | 21.46 | 20 | 20.63 | 107 | 103 | 63-120 | 4 | 30 |
| 1,1,1-Trichloroethane | 20 | 20.66 | 20 | 19.55 | 103 | 98 | 67-126 | 5 | 30 |
| 1,1,2-Trichloroethane | 20 | 24.18 | 20 | 23.49 | 121* | 117 | 80-120 | 3 | 30 |
| Trichloroethene | 20 | 21.09 | 20 | 21.26 | 105 | 106 | 80-120 | 1 | 30 |
| Trichlorofluoromethane | 20 | 17.31 | 20 | 16.85 | 87 | 84 | 55-135 | 3 | 30 |
| Vinyl Chloride | 20 | 17.72 | 20 | 17.38 | 89 | 87 | 56-120 | 2 | 30 |
| Xylene (Total) | 60 | 67.46 | 60 | 66.65 | 112 | 111 | 80-120 | 1 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## LCS/LCSD (continued)

| Analysis Name | LCS Spike Added ug/l | LCS Conc ug/l | LCSD Spike Added ug/l | LCSD Conc ug/l | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|

## MS/MSD

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Batch number: W190841AA | Sample number(s): 1012105-1012107,1012111-1012112 UNSPK: 1012106 | | | | | | | | | |
| Acetone | 4.77 | 150 | 143.1 | 150 | 142.99 | 92 | 92 | 54-157 | 0 | 30 |
| Benzene | N.D. | 20 | 22.89 | 20 | 22.94 | 114 | 115 | 80-120 | 0 | 30 |
| Bromodichloromethane | N.D. | 20 | 20.92 | 20 | 21.19 | 105 | 106 | 71-120 | 1 | 30 |
| Bromoform | N.D. | 20 | 20.96 | 20 | 20.35 | 105 | 102 | 51-120 | 3 | 30 |
| Bromomethane | N.D. | 20 | 17.96 | 20 | 18.3 | 90 | 91 | 53-128 | 2 | 30 |
| 2-Butanone | N.D. | 150 | 129.86 | 150 | 140.72 | 87 | 94 | 59-135 | 8 | 30 |
| Carbon Disulfide | N.D. | 20 | 21.99 | 20 | 22.75 | 110 | 114 | 65-128 | 3 | 30 |
| Carbon Tetrachloride | N.D. | 20 | 23.28 | 20 | 24.54 | 116 | 123 | 64-134 | 5 | 30 |
| Chlorobenzene | 13.06 | 20 | 38.34 | 20 | 36.81 | 126* | 119 | 80-120 | 4 | 30 |
| Chloroethane | 0.738 | 20 | 18.57 | 20 | 19.08 | 89 | 92 | 55-123 | 3 | 30 |
| Chloroform | N.D. | 20 | 22.46 | 20 | 22.27 | 112 | 111 | 80-120 | 1 | 30 |
| Chloromethane | N.D. | 20 | 19.19 | 20 | 19.78 | 96 | 99 | 56-121 | 3 | 30 |
| Cyclohexane | N.D. | 20 | 25.59 | 20 | 27.4 | 128* | 137* | 68-126 | 7 | 30 |
| 1,2-Dibromo-3-chloropropane | N.D. | 20 | 21.7 | 20 | 21.88 | 108 | 109 | 47-131 | 1 | 30 |
| Dibromochloromethane | N.D. | 20 | 22.92 | 20 | 21.82 | 115 | 109 | 71-120 | 5 | 30 |
| 1,2-Dibromoethane | N.D. | 20 | 22.91 | 20 | 22.42 | 115 | 112 | 77-120 | 2 | 30 |
| 1,2-Dichlorobenzene | N.D. | 20 | 24.11 | 20 | 23.33 | 121* | 117 | 80-120 | 3 | 30 |
| 1,3-Dichlorobenzene | N.D. | 20 | 23.92 | 20 | 23.3 | 120 | 116 | 80-120 | 3 | 30 |
| 1,4-Dichlorobenzene | 2.27 | 20 | 26.49 | 20 | 25.61 | 121* | 117 | 80-120 | 3 | 30 |
| Dichlorodifluoromethane | N.D. | 20 | 22.92 | 20 | 26.2 | 115 | 131* | 41-127 | 13 | 30 |
| 1,1-Dichloroethane | N.D. | 20 | 22.32 | 20 | 22.7 | 112 | 113 | 80-120 | 2 | 30 |
| 1,2-Dichloroethane | N.D. | 20 | 21.34 | 20 | 20.94 | 107 | 105 | 73-124 | 2 | 30 |
| 1,1-Dichloroethene | N.D. | 20 | 26.73 | 20 | 27.58 | 134* | 138* | 80-131 | 3 | 30 |
| cis-1,2-Dichloroethene | N.D. | 20 | 23.7 | 20 | 23.99 | 119 | 120 | 80-120 | 1 | 30 |
| trans-1,2-Dichloroethene | N.D. | 20 | 24.46 | 20 | 24.98 | 122* | 125* | 80-120 | 2 | 30 |
| 1,2-Dichloropropane | N.D. | 20 | 22.45 | 20 | 23.28 | 112 | 116 | 80-120 | 4 | 30 |
| cis-1,3-Dichloropropene | N.D. | 20 | 20.93 | 20 | 20.93 | 105 | 105 | 75-120 | 0 | 30 |
| trans-1,3-Dichloropropene | N.D. | 20 | 20.3 | 20 | 20.14 | 102 | 101 | 67-120 | 1 | 30 |
| Ethylbenzene | N.D. | 20 | 24.25 | 20 | 23.58 | 121* | 118 | 80-120 | 3 | 30 |
| Freon 113 | N.D. | 20 | 28.31 | 20 | 33.09 | 142* | 165* | 73-139 | 16 | 30 |
| 2-Hexanone | N.D. | 100 | 92.76 | 100 | 93.75 | 93 | 94 | 56-135 | 1 | 30 |
| Isopropylbenzene | 0.474 | 20 | 25.4 | 20 | 24.59 | 125* | 121* | 80-120 | 3 | 30 |
| Methyl Acetate | N.D. | 20 | 17.97 | 20 | 19.51 | 90 | 98 | 54-136 | 8 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Methyl Tertiary Butyl Ether | N.D. | 20 | 21.79 | 20 | 22.55 | 109 | 113 | 69-122 | 3 | 30 |
