File CG2430.1 E49

# Suncor Energy Products Partnership

## 2020 May and June Groundwater Monitoring and Sampling Event Hounsfield Heights and Mall Areas 1620 - 14th Avenue NW Calgary, Alberta

Clifton

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# CLIFTON ASSOCIATES LTD.

## 2020 May and June Groundwater Monitoring and Sampling Event Hounsfield Heights and Mall Areas, 1620-14th Avenue NW, Calgary, Alberta

Project No.: CG2430.1 E49

PROFESSIONAL ENGINEER KELSEY BLANCHETTE ALBERTA

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Prepared by:
Kelsey Blanchette, PEng
Environmental Engineer

PROFESSIONAL GEOLOGIST DAVID G. PRITCHARD ALBERTA

20 Nov 20

Reviewed by:
David G. Pritchard, PGeo
Director, Environmental Services

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# Executive Summary

This report documents the 2020 Spring Groundwater Monitoring and Sampling Event (2020 Q2), which was carried out by Clifton Associates in May 2020 and June 2020. The Alberta Township System description of the Site is the northeast corner of Section 20, Township 24, Range 1, West of the 5th Meridian (NE ¼ 20-24-1 W5M). The Site occupies approximately 40 hectares (100 acres), and is currently a mixture of operating commercial properties, private residences, and public lands.

The Mall area is the portion of the Site located north of 14th Avenue NW, which includes the North Hill Shopping Centre, the former Sears property (now a Kal-Tire Automotive Centre located at 1620 – 14th Avenue NW), and a condominium complex. The Hounsfield Heights area is the portion of the Site south of 14th Avenue NW, including Lions Park, to 10th Avenue NW.

The objectives of the 2020 Spring Groundwater Monitoring and Sampling Event are summarized within the Revised Remediation Plan (2019, Clifton), under the Plume Monitoring section, and are as follows:

- Develop an understanding of how the inferred plume is changing over time (increasing, decreasing, and/or remaining stable); and
- Determine if the biodegradation processes of monitored natural attenuation (MNA) are occurring in certain portions of the Site.

The primary contaminants of potential concern include benzene and 1,2-dichloroethane (1,2 -DCA). These two constituents will represent benzene, toluene, ethylbenzene and xylene(s) (BTEX) and petroleum hydrocarbon (PHC) fractions F1 and F2 and volatile organic compounds (VOCs), respectively. The rationale for concentrating on these two constituents is based on the following observations:

- They had the highest frequency of detection, and of exceedance of the Alberta Environment and Parks (AEP), January 2019, *Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines* (AEP 2019 Tier 1 and 2 Guidelines) within their contaminant categories; and
- With few exceptions, the remainder of the constituents detected were associated with a detection of their representative constituent, benzene or 1,2-DCA, depending on the contaminant category.

The data collected during this sampling event is generally consistent with previous sampling events. This was the second event since 2015 where no light non-aqueous phase liquid (LNAPL) was detected on-Site. The first event was the previous Fall 2019 groundwater monitoring and sampling event. From a risk management perspective, this was the first sampling event without an exceedance of the Tier 2 Site-Specific Guidelines for the protection of human health. There was also a 3% increase in the number of monitoring wells meeting the AEP 2019 Tier 1 Guidelines for both benzene and 1,2-DCA when compared to the last monitoring and sampling event.

BH1939 and BH1982 had previously been the most consistent monitoring wells to have sample results exceed the Tier 2 Site-Specific Guidelines. These two monitoring wells have seen significant contaminant reduction following the PlumeStop™ permeable reactive barrier (PRB) injections. BH1939 results are now below the AEP 2019 Tier 1 Guidelines for benzene for the first time since 2015. BH1982 still has results exceeding the AEP 2019 Tier 1 Guidelines for benzene and 1,2-DCA and BH1939 still shows exceedances for 1,2-DCA. The other five monitoring wells included in the program assessing the PRB effectiveness (BH1928, BH1929, BH1936, BH1937, and BH1954) currently show sample results below detection limits for benzene and only BH1954 had a detectable 1,2-DCA result.

The updated trend analysis of monitoring wells with exceedances of PHCs show that most of the wells are displaying stable or decreasing trends. However, three wells were identified as having an increasing benzene trend and two monitoring wells were identified as having an increasing or probably increasing 1,2-DCA trend. Monitoring well BH1910, located in Lions Park, was indicated to have an increasing trend for both benzene and 1,2-DCA.

The other three monitoring wells with increasing trends were located south of 11th Avenue in Hounsfield Heights Park and in the laneway between 15th and 16th Streets NW. The PlumeStop™ injections were completed on 11th Avenue NW and the predominant groundwater flow direction in all units was in a southernly direction making these wells downgradient. With further groundwater monitoring and sampling programs these monitoring wells may begin to see the positive effects of the PRB.

In addition to this, a preliminary decay rate assessment also shows that based on current and historical groundwater trends some monitoring well sample results may potentially achieve the AEP 2019 Tier 1 Guidelines as quickly as 2020. This assessment will need to be expanded to consider the effects of the DPVE (Dual Phase Vapour Extraction) System, the PRB, and biodegradation as well as to include more monitoring wells and potentially more constituents.

Lastly, an initial assessment of natural attenuation has shown that dissolved oxygen concentrations are high enough to promote aerobic biodegradation. In addition, injections of ORC (Oxygen Release Compound) have increased the dissolved oxygen content in areas of the inferred plume along and downgradient to 11th Avenue NW. The dissolved oxygen content may even be high enough to surpass the oxygen demand for the PHCs and allow for the aerobic degradation of 1,2-DCA. There is some evidence that anaerobic degradation may be occurring, but additional data over time will be required to perform a more accurate assessment of anaerobic biodegradation through reduction of nitrate, sulphate, iron, and manganese across the Site.

Use of this report and this Executive Summary is subject to the terms outlined Closure section of this report (Section 5.0). The reader's attention is specifically drawn to these conditions as it is considered essential that they be followed for the proper use and interpretation of this report.

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# 1.0 Background

This report documents the 2020 Spring Groundwater Monitoring and Sampling Event (2020 Q2), which was carried out in May 2020 and June 2020. A map of the Site Location and Surrounding Land Use is provided as Figure 1. A map of the Site and Surrounding Properties is provided as Figure 2. A Monitoring Well Location Plan is provided as Figure 3.

## 1.1 General Site Description

The Alberta Township System description of the Site is the northeast corner of Section 20, Township 24, Range 1, West of the 5th Meridian (NE ¼ 20-24-1 W5M). The Site occupies approximately 40 hectares (100 acres), and is currently a mixture of operating commercial properties, private residences, and public lands.

The Mall area is the portion of the Site located north of 14th Avenue NW, which includes the North Hill Shopping Centre, the former Sears property (now a Kal-Tire Automotive Centre located at 1620 – 14th Avenue NW), and a condominium complex. The Hounsfield Heights area is the portion of the Site south of 14th Avenue NW, including Lions Park, to 10th Avenue NW.

## 1.2 Objectives and Scope and Work

The objectives of the 2020 Spring Groundwater Monitoring and Sampling Event are summarized within the Revised Remediation Plan (2019, Clifton), under the Plume Monitoring section, and are as follows:

- Develop an understanding of how the plume is changing over time (increasing, decreasing, and/or remaining stable); and
- Determine if the biodegradation processes of monitored natural attenuation (MNA) are occurring in certain portions of the Site.

The primary contaminants of potential concern include benzene and 1,2-dichloroethane (1,2 -DCA). These two constituents will represent benzene, toluene, ethylbenzene and xylene(s) (BTEX) and PHC fractions F1 and F2 and volatile organic compounds (VOCs), respectively. The rationale for concentrating on these two constituents is based on the following observations:

- They had the highest frequency of detection, and of exceedance of the Alberta Environment and Parks (AEP), January 2019, *Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines* (AEP 2019 Tier 1 and 2 Guidelines) within their contaminant categories; and
- With few exceptions, the remainder of the constituents detected were associated with a detection of their representative constituent, benzene or 1,2-DCA, depending on the contaminant category.

As benzene and 1,2-DCA degrade, other BTEX compounds, PHC fractions, or VOCs may replace benzene

and 1,2-DCA as the most frequently detected. Clifton will continue to assess the representative constituents as new data becomes available to determine if benzene and 1,2-DCA are the best representation of the Site contamination at the given time.

This will mark the second groundwater monitoring and sampling event where select wells were also sampled for routine groundwater chemistry to assess biodegradation at the Site. The first sampling event took place in the Fall of 2019.

The scope of work for the 2020 Spring Groundwater Monitoring and Sampling Event was as follows:

- Measure organic vapour concentrations in all monitoring wells;
- Measure light non-aqueous phase liquid (LNAPL) thickness (if present) and depth of groundwater in all monitoring wells;
- Collect and dispose of any LNAPL present;
- Collect groundwater samples using the bailer method from 59 monitoring wells on-Site;
- Collect discrete groundwater samples using the HYDRASleeve™ method from 51 monitoring wells on-Site;
- Collect a quality assurance/quality control (QA/QC) sample for approximately every ten samples taken;
- Collect equipment and trip blank samples for analysis of BTEX and PHC fraction F1 as part of the QA/QC program;
- Submit groundwater samples from the 110 monitoring wells sampled for laboratory analyses of BTEX, PHC fractions F1 and F2, and VOCs;
- Submit groundwater samples from 19 monitoring wells for laboratory analysis of routine chemistry; and
- Compare the results to the AEP 2019 Tier 1 and 2 Guidelines and prepare a summary of biodegradation based on the routine chemistry parameter results.

### 1.3 Applicable Guidelines

Laboratory analytical results of groundwater samples were compared to the AEP 2019 Tier 1 and 2 Guidelines for either commercial land use or residential/parkland land use for coarse and fine-grained soil, depending on the sampling location. The freshwater aquatic life pathway was removed due to the distance of the nearest surface waterbodies being over 1.0 km away. The Site-Specific Tier 2 Groundwater Remediation Guidelines (Site-Specific Tier 2 Guidelines) for areas in Hounsfield Heights have also been included within the analytical tables. Figure 4 presents the defined area boundaries for the Site-Specific Tier 2 Guidelines.

# 2.0 Methods

## 2.1 Groundwater Monitoring

The monitoring component of this event involved collecting measurements of the depth to the groundwater and the total depth of the well in addition to measuring the organic vapour concentration of the well and determining if LNAPL was present.

Clifton personnel visited the Site at various dates between 04 May 2020 and 05 June 2020 to collect field monitoring data and groundwater samples from all on-Site groundwater monitoring wells.

## 2.2 Organic Vapour Screening

The ambient organic vapour concentrations in all monitoring wells were measured using an Eagle 2 combustible gas detector. The Eagle 2 was calibrated prior to use in the field by either Clifton personnel, or if it was a rental unit, by the rental staff prior to the pickup of the unit. A bump test was performed on the Eagle 2 each day, prior to use. If the output reading of the Eagle 2 did not correspond to the concentration of gas introduced within an acceptable range of ±10%, the instrument was then re-calibrated.

To complete organic vapour screening, the J-Plug on the monitoring well was removed and the probe of the Eagle 2 was placed into the well, with the cap or the sampling technician's gloved hand placed over the top of the exposed PVC pipe. The highest photoionization detector (PID) and oxygen vapour analyzer (OVA) sensor readings were then recorded. The standpipe vapour concentrations are presented in Table 1.

## 2.3 Fluid Level Measurements

Fluid levels, including groundwater and any potential LNAPL, were measured using a Heron oil/water interface meter. The probe is slowly lowered into the monitoring well until the water surface is reached. Once the probe contacts the water, it is moved back and forth to check for LNAPL. If an LNAPL layer is not identified, the probe records the surface water interface to the nearest millimeter. Total depth measurements of the well were collected prior to sampling. The oil/water interface meter was cleaned between monitoring wells using a solution of Liquinox™ and de-ionized water, followed by a deionized water rinse.

## 2.4 Groundwater Sampling

Clifton deployed HYDRASleeve™ (no-purge groundwater sampling system) samplers at 1.5 m intervals to collect discrete groundwater samples in 51 monitoring wells on-Site. Samples were collected using dedicated, disposable bailers in 59 monitoring wells on-Site. The laboratory Certificates of Analysis have been included as Appendix A.

| **Table 1 – Monitoring Program Details** | | | | | |
|---|---|---|---|---|---|
| Current monitoring and sampling date | 04 May 2020 – 05 June 2020 | | | | |
| Previous monitoring and sampling date | 12 November 2019 – 29 January 2020 | | | | |
| Monitoring and sampling schedule | Semi-annual | | | | |
| Next scheduled monitoring and sampling date | November/December 2020 | | | | |
| Number of wells available to monitor and sample in Mall area | 35 | | | | |
| Number of wells available to monitor and sample in Hounsfield Heights area | 92 | | | | |
| Number of damaged monitoring wells | 3 (BH1943, BH1948, and BH1979) | | | | |
| Total number of monitoring wells on-Site | 130 | | | | |
| **Fluid Level Measurements (see Table 1, Attachments)** | | | | | |
| Water level measurement instrument: | Heron Interface Oil/Water Meter | | | | |
| Groundwater elevation (meters above sea level) | 1062.52 (BH1946) | to | 1086.54 (BH1905) | | |
| Apparent local groundwater flow direction | Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 |
| | SW/SE | S | SE | S/SE | S/SE |
| Dry monitoring wells (As these monitoring wells have been consistently dry, they were not monitored during this event.) | BH1909, BH1920, BH1931, BH1932, BH1938, BH1949, BH1960, BH1965, BH1968, BH1969, BH1970, BH1973, BH1975, BH1986, BH1987, BH1988 and BH2009 | | | | |
| Unmonitored wells (damaged or | BH1926, BH1940, BH1955, and BH1983 (decommissioned in | | | | |

| **Table 1 – Monitoring Program Details** | |
|---|---|
| decommissioned) | 2016); BH1943 and BH1979 (damaged); BH1948 (could not locate, presumed damaged) |
| **LNAPL (See Table 2, Attachments)** | |
| Monitoring wells indicating LNAPL | None |
| Previous monitoring wells indicating LNAPL | BH1704 |
| Current LNAPL thickness | No LNAPL Present |
| Previous LNAPL thickness | 0.035 m (12 June 2019; BH1704) |
| Current Vapour Equivalent LNAPL Removed (DPVE)* | 204.7 L |
| Previous Vapour Equivalent LNAPL Removed (DPVE) | 985 L (08 July 2019 – 31 August 2019) |
| Current LNAPL Removal (Bailer) | None |
| Previous LNAPL Removal (Bailer) | 0.00004 L (12 June 2019; BH1704) |
| **Standpipe Vapour Screening (see Table 1, Attachments)** | |
| Vapour measurement instrument | RKI Eagle 2 OVA gas monitor with PID |
| Current hexane vapour concentrations | 0 ppm to >11,100 ppm |
| Monitoring wells with hexane vapour concentrations >11,100 ppm | BH1907, BH1915, BH1924, BH1984, and BH1704 |
| Current isobutylene vapour concentrations | 0 ppm to >2,000 ppm |