| 4-Methyl-2-pentanone | N.D. | 100 | 87.16 | 100 | 91.66 | 87 | 92 | 62-133 | 5 | 30 |
| Methylcyclohexane | 0.219 | 20 | 24.81 | 20 | 28.63 | 123* | 142* | 67-121 | 14 | 30 |
| Methylene Chloride | N.D. | 20 | 23.08 | 20 | 22.92 | 115 | 115 | 80-120 | 1 | 30 |
| Styrene | N.D. | 20 | 23.72 | 20 | 23.35 | 119 | 117 | 80-120 | 2 | 30 |
| 1,1,2,2-Tetrachloroethane | N.D. | 20 | 21.68 | 20 | 21.76 | 108 | 109 | 72-120 | 0 | 30 |
| Tetrachloroethene | N.D. | 20 | 26.98 | 20 | 25.58 | 135* | 128* | 80-120 | 5 | 30 |
| Toluene | N.D. | 20 | 25.04 | 20 | 24.61 | 125* | 123* | 80-120 | 2 | 30 |
| 1,2,4-Trichlorobenzene | N.D. | 20 | 22.55 | 20 | 21.8 | 113 | 109 | 63-120 | 3 | 30 |
| 1,1,1-Trichloroethane | N.D. | 20 | 22.46 | 20 | 23.32 | 112 | 117 | 67-126 | 4 | 30 |
| 1,1,2-Trichloroethane | N.D. | 20 | 24.31 | 20 | 24 | 122* | 120 | 80-120 | 1 | 30 |
| Trichloroethene | N.D. | 20 | 23.21 | 20 | 23.63 | 116 | 118 | 80-120 | 2 | 30 |
| Trichlorofluoromethane | N.D. | 20 | 21.52 | 20 | 23.32 | 108 | 117 | 55-135 | 8 | 30 |
| Vinyl Chloride | N.D. | 20 | 21.07 | 20 | 22.37 | 105 | 112 | 56-120 | 6 | 30 |
| Xylene (Total) | N.D. | 60 | 74.49 | 60 | 72.31 | 124* | 121* | 80-120 | 3 | 30 |
| Batch number: W190842AA | Sample number(s): 1012108-1012110 UNSPK: 1012108 | | | | | | | | | |
| Acetone | N.D. | 1500 | 1534.05 | 1500 | 1462.46 | 102 | 97 | 54-157 | 5 | 30 |
| Benzene | N.D. | 200 | 217.89 | 200 | 220.39 | 109 | 110 | 80-120 | 1 | 30 |
| Bromodichloromethane | N.D. | 200 | 204.69 | 200 | 205.19 | 102 | 103 | 71-120 | 0 | 30 |
| Bromoform | N.D. | 200 | 197.76 | 200 | 200.78 | 99 | 100 | 51-120 | 2 | 30 |
| Bromomethane | N.D. | 200 | 173.73 | 200 | 165.87 | 87 | 83 | 53-128 | 5 | 30 |
| 2-Butanone | N.D. | 1500 | 1283.35 | 1500 | 1293.96 | 86 | 86 | 59-135 | 1 | 30 |
| Carbon Disulfide | N.D. | 200 | 202.61 | 200 | 198.63 | 101 | 99 | 65-128 | 2 | 30 |
| Carbon Tetrachloride | N.D. | 200 | 221.88 | 200 | 222.85 | 111 | 111 | 64-134 | 0 | 30 |
| Chlorobenzene | 5.42 | 200 | 241.16 | 200 | 243.02 | 118 | 119 | 80-120 | 1 | 30 |
| Chloroethane | N.D. | 200 | 179.32 | 200 | 172.45 | 90 | 86 | 55-123 | 4 | 30 |
| Chloroform | N.D. | 200 | 214.54 | 200 | 215.08 | 107 | 108 | 80-120 | 0 | 30 |
| Chloromethane | N.D. | 200 | 181.68 | 200 | 174.51 | 91 | 87 | 56-121 | 4 | 30 |
| Cyclohexane | N.D. | 200 | 242.8 | 200 | 241.96 | 121 | 121 | 68-126 | 0 | 30 |
| 1,2-Dibromo-3-chloropropane | N.D. | 200 | 187.5 | 200 | 190.24 | 94 | 95 | 47-131 | 1 | 30 |
| Dibromochloromethane | N.D. | 200 | 217.17 | 200 | 217.06 | 109 | 109 | 71-120 | 0 | 30 |
| 1,2-Dibromoethane | N.D. | 200 | 222.69 | 200 | 222.67 | 111 | 111 | 77-120 | 0 | 30 |
| 1,2-Dichlorobenzene | N.D. | 200 | 229.01 | 200 | 233.64 | 115 | 117 | 80-120 | 2 | 30 |
| 1,3-Dichlorobenzene | N.D. | 200 | 228.01 | 200 | 234.59 | 114 | 117 | 80-120 | 3 | 30 |
| 1,4-Dichlorobenzene | 2.53 | 200 | 236.4 | 200 | 236.99 | 117 | 117 | 80-120 | 0 | 30 |
| Dichlorodifluoromethane | N.D. | 200 | 221.24 | 200 | 203.41 | 111 | 102 | 41-127 | 8 | 30 |
| 1,1-Dichloroethane | N.D. | 200 | 216.33 | 200 | 214.6 | 108 | 107 | 80-120 | 1 | 30 |
| 1,2-Dichloroethane | N.D. | 200 | 201.25 | 200 | 205.34 | 101 | 103 | 73-124 | 2 | 30 |
| 1,1-Dichloroethene | N.D. | 200 | 255.88 | 200 | 245.73 | 128 | 123 | 80-131 | 4 | 30 |
| cis-1,2-Dichloroethene | N.D. | 200 | 230.18 | 200 | 228.61 | 115 | 114 | 80-120 | 1 | 30 |
| trans-1,2-Dichloroethene | N.D. | 200 | 233.76 | 200 | 233.52 | 117 | 117 | 80-120 | 0 | 30 |
| 1,2-Dichloropropane | N.D. | 200 | 217.22 | 200 | 218.81 | 109 | 109 | 80-120 | 1 | 30 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## MS/MSD (continued)