| **Table 1 – Monitoring Program Details** | |
|---|---|
| Monitoring wells with isobutylene vapour concentrations >2,000 ppm | BH1984 |
| **Monitor Well Purging** | |
| Purging method | Dedicated Disposable Bailer |
| Monitoring wells purged using a dedicated disposable bailer | BH912, BH1701, BH1704, BH1905, BH1914, BH1915, BH1916, BH1928, BH1934, BH1935, BH1939, BH1944, BH1945, BH1946, BH1947, BH1950A, BH1951, BH1955A, BH1956, BH1962, BH1964, BH1967, BH1972, BH1974, BH1978, BH1980, BH1982, BH2001, BH2002, BH2003, BH2004, BH2006, BH2008, BH2011, EX1, EX2, EX3, EX4, EX6, EX7, BH3001A, BH3001B, BH3001C, BH3002A, BH3002B, BH3003A, BH3003B, BH4002, BH4003A, BH4003B, BH4004A, BH4004B, BH4005, BH4006, BH4007, BH4008A, BH4008B, BH4009A and BH4009B |
| Maximum volume removed | 36 L (BH1962) |
| Minimum volume removed (Dry or Insufficient Water) | BH1704, BH1909, BH1920, BH1931, BH1932, BH1938, BH1939, BH1945, BH1949, BH1960, BH1965, BH1968, BH1969, BH1970, BH1973, BH1975, BH1986, BH1987, BH1988, BH2004, BH2009, and BH4008A |
| **QA/QC Results (Table 3 – Table 6, Attachments)** | |
| **Trip Blank Samples** | |
| Reference Table 3 of Attachments | All trip blank results are below the reportable detection limit |
| **Equipment Blank Samples** | |
| Reference Table 4 of Attachments | One detection of trichloroethene in a bailer sample, one detection of toluene in HYDRASleeve™ sample, and one detection of chloroform in HYDRASleeve™ sample. See Discussion Section – QA/QC for |

| Table 1 – Monitoring Program Details | |
|---|---|
| | additional details. |
| **Field Duplicate Samples** | |
| Reference Tables 5 and 6 of Attachments | All duplicates have relative percent differences less than 80% for all parameters. |
| **Sampling Summary** | |
| Groundwater sampling method | Disposable Bailer or HYDRASleeve™ |
| Number of monitoring wells sampled with a dedicated disposable bailer | 59 + 6 duplicates |
| Number of monitoring wells sampled using the no-purge HYDRASleeve™ method | 51+ 5 duplicates |
| Samples submitted to: | Bureau Veritas, Calgary, Alberta |
| **Analysis Package** | |
| BTEX and PHC fractions F1 – F2 | Table 7 |
| VOCs | Table 8 |
| Routine Chemistry | Table 9 |

*LNAPL removal between 19 September – 31 December 2019. Flow rate of 280 ACFM and 82ºC assumed based on system specifications.

# 3.0 Results

## 3.1 Groundwater Flow

The monitoring results from the May and June 2020 Groundwater Monitoring and Sampling event show that the inferred groundwater flow direction from wells screened in Unit 1 is split with groundwater flowing to both the southeast and southwest (Figure 5).

The inferred groundwater flow direction from wells screened in Unit 2 is to the south (Figure 6). The predominant trend for groundwater flow in Unit 2 is to the south with variability to the southeast and southwest as indicated in previous events.

The inferred groundwater flow direction from wells screened in Unit 3 is to the southeast (Figure 7), which is consistent with previous results.

Groundwater flow direction in Unit 4 is generally to the south/southeast. The groundwater flow direction for Unit 4 is presented as Figure 8 and was consistent with previous results.

A potentiometric surface diagram was prepared for Unit 5 (Figure 9).. The inferred groundwater flow direction in Unit 5 is to the southeast. This is consistent with the anticipated groundwater flow which was thought to be to the south towards the Bow River.

## 3.2 Groundwater Chemistry

### 3.2.1 Quality Assurance and Quality Control

Various methods of QA/QC were implemented throughout the program including the collection and analysis of trip blanks, equipment blanks, and duplicate samples. The results of the QA/QC sample analyses are represented in Tables 3 to 6.

#### *3.2.1.1 Trip Blanks*

Twelve trip blanks were submitted for analysis of BTEX and VOCs with the field samples to assess the potential for cross-contamination during the handling and transport of the samples. There were no detections of any volatile compounds in the trip blanks. Trip blanks were not analyzed with the 05 May 2020 or 03 June 2020 samples. However, volatile compounds were not detected in samples submitted on these dates. As such, the likelihood of sample cross-contamination is presumed to be low. Refer to Table 3 for the trip blank results.

#### *3.2.1.2 Equipment Blanks*

Six HYDRASleeve™ and three bailer equipment blank samples were also submitted for analysis of BTEX, PHC fraction F1 and F2, and VOCs. This process involves obtaining organic-free water from the Bureau Veritas laboratory, placing it into the sampling device and then filling the appropriate sample bottles. All the equipment blank samples came back below the reportable detection limits except for two of the

HYDRASleeve™ samples, Hydra 3 and Hydra 5, and one bailer sample, Bailer 1. Sample Hydra 3 obtained on 15 May 2020 contained concentrations of toluene which were above the reportable detection limit. Sample Hydra 5 taken on 01 June 2020 had a detectable concentration of chloroform. Sample Bailer 1 taken on 04 May 2020 had a detectable concentration of trichloroethene. The reportable detection limits for toluene, chloroform, and trichloroethene are 0.00040, 0.0006, and 0.00050, respectively.

All HYDRASleeve™ and bailer samplers were provided to Clifton by the supplier at the same time. The potential sources of the detectable compounds include the organic-free water, cross-contamination in the field, cross-contamination in the laboratory, or the samplers themselves. There were two equipment blanks taken on each 04 May 2020, 15 May 2020, and 01 June 2020. Since only one of the equipment blanks taken on these dates had detectable concentrations of the compounds analyzed it is unlikely that the source of the contamination is the organic-free water used.

In both cases there was only one guideline exceedance of toluene and chloroform on the dates in question from samples obtained with a HYDRASleeve™ and these exceedances were also consistent with previous sampling events. There were no detections of trichloroethene in any sample collected during this event. As a result, the potential presence of toluene and chloroform within the HYDRASleeve™ and the trichloroethene in the bailer does not affect the results of this sampling program, and the data are considered suitable for the purpose of this report.

The results of the rinsate blanks were also shared with our equipment supplier. We will be continuing to collect rinsate blanks from the sampling equipment prior to mobilizing to site, and we have also prepared a secure storage environment at our office facility to further minimize any potential cross-contamination of sampling equipment.

#### *3.2.1.3 Field/Laboratory Duplicates*

Eleven field duplicates were submitted for analyses of BTEX, PHC fractions F1 and F2, and VOCs. The relative percent differences (RPDs) ranged from 0% to a maximum of 72% for xylene from BH1967. The field duplicates for all constituents sampled were below the acceptable RPD of 80%. Refer to Tables 5 and 6 for the field duplicate results. The RPD for the laboratory duplicate of carbonate on Report R2888743 was outside of the calibrated range. However, Bureau Veritas stated that the overall quality of the analysis meets acceptability criteria.

### 3.2.2 Distribution of BTEX and PHC Fractions F1 and F2

During previous events, only those monitoring wells reporting detectable concentrations of the BTEX and PHC fractions F1 and F2 were presented in Table 7. However, the data for all monitoring wells from the May and June 2020 monitoring and sampling event was added to Table 7. All BTEX and PHC fraction F1 and F2 results will be presented in Table 7 moving forward. A Site plan showing benzene exceedances by stratigraphic unit is presented in Figure 10.

One-hundred and ten samples (excluding duplicates and trip blanks) were submitted for laboratory analysis of BTEX and PHC fractions F1 and F2. Of the BTEX and PHC fractions F1 and F2, benzene was the most frequently detected and had the most exceedances of the AEP 2019 Tier 1 Guidelines. Also, with few exceptions, the remainder of the BTEX and PHC F1 and F2 compounds detected were associated with a detection or exceedance of benzene in the same sample. For these reasons, benzene is considered representative of the BTEX and PHC fractions F1 and F2 throughout this discussion. For the BTEX and PHC F1 and F2 constituents, the plume margin is defined by the AEP 2019 Tier 1 Guideline for benzene of 0.005 mg/L. This guideline is based on protection of groundwater used for drinking water.

Twenty-nine of the 110 sample results exceeded the AEP 2019 Tier 1 Guidelines for one or more of the BTEX and PHC fractions F1 and F2 parameters. No sample results exceeded the Site-Specific Tier 2 Guidelines generated for the protection of human health through the vapor inhalation pathway.

Benzene has been detected in concentrations in excess of the AEP 2019 Alberta Tier 1 Guidelines in Units 1, 2, and 3. Concentrations of benzene ranged from below detection (<0.00040 mg/L) to a maximum of 2.0 mg/L in EX-5 (Unit 3). The lateral distribution of benzene in groundwater is shown in Figure 10 for each stratigraphic unit mapped in the study area.

**3.2.3 Distribution of 1,2-DCA**

During previous events, only those monitoring wells having yielded detectable concentrations of VOCs are presented in Table 8. However, the data for all monitoring wells was added for the May and June 2020 monitoring and sampling event. All VOC results will be presented in Table 8 moving forward. A Site plan showing 1,2-DCA exceedances by stratigraphic unit is presented in Figure 11.

One hundred and ten samples (excluding duplicates and trip blanks) were submitted for laboratory analysis of VOCs. 1,2 -DCA was the most frequently detected VOC and had the most exceedances of the AEP 2019 Tier 1 and 2 Guidelines. Also, with few exceptions, the remainder of the VOC compounds detected were associated with a detection or exceedance of 1,2-DCA within the same sample. For these reasons, 1,2-DCA is considered representative of the VOCs throughout this discussion. The plume margin is defined as the AEP 2019 Tier 1 Guideline for 1,2-DCA of 0.005 mg/L.

Twenty-six of the 110 sample results exceeded the AEP 2019 Tier 1 Guidelines for 1,2-DCA. 1,2-DCA has been detected at concentrations greater than the AEP 2019 Tier 1 Guidelines in Units 1, 2, 3, and 4. Concentrations were below the analytical detection limits in Unit 5 except for BH2001, which had a detectable concentration, below the AEP 2019 Tier 1 Guidelines. Concentrations of 1,2-DCA ranged from below detection (<0.001 mg/L) to 0.14 mg/L (EX-7). The lateral distribution of 1,2-DCA is shown on Figure 11 for each stratigraphic unit mapped in the study area. No samples exceeded the Site-Specific Tier 2 Guidelines generated for the protection of human health through the vapor inhalation pathway.

### 3.3 Permeable Reactive Barrier Injections and Performance

Clifton supervised the application of a permeable reactive barrier (PRB) involving the injection of PlumeStop™ and Oxygen Release Compound-advanced in November and December of 2019. The PRB was installed along 11th Avenue NW between 15th and 16A Street NW. The scope of work involved is detailed under a separate title. As part of assessing the performance of the PlumeStop™ injections seven monitoring wells (BH1928, BH1929, BH1936, BH1937, BH1939, BH1954, and BH1982) are being sampled monthly for the first six months following the injections. The initial results are promising as six of the seven monitoring wells are now below the AEP 2019 Tier 1 Guidelines for benzene and five of the seven are below for 1,2-DCA. The results of the PlumeStop™ performance monitoring is presented in Appendix B.

From a risk management perspective, this was the first sampling event without an exceedance of the Tier 2 Site-Specific Guidelines for the protection of human health. BH1939 and BH1982, which are included in the PlumeStop™ performance monitoring program, were the two monitoring wells most commonly in exceedance of the Tier 2 Site-Specific Guidelines. These two monitoring wells have seen significant contaminant reduction following the PlumeStop™ injections. BH1939 in now below the AEP 2019 Tier 1 Guidelines for benzene for the first time since 2015. BH1982 still exceeds the AEP 2019 Tier 1 Guidelines for benzene and 1,2-DCA and BH1939 still exceeds for 1,2-DCA. The other five monitoring wells included in the program (BH1928, BH1929, BH1936, BH1937, and BH1954) are currently below detection limits for benzene and only BH1954 had a detection of 1,2-DCA. A more detailed evaluation of the PlumeStop™ injection program will be reported during the next sampling event as the performance monitoring is ongoing.

### 3.4 Concentration Trends and Decay Rates

#### 3.4.1 Approach

A Mann-Kendall (Mann, 1945; Kendall, 1975; Gilbert, 1987) Plume Stability Analysis (M-K PSA) has been applied to select monitoring wells to assess concentration trends for benzene and 1,2 – DCA. Prior to 2019, M-K PSA was completed on 10 monitoring wells within Unit 3 located at the extents of the plume. This current report expands the M-K PSA to include all monitoring wells which showed an exceedance of benzene or 1,2-DCA within one of the four most recent sampling events. Separate M-K PSAs were completed for fall and spring events to determine if there are any seasonal influences on the data. However, through completing this exercise it was determined that there is currently not enough data to reliably report seasonal results. Therefore, the M-K PSA still does not consider seasonality of the data, but this will be completed in 2021 after an additional two sets of data are obtained in 2020.

As a result of the expanded M-K PSA, 36 monitoring wells have been used for determining benzene trends and 35 monitoring wells for 1,2-DCA trends. Four of the monitoring wells in the 4000 series have been included but have only been sampled for three events and do not have enough data for a trend to be analyzed, as there should be a minimum of four data points.

For sampling events where the concentration of the compound was less than the reportable detection limit, this detection limit was conservatively used as the concentration for the purposes of MK-PSA calculation. In some cases, the monitoring wells were sampled with multiple methods (non-purge and conventional purge and bailer). For the M-K PSA analysis a single sampling method was represented. Outlier concentrations were also removed from the M-K PSA and decay rate data sets.

The *GSI Mann-Kendall Toolkit* (2012) was used to calculate the M-K PSA. The Toolkit applies the “S” statistic, confidence factor (CF) and coefficient of variation (COV) to determine if the concentrations are increasing (CF>95%), probably increasing (95%>CF>90%), have no trend (CF<90% or CF <90% and COV>1), are stable (CF <90% and COV<1), are probably decreasing (95%>CF>90%) or are decreasing (CF>95%).

In addition to the use of the M-K PSA, Clifton has also conducted an initial assessment of decay rates for benzene and 1,2-DCA at select wells. Decay rates and predicted time to reach applicable guidelines were calculated from the concentration data using the SourceDK spreadsheet application (GSI 2011). The Tier 1 empirical approach was used. This approach extrapolates the estimated timeframe for a monitoring well to reach a specific guidance value based on a log concentration vs. time graph. The concentrations used in the decay rate estimates are those on the decay portion of the concentration curve; therefore, the concentrations measured prior to reaching peak concentration have not been used in the data sets.