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

| Analysis Name | Unspiked Conc ug/l | MS Spike Added ug/l | MS Conc ug/l | MSD Spike Added ug/l | MSD Conc ug/l | MS %Rec | MSD %Rec | MS/MSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|---|---|
| cis-1,3-Dichloropropene | N.D. | 200 | 201.57 | 200 | 203.15 | 101 | 102 | 75-120 | 1 | 30 |
| trans-1,3-Dichloropropene | N.D. | 200 | 194.94 | 200 | 200.8 | 97 | 100 | 67-120 | 3 | 30 |
| Ethylbenzene | N.D. | 200 | 231.52 | 200 | 235.09 | 116 | 118 | 80-120 | 2 | 30 |
| Freon 113 | N.D. | 200 | 283.55 | 200 | 264.47 | 142* | 132 | 73-139 | 7 | 30 |
| 2-Hexanone | N.D. | 1000 | 892.3 | 1000 | 899.51 | 89 | 90 | 56-135 | 1 | 30 |
| Isopropylbenzene | N.D. | 200 | 238.33 | 200 | 243.05 | 119 | 122* | 80-120 | 2 | 30 |
| Methyl Acetate | N.D. | 200 | 177.52 | 200 | 183.14 | 89 | 92 | 54-136 | 3 | 30 |
| Methyl Tertiary Butyl Ether | N.D. | 200 | 204.23 | 200 | 210.99 | 102 | 105 | 69-122 | 3 | 30 |
| 4-Methyl-2-pentanone | N.D. | 1000 | 858.06 | 1000 | 851.28 | 86 | 85 | 62-133 | 1 | 30 |
| Methylcyclohexane | N.D. | 200 | 251.48 | 200 | 252.9 | 126* | 126* | 67-121 | 1 | 30 |
| Methylene Chloride | N.D. | 200 | 215.17 | 200 | 217.86 | 108 | 109 | 80-120 | 1 | 30 |
| Styrene | N.D. | 200 | 229.77 | 200 | 232.62 | 115 | 116 | 80-120 | 1 | 30 |
| 1,1,2,2-Tetrachloroethane | N.D. | 200 | 211.39 | 200 | 211.27 | 106 | 106 | 72-120 | 0 | 30 |
| Tetrachloroethene | N.D. | 200 | 257.52 | 200 | 260.38 | 129* | 130* | 80-120 | 1 | 30 |
| Toluene | N.D. | 200 | 239.46 | 200 | 244.78 | 120 | 122* | 80-120 | 2 | 30 |
| 1,2,4-Trichlorobenzene | N.D. | 200 | 210.14 | 200 | 215.68 | 105 | 108 | 63-120 | 3 | 30 |
| 1,1,1-Trichloroethane | N.D. | 200 | 218.61 | 200 | 221.75 | 109 | 111 | 67-126 | 1 | 30 |
| 1,1,2-Trichloroethane | N.D. | 200 | 235.78 | 200 | 238.1 | 118 | 119 | 80-120 | 1 | 30 |
| Trichloroethene | N.D. | 200 | 221.87 | 200 | 229.94 | 111 | 115 | 80-120 | 4 | 30 |
| Trichlorofluoromethane | N.D. | 200 | 216.51 | 200 | 204.97 | 108 | 102 | 55-135 | 5 | 30 |
| Vinyl Chloride | N.D. | 200 | 207.67 | 200 | 198.93 | 104 | 99 | 56-120 | 4 | 30 |
| Xylene (Total) | N.D. | 600 | 710.73 | 600 | 721.71 | 118 | 120 | 80-120 | 2 | 30 |

## Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs TCL (4.3) 8260C
Batch number: L190822AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 1012095 | 95 | 100 | 99 | 95 |
| 1012096 | 95 | 100 | 99 | 97 |
| 1012097 | 93 | 99 | 101 | 96 |
| 1012098 | 94 | 100 | 99 | 96 |
| 1012099 | 93 | 98 | 101 | 97 |
| 1012100 | 93 | 99 | 100 | 97 |
| 1012101 | 93 | 99 | 100 | 97 |
| 1012102 | 96 | 100 | 100 | 97 |
| 1012103 | 95 | 98 | 100 | 96 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Quality Control Summary

Client Name: AECOM
Reported: 03/27/2019 19:34

Group Number: 2034268

## Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs TCL (4.3) 8260C
Batch number: L190822AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 1012104 | 96 | 101 | 100 | 97 |
| Blank | 94 | 99 | 101 | 96 |
| LCS | 97 | 100 | 101 | 99 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: VOCs TCL (4.3) 8260C
Batch number: W190841AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 1012105 | 93 | 99 | 101 | 89 |
| 1012106 | 93 | 100 | 99 | 90 |
| 1012107 | 94 | 101 | 100 | 89 |
| 1012111 | 93 | 101 | 99 | 89 |
| 1012112 | 94 | 99 | 99 | 88 |
| Blank | 92 | 101 | 100 | 89 |
| LCS | 95 | 99 | 102 | 94 |
| LCSD | 93 | 103 | 101 | 93 |
| MS | 94 | 101 | 101 | 95 |
| MSD | 96 | 105 | 102 | 94 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

Analysis Name: VOCs TCL (4.3) 8260C
Batch number: W190842AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 1012108 | 93 | 101 | 99 | 90 |
| 1012109 | 94 | 99 | 99 | 89 |
| 1012110 | 93 | 99 | 100 | 89 |
| Blank | 93 | 100 | 101 | 90 |
| LCS | 95 | 98 | 102 | 94 |
| LCSD | 94 | 99 | 102 | 93 |
| MS | 94 | 98 | 102 | 94 |
| MSD | 94 | 98 | 101 | 94 |
| Limits: | 80-120 | 80-120 | 80-120 | 80-120 |

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

# Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 12385 Group # 2034268 Sample # 10120GS-112

**COC #** 574557

## Client Information

| | |
|---|---|
| Client: AECOM | Acct. #: |
| Project Name/#: Columbia Cement | PWSID #: |
| Project Manager: Mark Becker | P.O. #: 83913 |
| Sampler: Mark Becker | Quote #: |
| State where samples were collected: NY | For Compliance: Yes ☐ No ☒ |

## Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☒ Surface ☐ NPDES ☐ | Other: ____

## Analysis Requested

Preservation and Filtration Codes: H

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total # of Containers | TCL VOC |
|---|---|---|---|---|---|---|
| MW-03-13S | 3/14/19 | 16:30 | X | | 3 | X |
| MW-05-14S | | 11:20 | X | | 3 | X |
| MW-05-15D | | 10:40 | X | | 3 | X |
| MW-09-18S | | 08:55 | X | | 3 | X |
| MW-09-19D | | 09:35 | X | | 3 | X |
| MW-09-20S | | 12:55 | X | | 3 | X |
| MW-09-21D | | 12:20 | X | | 3 | X |
| MW-09-22S | 3/18/19 | 13:05 | X | | 3 | X |
| MW-09-23D | 3/18/19 | 12:20 | X | | 3 | X |
| MW-09-24S | 3/18/19 | 09:05 | X | | 3 | X |

For Lab Use Only
FSC:
SCR#: 240179

**Preservation Codes**

| | |
|---|---|
| H=HCl | T=Thiosulfate |
| N=$HNO_3$ | B=NaOH |
| S=$H_2SO_4$ | P=$H_3PO_4$ |
| F=Field Filtered | O=Other |

**Remarks**

**Turnaround Time (TAT) Requested** (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: ____

E-mail address: mark.becker@aecom.com

**Data Package Options** (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| [signature] | 3/15/19 | 13:00 | [signature] | 3/15/19 | 16:00 |
| [signature] | 3/18/19 | 18:00 | | | |
| | | | | | |
| | | | | | |
| | | | [signature] | 3/19/19 | 0940 |

EDD Required? Yes No

If yes, format: NYSDEC

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 3.8 °C

# Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 12385 Group # 2034268 Sample # 1012095-112