This analysis was applied to select monitoring wells for each specific parameter (Benzene or 1,2 -DCA), for which the current concentrations exceed the AEP 2019 Tier 1 Guidelines and the M-K PSA analysis indicated a “decreasing” or “probably decreasing” trend. Based on this, the decay analysis was applied to 17 monitoring wells for benzene and 10 monitoring wells for 1,2 -DCA. The calculations were applied with a 95% upper/lower confidence level (UCL and LCL) in order to provide an estimated timeframe range to reach the guidance value. The guidance value applied to the analysis was 0.005 mg/L for both benzene and 1,2-DCA which corresponds with the AEP 2019 Tier 1 Guidelines.

The calculations used in the GSI worksheets are detailed in their respective user manuals. The summary sheets for the M-K PSA analysis are presented in Appendix C and the Source DK summary sheets are presented in Appendix D. These analyses will be expanded in future sampling events.

**3.4.2 Trends - Benzene Concentrations**

Based on the current dataset, Clifton performed an expanded M-K PSA to incorporate all monitoring wells that have had an exceedance of benzene in any of the last four monitoring and sampling events. As a result, the M-K PSA was performed on 36 monitoring wells. However, four of the monitoring wells in the 4000 series did not have enough data points to establish a trend.

Two M-K PSA assessments were done on BH1928, BH1929, BH1936, BH1939, and BH1982 as these wells are being sampled to assess the performance of the PlumeStop™ remedial injections. The pre and post injection data was analyzed separately in order to establish any changes in trends. The first

assessment was completed for the sampling events completed prior to the injection of PlumeStop™. The second assessment was completed on the post-injection performance sampling events. There were not enough samples taken from BH1928 following the injection to complete a trend analysis.

In addition, extraction wells EX4 through EX7 have been included in the M-K PSA for comparison purposes but are being used as part of the current DPVE remediation system. As these wells are actively collecting contaminated groundwater to be treated by the DPVE their concentrations could be influenced by these activities and are not necessarily representative of natural conditions.

Results from the M-K PSA for benzene are summarized in the table below.

| **Table 2 – M-K PSA for Benzene** | |
|---|---|
| Increasing | BH1910, BH1944, and BH2005 |
| Probably Increasing | None |
| No Trend | BH1906, BH1907, BH1936 (before PlumeStop™ injections), BH1977, BH1929 (after PlumeStop™ injections), and BH1936 (after PlumeStop™ injections) |
| Stable | BH1982 (after PlumeStop™ injections) |
| Probably Decreasing | BH1904, BH1911, BH1928 (before PlumeStop™ injections), and EX-3 |
| Decreasing | BH1905, BH1912, BH1915, BH1921, BH1924, BH1925, BH1929 (before PlumeStop™ injections), BH1930, BH1939 (before PlumeStop™ injections), BH1956, BH1967, BH1971, BH1982 (before PlumeStop™ injections), BH510A, BH1704, EX-1, EX-2, EX-4, EX-5, EX-6, EX-7, and BH1939 (after PlumeStop™ injections) |

The data presented above is graphically depicted in Figure 12 of the attachments. The trends have been classified as Increasing and Probably Increasing, No Trend/Stable, and Decreasing and Probably Decreasing.

Based on the results obtained during the most recent groundwater monitoring and sampling event, approximately 74% (81 of 110 wells) of the samples met the AEP 2019 Tier 1 Guidelines. This is 3% greater than during the previous sampling event. An M-K PSA was performed on 36 monitoring wells for benzene excluding the analysis completed on BH1928, BH1929, BH1936, BH1939, and BH1982 before the PlumeStop™ injections. Four of the monitoring wells from the 4000 series did not have enough data to establish a trend. Of the remaining monitoring wells, 22 are showing a probably decreasing or decreasing trend, three are showing an increasing trend, and the remainder are either stable or show no trend following the results of the most recent sampling event.

The M-K PSA trends for BH1936 and BH1939 did not change between the pre and post injection data with BH1936 exhibiting no trend and BH1939 exhibiting a decreasing trend. The trends for BH1929 and BH1982 did change from decreasing to no trend and stable, respectively. It should be noted that BH1929 has had concentrations of benzene below the laboratory detection limits since February 2020 and BH1936 since May 2020.

A copy of the M-K PSA results are provided in Appendix C as trend charts for each monitoring well.

**3.4.3 Decay Rates - Benzene Concentrations**

A decay rate analysis was completed on all the monitoring wells that were considered to be probably decreasing or decreasing aside from BH1929, BH1930, BH1939, BH1956, EX-1, and EX-3 as these monitoring wells all met the AEP 2019 Tier 1 Guidelines during the most recent sampling event. In addition, a decay rate analysis was not completed on the BH1928 data before PlumeStop™ injections. As this data set does not include the results from the most recent sampling event it would not accurately represent the timeframe required to reach the applicable guideline.. In addition, no analysis could be completed on the post injection data as there was not have enough data to establish a decay rate. The decay rate analysis information presented below is for the monitoring wells which were indicated as having probably decreasing or decreasing trends are presented in the table below.

**Table 3 – Predicted Time to Guideline Concentration for Benzene**

| Monitoring Well | Applicable Guideline (mg/L) | Predicted Year to Meet Applicable Guideline | Estimated Timeframe (95% LCL) | Estimated Timeframe (95% UCL) |
|---|---|---|---|---|
| BH1904 | 0.005 | 2085 | 2043 | CNC |
| BH1905 | 0.005 | 2024 | 2021 | 2033 |

**Table 3 – Predicted Time to Guideline Concentration for Benzene**

| Monitoring Well | Applicable Guideline (mg/L) | Predicted Year to Meet Applicable Guideline | Estimated Timeframe (95% LCL) | Estimated Timeframe (95% UCL) |
|---|---|---|---|---|
| BH1911 | 0.005 | 2022 | 2019 | 2041 |
| BH1912 | 0.005 | 2024 | 2023 | 2026 |
| BH1915 | 0.005 | 2021 | 2019 | 2023 |
| BH1921 | 0.005 | 2020 | 2017 | 2032 |
| BH1924 | 0.005 | 2044 | 2033 | 2081 |
| BH1925 | 0.005 | 2022 | 2020 | 2025 |
| BH1967 | 0.005 | 2031 | 2028 | 2035 |
| BH1971 | 0.005 | 2022 | 2020 | 2028 |
| BH510A | 0.005 | 2033 | 2023 | >500 years |
| BH1704 | 0.005 | 2031 | 2026 | 2041 |
| EX-2 | 0.005 | 2026 | 2022 | 2033 |
| EX-4 | 0.005 | 2027 | 2023 | 2040 |
| EX-5 | 0.005 | 2047 | 2031 | >500 years |
| EX-6 | 0.005 | 2125 | 2024 | CNC |
| EX-7 | 0.005 | 2053 | 2032 | CNC |

Notes: CNC – Could Not Calculate.

Based on the decay rate analysis it is anticipated that the AEP 2019 Tier 1 Guideline for benzene could be achieved but the predicted decay rates vary widely and range from 2017 to >500 years.. The wells which are showing a larger range of time to achieve the applicable guidelines are for the most part in areas located within the influence of the DPVE system and potential residual LPH. The DPVE system is designed to actively draw dissolved phase hydrocarbon and residual LPH towards the extraction wells, and therefore, the concentrations measured in these, and surrounding wells, would be influenced by its operation. As a result, the measured benzene concentrations within these wells have shown significant variability which is reflected in a larger upper confidence interval for time to reach the applicable guidelines. *These wells* (EX2 through EX7, BH510A, BH1704) are not representative of a steady-state condition where biodegradation of hydrocarbons is established, undisturbed and active, and will therefore not be used in further assessment of degradation rates.

In the cases where the predicted clean-up year is prior to the most recent sampling event (2017 – 2019) there was a previous concentration of benzene in the monitoring well that met the AEP 2019 Tier 1 Guidelines. However, all of these monitoring wells had concentrations of benzene over the AEP 2019 Tier 1 Guidelines in the most recent sampling event. The decay rate analysis will be updated as new sampling data becomes available.

**3.4.4 Trends – 1,2-DCA Concentrations**

Based on the current dataset, Clifton performed an expanded M-K PSA to incorporate all monitoring wells across the entire Site with an exceedance of 1,2-DCA within the last four monitoring and sampling events. As a result, the M-K PSA was performed on 35 monitoring wells. However, four of the monitoring wells from the 4000 series did not have enough data points to establish a trend.

Two M-K PSA assessments were done on BH1928, BH1929, BH1936, BH1939, and BH1982 as these wells are being sampled to assess the performance of the PlumeStop™ remedial injections. The pre and post injection data was analyzed separately in order to establish any changes in trends. The first assessment was completed for the sampling events completed prior to the injection of PlumeStop™. The second assessment was completed on the post-injection performance sampling events. There were not enough samples taken from BH1928 following the injection to complete a trend analysis.

In addition, extraction wells EX4 through EX7 have been included in the M-K PSA for comparison but are being used as part of the current DPVE remediation system. As these wells are actively collecting contaminated groundwater to be treated by the DPVE their concentrations could be influenced by these activities and are not necessarily representative of natural conditions.

Results from the M-K PSA on 1,2-DCA are provided in the table below.

| Table 4 – M-K PSA for 1,2 – DCA | |
|---|---|
| Increasing | BH1910 |
| Probably Increasing | BH2006 |
| No Trend | BH1907, BH1928 (before PlumeStop™ injections), BH1929 (before PlumeStop™ injections), BH1937, BH1971, BH510A, EX-7, and BH1936 (after PlumeStop™ injections) |
| Stable | BH1906, BH1911, BH1912, BH1921, BH1981, BH1982 (before PlumeStop™ injections), BH1704, EX-2, and BH1982 (after PlumeStop™ injections) |
| Probably Decreasing | BH1939 (before PlumeStop™ injections), BH1967, EX-3, EX-5, and BH1929 (after PlumeStop™ injections) |
| Decreasing | BH1905, BH1915, BH1924, BH1925, BH1936 (before PlumeStop™ injections), BH1956, BH1974, EX-1, EX-4, EX-6, and BH1939 (after PlumeStop™ injections) |

The data presented above is graphically depicted in Figure 13 of the attachments. The trends have been classified as Increasing and Probably Increasing, No Trend/Stable and Decreasing and Probably Decreasing.

Based on the results obtained during the most recent groundwater sampling event approximately 76% (84 of 110 wells) of the samples met the AEP 2019 Tier 1 Guidelines. This is 3% greater than the previous sampling event. An M-K PSA was performed on 35 monitoring wells for 1,2-DCA excluding the analysis completed on BH1928, BH1929, BH1936, BH1939, and BH1982 before the PlumeStop™ injections. Four of the monitoring wells in the 4000 series did not have enough data to establish a trend. Fourteen of the wells showed a probably decreasing or decreasing trend. Two wells have a probably increasing or increasing trend.

The M-K PSA trend for BH1982 did not change between the pre and post injection data and exhibited a stable trend. The trends for BH1929, BH1936, and BH1939 did change. Pre-injection BH1929 was no trend, BH1936 was decreasing, and BH1939 was probably decreasing. Post-injection BH1929 was probably decreasing, BH1936 was no trend, and BH1939 was decreasing. It should be noted that BH1929

has had 1,2-DCA concentrations below the laboratory detection limit since February 2020 and BH1936 since May 2020.

A copy of the M-K PSA results is provided in Appendix C as trend charts for each monitoring well.

**3.4.5 Decay Rates – 1,2 DCA**

A decay rate analysis was completed on all the monitoring wells that were probably decreasing and decreasing aside from BH1929, BH1936, BH1956, EX-1, and EX-3 as these monitoring wells all met the AEP 2019 Tier 1 Guidelines during the most recent sampling event. In addition, a decay rate analysis was not completed on the BH1936 data before PlumeStop™ injections. As this data set does not include the results from the most recent sampling event it would not accurately represent the timeframe required to reach the clean-up levels. In addition, no analysis could be completed on the post injection data as the monitoring well had already reached clean-up levels. Therefore, the decay rates from the pre and post injection data could not be compared. The results of the decay rate analysis for 1,2-DCA are presented in the table below.

**Table 5 – Predicted Time to Guideline Concentration for 1,2-DCA**

| Monitoring Well | Applicable Guideline(mg/L) | Predicted Year to Meet Applicable Guideline | Estimated Timeframe (95% LCL) | Estimated Timeframe (95% UCL) |
|---|---|---|---|---|
| BH1905 | 0.005 | 2025 | 2020 | 2088 |
| BH1915 | 0.005 | 2023 | 2019 | 2030 |
| BH1924 | 0.005 | 2037 | 2028 | 2072 |
| BH1925 | 0.005 | 2023 | 2021 | 2027 |
| BH1939 (before PlumeStop™ injections) | 0.005 | 2030 | 2027 | 2034 |
| BH1939 (after PlumeStop™ injections) | 0.005 | 2026 | 2022 | CNC |

**Table 5 – Predicted Time to Guideline Concentration for 1,2-DCA**

| Monitoring Well | Applicable Guideline(mg/L) | Predicted Year to Meet Applicable Guideline | Estimated Timeframe (95% LCL) | Estimated Timeframe (95% UCL) |
|---|---|---|---|---|
| BH1967 | 0.005 | 2029 | 2025 | 2037 |
| BH1974 | 0.005 | 2028 | 2020 | 2185 |
| EX-4 | 0.005 | 2022 | 2019 | 2031 |
| EX-5 | 0.005 | 2029 | 2022 | 2188 |
| EX-6 | 0.005 | 2027 | 2023 | 2040 |

Notes: CNC-Could not calculate.

Based on the decay rate analysis it is anticipated that the AEP 2019 Tier 1 Guideline for 1,2-DCA could be achieved as early as 2020 to as late as 2188, depending on the monitoring well location. The decay rate analysis will need to be updated as new sampling data becomes available. Furthermore, as stated in the decay analysis section for Benzene, monitoring wells (EX4 through EX6) under the direct influence of the DPVE system should be removed from further SourceDK analysis as the operation of the system does not meet the assumptions of the model.

### 3.5 Chemical Evidence of Biodegradation

Nineteen monitoring wells installed throughout Unit 3 have been sampled for routine chemistry analysis to determine if there is evidence to suggest biodegradation of benzene and 1,2-DCA is occurring. These monitoring wells were located at the extents of the interpreted groundwater plume at sampling points that have been below the laboratory detection limits for benzene and 1,2-DCA during every sampling event. With the exception of BH1984 which was below the detection limits for benzene and 1,2-DCA during the most recent sampling event. Samples were also collected within the plume to provide comparative data in areas of higher and lower PHC and VOC concentrations. The results from the routine groundwater chemistry are presented in Table 9.