**COC # 574556**

## Client Information

| | |
|---|---|
| Client: AECOM | Acct. #: |
| Project Name/#: Columbia Cement | PWSID #: |
| Project Manager: Mark Becker | P.O. #: 83913 |
| Sampler: Mark Becker | Quote #: |
| State where samples were collected: NY | For Compliance: Yes ☐ No ☒ |

## Matrix

Soil ☐ Sediment ☐ Tissue ☐ | Water ☒ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: ____

## Analysis Requested

Preservation and Filtration Codes

## For Lab Use Only

FSC: ____

SCR#: ____

**Preservation Codes**

H=HCl T=Thiosulfate
N=$HNO_3$ B=NaOH
S=$H_2SO_4$ P=$H_3PO_4$
F=Field Filtered O=Other

**Remarks**

| Sample Identification | Collected Date | Collected Time | Grab | Composite | Total # of Containers | TCL VOC |
|---|---|---|---|---|---|---|
| MW-09-25D | 3/18/19 | 08:30 | X | | 3 | X |
| MW-09-26D | 3/17/19 | 15:25 | X | | 3 | X |
| MW-~~09~~MB17-27S | 3/17/19 | 14:40 | X | | 3 | X |
| MW-17-28S | 3/8/19 | 11:20 | X | | 3 | X |
| MW-17-29D | 3/8/19 | 10:45 | X | | 3 | X |
| DUP031719 | 3/17/19 | | X | | 3 | X |
| FB031819 | 3/18/19 | 10:00 | X | | 3 | X |
| TB031819 | | | | | 2 | X |
| | | | | | | |
| | | | | | | |

**Turnaround Time (TAT) Requested** (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: ____

E-mail address: mark.becker@aecom.com

**Data Package Options** (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

| Relinquished by | Date | Time | Received by | Date | Time |
|---|---|---|---|---|---|
| Mark Becker | 3/18/19 | 18:00 | | | |
| Relinquished by | Date | Time | Received by | Date | Time |
| | | | | | |
| Relinquished by | Date | Time | Received by | Date | Time |
| | | | | | |
| Relinquished by | Date | Time | Received by | Date | Time |
| | | | | | |
| Relinquished by | Date | Time | Received by | Date | Time |
| | | | | 3/19/19 | 0940 |

EDD Required? Yes No

If yes, format: NYSDEC

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx ✓ Other ____

Temperature upon receipt 3.8 °C

eurofins | Lancaster Laboratories Environmental

# Sample Container Record

Order Number: 240179
Order Date: 03/12/2019

Standard Frm#: 308643

1 Cooler

Client: 12385
Atlantic Richfield c/o AECOM
Columbia Cement

Ship To:
AECOM
1255 Broad St
Suite 201
Clifton, NJ 07013
973-883-8696
Attn: Mr. Mark Becker

Group: 1

Number of Sample Locations: 17

One complete set of bottles listed below must be filled for each of the 17 sample location(s).

| Count | Code | Description | Preservative | Analysis Name | Hold Time |
|---|---|---|---|---|---|
| 3 | 38 | 40 ml glass vial (GC/MS) | HCl | VOCs- 5ml Water by 8260C | 14 days |

Group: 2

Number of Sample Locations: 1

One complete set of bottles listed below must be filled for each of the 1 sample location(s).

| Sample Description | QC Type |
|---|---|
| Field Blank | Field Blank |

| Count | Code | Description | Preservative | Analysis Name | Hold Time |
|---|---|---|---|---|---|
| 3 | 38 | 40 ml glass vial (GC/MS) | HCl | VOCs- 5ml Water by 8260C | 14 days |

Group: 3

Number of Sample Locations: 1

| Sample Description | QC Type |
|---|---|
| Trip Blank | Trip Blank |

| Count | Code | Description | Preservative | Analysis Name | Hold Time |
|---|---|---|---|---|---|
| 2 | 38 | 40 ml glass vial (GC/MS) | HCl | VOCs- 5ml Water by 8260C | 14 days |

Total DI water needed:

| Type | Volume |
|---|---|
| V | 120 ml |

If you have any questions, please contact your Client Service Representative, Hannah Cottman, at (717)656-2300 x7383

| Date Needed: | Pack By: | Shipping Method: | This order is: |
|---|---|---|---|
| 03/15/2019 | 03/14/2019 | Lab Drop Off | Per your Request |

Client: 12385
Atlantic Richfield c/o AECOM
Columbia Cement

Ship To:
AECOM
1255 Broad St
Suite 201
Clifton, NJ 07013
973-883-8696
Attn: Mr. Mark Becker

## Sample Acceptance Policy

Samples must be submitted in a manner that meets the criteria listed below. Clients will be contacted for direction on how to proceed for any non-regulatory samples that do not meet the criteria specified below. **Regulatory samples that were not processed properly in the field regarding any required preservation, filtration, and/or packaging on ice in accordance with the EPA methodology must be rejected by the laboratory**.