### 3.5.1 Background

Biodegradation is one aspect of the natural attenuation of contaminants within soil and groundwater. Natural attenuation can also occur through the processes of diffusion, dilution, dispersion, sorption, volatilization, and in the case of 1,2-DCA, through abiotic transformations. Biodegradation can occur under aerobic and anaerobic conditions, where the PHCs and VOCs are used as electron donors. Therefore, the availability of electron acceptors is the primary limiting factor in the success of biodegradation. Laboratory analysis of routine chemistry was completed to determine if there is evidence to suggest biodegradation of benzene and 1,2-DCA is occurring.

Biodegradation of petroleum hydrocarbons can be indirectly observed as changes in the concentration of certain dissolved ions, nutrients, and metals in groundwater resulting from reduction-oxidation (redox) reactions in the subsurface. Redox reactions occur in a predictable order in the subsurface based on electrical potential. Generally, the following redox reactions can be expected, in approximately the following order:

$O_2^+ + 4H^+ + 5e^- \rightarrow H_2O$ - Aerobic Respiration

$2NO_3{}^- + 12H^+ + 10e^- \rightarrow N_2 + 6H_2O$ - Nitrate Reduction (anaerobic)

$MnO_2 + 4H^+ + 2e^- \rightarrow Mn^{2+} + 2H_2O$ - Manganese Reduction (anaerobic)

$Fe^{3+} + e^- \rightarrow Fe^{2+}$ – Iron Reduction (anaerobic)

$SO_4{}^{2-} + 8H^+ + 2e^- \rightarrow S^{2-} + 4H_2O$ - Sulphate Reduction (anaerobic)

1,2-DCA can be rapidly degraded if oxygen is available. However, the oxygen demand of the competing petroleum hydrocarbons makes it less likely that oxygen will be available in the source area or mid-gradient portions of the plume (EPA 600/R-=08/107, September 2008). During the anaerobic degradation of 1,2-DCA the electron acceptors would be, in the order of preference, nitrate, ferric iron oxyhydroxide, sulfate, and finally carbon dioxide. The condition during the final stage of anaerobic degradation in which carbon dioxide is the electron acceptor is called methanogenesis (EPA/600/R-98/128, September 1998).

Generally, where biodegradation is occurring, increases in concentrations of the reduced electron acceptors dissolved iron ($Fe^{2+}$) and dissolved manganese ($Mn^{2+}$) will be observed in the groundwater. Similarly, decreases in concentrations of the oxidized electron acceptors dissolved oxygen ($O^{2+}$), sulfate ($SO_4^{2-}$), and nitrate ($NO_3^-$) will be observed in the groundwater. These reactions can be affected by the type of soil in the area, as well as the type and concentration of the contaminants in the soil and groundwater, resulting in variation in the rate of reactions and the order of redox reactions taking place.

Multiple lines of evidence are required to determine if biodegradation is occurring at a Site, including the reduction of contaminant mass, evidence of the redox reactions, and if required, additional testing of biological activity. The reduction of contaminant mass is supported by assessing the concentration trends (*e.g.*, Mann Kendall tests). The monitoring wells in which the contaminant mass is indicated as deceasing may be undergoing biodegradation.

To assess evidence of redox reactions during the 2020 Spring Groundwater Monitoring and Sampling, Clifton obtained groundwater samples for analysis of routine chemistry from 19 monitoring wells. Ten samples were obtained from the extents of the plume in which the concentrations in the monitoring wells had always been below detection limits, with the exception of BH1984 which had previous detections and exceeded the AEP Tier 1 Guidelines prior to 2017. An additional nine samples were obtained from areas within the plume to determine if there was a spatial difference in geochemical parameters which may be indicative of biodegradation. Table 9 of the attachments documents the full analytical results for routine groundwater chemistry. As the performance of the PRB continues and the extents of the plume are re-evaluated the monitoring wells used to represent the plume extents and the chemistry within the plume will also have to be reassessed.

The table below provides a summary of the analysis of the wells that were sampled for routine chemistry organized by location in reference to the groundwater plume. The representative parameters benzene and 1,2-DCA have also been used as a proxy for biodegradation indicators in the table below to compare concentrations within and at the extents of the groundwater plume.

| **Table 6 – Summary of Monitoring Wells Analyzed for Biodegradation Indicators** | |
|---|---|
| Wells Sampled at Plume Extents | BH1918, BH1927, BH1953, BH1958, BH1962, BH1984, BH2003, BH2010, BH2012 and BH3001A |
| Wells Sampled within Plume | BH1906, BH1910, BH1925, BH1928, BH1944, BH1956, BH1982, BH4007 and EX-7 |
| Average Benzene Concentration (plume extents) | <0.00040 mg/L |
| Average Benzene Concentration (within plume) | 0.49 mg/L |
| Average 1,2-DCA Concentration (plume extents) | <0.0005 |
| Average 1,2-DCA Concentration (within plume) | 0.034 |
| Average Dissolved Oxygen Concentration (plume extents) | 2.64 mg/L* |

| Table 6 – Summary of Monitoring Wells Analyzed for Biodegradation Indicators | |
|---|---|
| Average Dissolved Oxygen Concentration (within plume) | 3.78 mg/L* |
| Average Dissolved Nitrate (N) Concentration (plume extents) | 5.10 mg/L |
| Average Dissolved Nitrate (N) Concentration (within plume) | 10.07 mg/L |
| Average Dissolved Iron Concentration (plume extents) | <0.06 mg/L |
| Average Dissolved Iron Concentration (within plume) | 1.5 mg/L |
| Average Dissolved Sulphate Concentration (plume extents) | 47.7 mg/L |
| Average Dissolved Sulphate Concentration (within plume) | 42.2 mg/L |
| Average Dissolved Manganese Concentration (plume extents) | 0.16 mg/L |
| Average Dissolved Manganese Concentration (within plume) | 0.46 mg/L |

NOTES:

*The dissolved oxygen calculation does not include BH1928 as this monitoring well is in the vicinity of the PlumeStop™ and ORC injections and has elevated DO concentrations of >30 mg/L.

Where the result was less than the reportable detection limit (RDL) half of the RDL was used in the average calculations.

### 3.5.2 Assessment of Biodegradation of BTEX and PHC F1/F2

Based on a review of the measured dissolved oxygen concentrations, the dissolved oxygen concentrations vary little throughout the plume. This is in contrast to the last sampling event where on average the concentrations of dissolved oxygen within the plume were less than on the plume extents; which would be expected as higher PHC concentrations would drive the dissolved oxygen down during aerobic degradation.

As a result of the application of the PlumeStop™ and ORC injections the dissolved oxygen concentration has artificially increased along and downgradient of 11th Avenue NW. This could be observed in the dissolved oxygen concentration in BH1928 which was greater than 30 mg/L and approximately 10 times higher than the average dissolved oxygen concentration of the remaining wells. This effect on dissolved oxygen may also be observed in monitoring wells downgradient of the injections, such as BH1944 and BH3001A. With respect to biodegradation, the primary mechanism will be through the aerobic pathway so long as there is sufficient dissolved oxygen content within the groundwater. A dissolved oxygen content of 0.5 mg/L or greater is generally sufficient to promote aerobic biodegradation as the primary mechanism of biological decay within the groundwater (EPA 510-B-17-003, October 2017). All wells which were sampled contained a dissolved oxygen concentration greater than 0.5 mg/L, which suggest that aerobic degradation should not be currently constrained by lack of oxygen.