- Regulatory samples (SDWA, NPDES, etc.) must be identified on the sample submission paperwork to ensure proper sample handling and reporting.
- Documentation must be complete and include: sample identification, the location, date and time of collection, collector's name or initials, preservation type, sample type, and any special remarks concerning the sample.
- Proper sample labeling must include unique identification on a durable (water resistant) label using indelible ink.
- Sufficient sample volume must be collected in appropriate containers with proper field preservation processes (i.e. chemical, filtration) completed as dictated in the methods at the time of collection. The laboratory will provide appropriate bottleware and preservative.
- Samples must be shipped promptly to meet specified holding times with adequate packing materials to prevent damage during shipment and sufficient wet ice to meet method temperature requirements (0-6C, not frozen).
- Trip blank vials are provided when sample vials for volatile analyses are requested. The trip blank vials must be kept with your sample bottles at all times and returned to the laboratory with your shipment in order to ensure the integrity of your volatile samples.
- Safe Drinking Water Act (SDWA) compliance samples from PENNSYLVANIA will be rejected upon sample receipt if the method required trip/field blanks are not submitted with the samples per PADEP.

**If you have any questions, please contact your Client Service Representative, Hannah Cottman, at (717)656-2300 x7383**

| Date Needed: | Pack By: | Shipping Method: | This order is: |
|---|---|---|---|
| 03/15/2019 | 03/14/2019 | Lab Drop Off | Per your Request |

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# Sample Administration Receipt Documentation Log

Doc Log ID: 243982

Group Number(s): 2034268

Client: AECOM

## Columbia Cement

### Delivery and Receipt Information

| | | | |
|---|---|---|---|
| Delivery Method: | Fed Ex | Arrival Timestamp: | 03/19/2019 9:40 |
| Number of Packages: | 1 | Number of Projects: | 1 |

### Arrival Condition Summary

| | | | |
|---|---|---|---|
| Shipping Container Sealed: | Yes | Sample IDs on COC match Containers: | No |
| Custody Seal Present: | Yes | Sample Date/Times match COC: | Yes |
| Custody Seal Intact: | Yes | VOA Vial Headspace ≥ 6mm: | No |
| Samples Chilled: | Yes | Total Trip Blank Qty: | 2 |
| Paperwork Enclosed: | Yes | Trip Blank Type: | HCl |
| Samples Intact: | Yes | Air Quality Samples Present: | No |
| Missing Samples: | No | | |
| Extra Samples: | No | | |
| Discrepancy in Container Qty on COC: | No | | |

*Unpacked by Leah Foreman (12616) at 15:10 on 03/19/2019*

### Samples Chilled Details: Columbia Cement

*Thermometer Types:* *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

| Cooler # | Thermometer ID | Corrected Temp | Therm. Type | Ice Type | Ice Present? | Ice Container | Elevated Temp? |
|---|---|---|---|---|---|---|---|
| 1 | DT42-03 | 3.8 | DT | Wet | Y | Bagged | N |

### Sample ID Discrepancy Details: Columbia Cement

| Sample ID on COC | Sample ID on Label | Comments |
|---|---|---|
| MW-17-28S | MW-17-27S | |



2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
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# Explanation of Symbols and Abbreviations

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

| | | | |
|---|---|---|---|
| **BMQL** | Below Minimum Quantitation Level | **mL** | milliliter(s) |
| **C** | degrees Celsius | **MPN** | Most Probable Number |
| **cfu** | colony forming units | **N.D.** | non-detect |
| **CP Units** | cobalt-chloroplatinate units | **ng** | nanogram(s) |
| **F** | degrees Fahrenheit | **NTU** | nephelometric turbidity units |
| **g** | gram(s) | **pg/L** | picogram/liter |
| **IU** | International Units | **RL** | Reporting Limit |
| **kg** | kilogram(s) | **TNTC** | Too Numerous To Count |
| **L** | liter(s) | **µg** | microgram(s) |
| **lb.** | pound(s) | **µL** | microliter(s) |
| **m3** | cubic meter(s) | **umhos/cm** | micromhos/cm |
| **meq** | milliequivalents | **MCL** | Maximum Contamination Limit |
| **mg** | milligram(s) | | |

| | |
|---|---|
| **<** | less than |
| **>** | greater than |
| **ppm** | parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas. |
| **ppb** | parts per billion |
| **Dry weight basis** | Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis. |

**Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.**

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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

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# Data Qualifiers

| Qualifier | Definition |
|---|---|
| C | Result confirmed by reanalysis |
| D1 | Indicates for dual column analyses that the result is reported from column 1 |
| D2 | Indicates for dual column analyses that the result is reported from column 2 |
| E | Concentration exceeds the calibration range |
| K1 | Initial Calibration Blank is above the QC limit and the sample result is ND |
| K2 | Continuing Calibration Blank is above the QC limit and the sample result is ND |
| K3 | Initial Calibration Verification is above the QC limit and the sample result is ND |
| K4 | Continuing Calibration Verification is above the QC limit and the sample result is ND |
| J (or G, I, X) | Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL) |
| P | Concentration difference between the primary and confirmation column >40%. The lower result is reported. |
| P^ | Concentration difference between the primary and confirmation column > 40%. The higher result is reported. |
| U | Analyte was not detected at the value indicated |
| V | Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference. |
| W | The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L. |
| Z | Laboratory Defined - see analysis report |

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

# APPENDIX C
# DATA VALIDATION REPORT

**DATA VALIDATION REVIEW**
**PROJECT: COLUMBIA CEMENT, FREEPORT, LONG ISLAND, NY**
**DATE SAMPLES COLLECTED: MARCH 17 THROUGH 18, 2019**
**JOB NO.: 60481767**

**LAB REPORT NO. 1012095 - 1012112**

## 1.0 INTRODUCTION

This Data Validation Review has been performed in accordance with the requirements specified in the standard operating procedures for the validation of USEPA Low/Medium Volatile Data Validation, SOP No. HW-33, Revision 3, dated March 2013. The quality assurance review requirements are applied such that specifications of the methods take precedence over the specifications of the USEPA Region II data review guidelines in those instances where the specifications differ.

The objective of the review was to assess data usability and compliance with New York State Department of Environmental Conservation (NYSDEC) ASP Category B deliverable requirements. The Data Validation Review provides an interpretation of data usability based on the reported quality control parameters. A total of 15 water samples, 1 field duplicate sample, 1 field blank sample and 1 trip blank sample were collected by AECOM, Clifton, New Jersey, office personnel and submitted to Eurofins Lancaster Laboratories Environmental (NYSDEC Certification No. 10670). Section 2.0 of this report summarizes the samples included in this review and the analyses performed. The groundwater samples were analyzed following USEPA CLP and Standard Methodologies. The laboratory analytical data set contained herein was prepared in accordance with NYSDEC ASP Category B Data Deliverable Format (Exhibit B).

The organic data quality review is based on the following parameters:

* Hold Times
  Blank Contamination
* GC/MS Performance Check (Tuning) Summaries
* System Monitoring Compound (Surrogate) Recoveries
* Internal Standard Area Performance
  Initial and Continuing Calibration Results
  Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries
* Target Compound Identification and Quantitation

*All criteria were met for this parameter

This report was prepared to provide a critical review of the laboratory analysis and reported chemical results. Overall, the data quality is acceptable. The results of the Data Validation Review are presented in Section 3.0. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported result.

## 2.0 SAMPLES INCLUDED IN REVIEW

**Lab Report No. 1012095-1012112**

| Sample ID | Lab ID | Date Collected | Test Requested |
|---|---|---|---|
| MW-03-13S | 1012095 | 3/17/19 | VOA |
| MW-05-14S | 1012096 | 3/17/19 | VOA |
| MW-05-15D | 1012097 | 3/17/19 | VOA |
| MW-19-17S | 1012098 | 3/17/19 | VOA |
| MW-09-19D | 1012099 | 3/17/19 | VOA |
| MW-09-20S | 1012100 | 3/17/19 | VOA |
| MW-09-21D | 1012101 | 3/17/19 | VOA |
| MW-09-22S | 1012102 | 3/18/19 | VOA |
| MW-09-23D | 1012103 | 3/18/19 | VOA |
| MW-09-24S | 1012104 | 3/18/19 | VOA |
| MW-09-25D | 1012105 | 3/17/19 | VOA |
| MW-09-26D | 1012106 | 3/17/19 | VOA |
| MW-17-27S | 1012107 | 3/18/19 | VOA |
| MW-17-28S | 1012108 | 3/18/19 | VOA |
| MW-17-29D | 1012109 | 3/18/19 | VOA |
| DUP031719 | 1012110 | 3/17/19 | VOA |
| FB031819 | 1012111 | 3/18/19 | VOA |
| TB031819 | 1012112 | 3/18/19 | VOA |

**Legend:**

VOA = Analyzed following USEPA SW846 8260C.

## 3.0 RESULTS

### 3.1 GENERAL COMMENTS

With regard to the data package deliverables, most of the NYSDEC ASP Category B Data Deliverable format requirements were met, with the exception of the following correctable deficiencies. Please note that these deficiencies, for the most part, do not impact data usability.

- The laboratory did not include the internal chain-of-custody (COC) as required under NYSDEC ASP Category B Data Deliverable format requirements.

- Sample MW-09-17S was listed on the chain-of-custody; however, lab called it MW-19-17S.

### 3.2 ORGANIC QUALIFIERS

**Hold Times**: Technical hold times were assessed by comparing the sample dates with that of the preparation dates and/or analysis dates.

- All samples were analyzed within the required hold time for all analyses.

**Blank Contamination**: Laboratory method blanks are clean liquid and/or solid matrix samples prepared by the analytical laboratory and analyzed in the same manner as the investigative samples. Water laboratory method blanks are used to identify whether investigative samples have been contaminated during sample preparation, sample analysis or from a previous sample (instrument carry-over).

Field-blanks consist of deionized water poured over or through decontaminated sampling equipment and collected into the sample bottles. Field-blanks measure contamination potentially caused by inadequate decontamination of sampling equipment. Trip-blanks are carbon-free deionized water samples that accompany volatile investigative samples during each stage of shipment, storage and analysis. The trip-blanks are used to assess the potential for artificial introduction of volatile compounds into the investigative samples during the transportation and sample handling processes.

- The acetone concentrations reported for the samples listed below are negated due to field blank contamination. The affected samples are:

| | |
|---|---|
| MW-03-13S | MW-05-14S |
| MW-05-15D | MW-09-17S |
| MW-09-19D | MW-09-20S |
| MW-09-21D | MW-09-22S |
| MW-09-23D | MW-09-24S |
| MW-09-26D | FB031819 |

- No other contaminants were identified in the laboratory method/trip/field blanks associated with the groundwater samples received and reviewed. No qualifier is required.

**GC/MS Performance Check (Tuning) Summary**: Gas chromatograph/mass spectrometer (GC/MS) instrument tuning and performance checks are performed to ensure the instrument's ability to provide appropriate mass-resolution, identification, and sensitivity.

- The bromofluorobenzene (BFB) tuning compound mass-ion abundance criteria for the volatile organic compound analyses were reported within control limits. No qualifier is required.

**System Monitoring Compound (Surrogate) Recoveries**: System monitoring compounds (surrogates) are those compounds, which are not expected to be detected in the investigative samples but which are chemically similar to the analytes of interest. Surrogate compound percent recoveries are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy.

- The TCL VOA surrogate recoveries fell within control limits for the project samples received and reviewed. No qualifier is required.

**Internal Standards Area Performance**: Internal standards are analytes of interest, which are added to the investigative samples prior to analysis to ensure that GC/MS sensitivity and responses remain stable. Internal standards are reported with the volatile analysis.

- The volatile internal standard area counts and retention times fell within control limits for the project samples received and reviewed for TCL VOA analyses. No qualifier is required.

**Initial and Continuing Calibration Results**: Control limits for initial and continuing instrument calibrations are established to ensure that the instrument is capable of producing accurate quantitative data at the beginning and throughout each of the analyses.

- Due to the high percent difference (%D>20) between the initial and continuing calibration response factors of the VOA compounds dichlorodifluoromethane, freon 113 and tetrachloroethene, the non-detected results reported for these compounds are qualified estimated "UJ" in all the following samples:

| | |
|---|---|
| MW-09-25D | FB031819 |
| MW-09-26D | TB031819 |
| MW-17-27S | |

- All other TCL VOA target compound initial and continuing calibration response factors, percent relative standard deviations (%RSD), and percent differences (%D) associated with the reviewed project samples fell within acceptable control limits. No qualifier is required.

**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Summaries**: Matrix spikes are samples spiked with known concentrations of analytes of interest. The MS/MSD percent recoveries and duplicate results are used to assess extraction efficiencies, possible matrix effects, and overall analytical accuracy and precision.

Blank spikes (BS) are blank samples fortified (spiked) with known concentrations of analytes of interest. The blank spike percent recoveries results are used to assess extraction efficiencies, and overall analytical accuracy and precision.

Field duplicate samples are taken and analyzed as an indication of overall precision. These analyses measure both field and laboratory precision. Therefore, results may have more variability than laboratory duplicates, which measure only laboratory performance.

- The matrix spike sample MW-09-26D reported many compounds outside acceptable QC limits, bias high. However, only some compounds were detected in the sample. The detected compounds listed below in sample MW-09-26D are qualified as estimated "J", bias high:

| | |
|---|---|
| Methylcyclohexane | chlorobenzene |
| Isopropylbenzene | 1,4-dichlorobenzene |

- The matrix spike sample MW-17-28S reported many compounds outside acceptable QC limits, bias high. Since none of these compounds were detected in the sample, no qualifier is required.

- One LCS reported 1,1,2-trichloroethane outside acceptable QC limits, bias high. Since not detected in the associated samples, no qualifier is required.

- The other VOA LCS/LCSD results (recoveries and Relative Percent Difference or RPD) associated with the reviewed project samples fell within control limits, providing a positive indication of the overall accuracy and precision associated with these analyses. No qualifier is required.

- Sample DUP031719 was collected as a field sample of MW-17-27S. The results fell within acceptable control limits providing a positive indication of the overall accuracy and precision associated with the VOA analyses. No qualifier is required.

**Target Compound Identification Quantitation**: The laboratory calculations are verified and compound identifications are reviewed and assessed by the data reviewer.

- Samples MW-09-25D, MW-17-27S, MW-17-28S, MW-17-29D and DUP031719 for VOA were analyzed at a 1:10 dilution due to foaming in the samples. No qualifier is required.

- The GC and GC/MS raw data (quantitation reports, chromatograms and GC/MS mass-spectra) were provided for review. No laboratory calculation errors were noted for the reviewed project samples. No further action is required from the laboratory.

**Additional Comments**

- As per the requirements, values calculated below the Reporting Limit (RL) should be considered estimated and are flagged (J) on the summary table.

## 4.0 CONCLUSIONS

Overall, the data quality is acceptable. The Data Validation Review has identified aspects of the analytical data that require qualification. Data qualifiers, when applicable, are placed next to the results so that the data user can assess the qualitative and/or quantitative reliability of the reported results. Except where noted, the laboratory analytical data contained herein are deemed usable and in compliance with the NYSDEC ASP B Data Deliverable Format requirements. To confidently use any of the data within the data set, the data user should understand the limitations and qualifications presented.