As explained earlier, under increasingly anaerobic biodegradation conditions, lower concentrations of dissolved nitrate and dissolved sulphate as well as increased concentrations of dissolved iron and manganese can be expected within the core of the plume when compared to background conditions. The concentration of dissolved nitrate appeared, on average, lower at the plume extents than within the plume itself. If anaerobic biodegradation through nitrate reduction is occurring, we would expect to see lower dissolved nitrate concentrations within the central areas of the plume. The fact that we are not seeing these differences may suggest that nitrate reduction is not currently a significant mechanism of PHC degradation.

Concentrations of iron and manganese did appear, on average, higher within the plume as compared to the extents of the plume. Dissolved sulphate did not appear to vary significantly between wells within the plume and at the extents of the plume. This evidence could potentially support the idea that anaerobic biodegradation is (or was) occurring within the plume. However, the presence of dissolved oxygen concentrations at levels to promote aerobic biodegradation may still suggest that aerobic degradation is the primary mechanism of biodegradation.

### 3.5.3 Assessment of Biodegradation of 1,2-DCA

The degradation of 1,2-DCA varies in comparison to PHCs. Although the mechanisms for aerobic and anerobic biodegradation are similar, the oxygen demand of PHC degradation generally does not allow for aerobic degradation of 1,2-DCA. However, as the oxygen concentrations within the plume have been artificially increased through ORC injections there may be enough oxygen to allow for the aerobic degradation of 1,2-DCA. Unlike PHCs, VOCs also undergo abiotic transformations (EPA 600/R-=08/107,

September 2008). As part of the abiotic transformations that occur to 1,2-DCA, the product is slowly hydrolyzed by water. This reaction would produce 2-chloroethanol and vinyl chloride with vinyl chloride being the minor product. Vinyl chloride is a constituent that is included in the current VOC analysis. This compound has been primarily below detection limits and, of the monitoring wells used in this assessment, only BH1925 has shown detections in 2016 and 2017. Although detections of vinyl chloride would indicate degradation of 1,2-DCA their absence does not mean this reaction is failing to take place, as vinyl chloride is only the minor product and may be present at concentrations below detection. However, this is a slow process with a half-life of 300 years at 15ºC (EPA 600/R-=08/107, September 2008).

In addition, 1,2-DCA can react with sulfide which is produced at the end of the sulfate reduction reaction through the series of reactions shown below:

$$4H_2 + SO_4^{-2} \rightarrow S^{-2} + 4H_2O$$
$$2Fe^{+3} + 3S^{-2} \rightarrow 2FeS + S^0$$
$$2FeS + S^0 \rightarrow FeS_2$$

This abiotic reaction of 1,2-DCA can occur on the surface of solid iron sulfide. Iron sulfide was not measured directly so it is unknown whether solid iron sulfide is present in the soil and how it compares between the plume extents and within the plume. Although iron sulfide was not directly measured, sulfate and iron, the key compounds for the reaction to take place, were analyzed. There was a relatively low presence of iron along with higher concentrations of sulfate. The sulphate concentrations were fairly consistent throughout the Site, with higher iron concentrations within the plume. The availability of these compounds could support the abiotic degradation of 1,2-DCA.

Considering the aerobic and anaerobic degradation of 1,2-DCA, the same factors can be used in the assessment as with PHCs (dissolved oxygen, nitrate, manganese, iron, and sulfate). Nitrate can also be used as an indicator of aerobic degradation of 1,2-DCA as higher concentrations of nitrate would support the theory that aerobic biodegradation is still occurring as the nitrate would not have been consumed yet during anaerobic degradation (EPA 600/R-=08/107, September 2008). Along with the elevated dissolved oxygen concentrations the monitoring wells also had elevated nitrate concentrations, with nitrate concentrations within the plume greater than those at the plume extents, which indicate suitable conditions of aerobic degradation.

An additional abiotic transformation that 1,2-DCA can undergo during anaerobic degradation is reductive dichlorination. The products of this reaction would be chloroethane and chloride. Chloroethane is included in the VOCs analysis and was completed on every monitoring well at the Site. The concentrations were below detection in every monitoring well during this sampling event with the exception of EX5. It should be noted that monitoring wells BH1928 and BH1939, which are within the plume and were non-detectable in the present sampling event, have had consistent detectable concentrations during prior events since 2016. In addition, chloride was analyzed as part of the routine water chemistry parameters completed on the 19 monitoring wells used in the assessment of biodegradation. If reductive dichlorination is occurring, we

should see increases in chloride within the 1,2-DCA contaminated areas. The average concentration of chloride at the extents of the plume was 194 mg/L and the average concentration of chloride within the plume was 184 mg/L. As there were little variation in the concentration of chloride there is not enough evidence to suggest that reductive dichlorination is occurring.

**3.5.4 Summary**

The concentrations of dissolved oxygen indicate that the conditions on Site are conducive to aerobic degradation which affects PHCs and 1,2-DCA. With the addition of ORC injections, the dissolved oxygen concentrations have been artificially increased to promote degradation. This may allow for the aerobic degradation of 1,2-DCA,which is not always possible as the dissolved oxygen demand of PHC degradation is high enough that little oxygen typically remains for the degradation of 1,2-DCA.

There is evidence that anaerobic degradation is occurring with the elevated concentrations of manganese and iron within the plume which is consistent with anaerobic manganese and iron reduction. However, the concentrations of nitrate were also greater within the plume which is inconsistent with anaerobic conditions and the concentrations of sulphate did not vary greatly between the extents of the plume and the plume itself. Therefore, the evidence as to whether or not the PHCs and 1,2-DCA may be undergoing anaerobic degradation is inconsistent. As these reactions generally happen in the order described in Section 3.5.1 it could be that there is still a sufficient amount of dissolved oxygen present for aerobic degradation and therefore, there has been no necessity for anaerobic degradation to be taking place.

With respect to biodegradation of PHCs and 1,2-DCA, it is important to note that not all parameters will degrade at the same rate. Biodegradation can happen through a number of different mechanisms and not all geochemical parameters will indicate strong correlations. Therefore, it will also be meaningful to provide an assessment of biodegradation by contaminant and use all evidence holistically. As presented in the Stability Analysis section of this report, a preliminary decay rate assessment for benzene and 1,2-DCA was completed on some monitoring wells which were showing a decreasing trend. This assessment can be used as an additional line of evidence that under current conditions, and through the use of historical trends, the decay of the contaminants of concern is occurring as a result of natural attenuation. However, there were several wells on-Site with exceedances that were showing an increasing trend and there may be other monitoring wells that are not exceeding that are also increasing as only monitoring wells with exceedances were included in the stability assessment.

As more data becomes available, a comparison of the biodegradation indicators with decay rates over time can be completed. This comparison will provide more insight into the effect of biodegradation on contaminant decay. Due to the installation of the PRB and the potential changes in the plume extents south of 11$^{th}$ Avenue NW the monitoring wells used to represent the extents of the plume and the concentrations within the plume should be re-evaluated regularly. Intra and inter well comparisons, over time, will provide the best indicator of whether biodegradation is occurring and if it is occurring at what rate. This evidence will be able to provide additional insight on plume stability, reduction, and the primary mechanisms responsible for this.

# 4.0 Conclusions

## 4.1 Conclusions

The data collected during this sampling event is generally consistent with previous sampling events. This groundwater monitoring and sampling program is part of the plume monitoring and risk management component of the Revised Remediation Plan (2019) which is currently being further revised.

The comparative sampling method which has been completed on five monitoring wells since 2016 has revealed little evidence to suggest one method is more accurate over the other (HYDRASleeve™ vs. Disposable Bailer). During this event, Clifton sampled these wells with a single method rather than the two methods for comparison. The method selected was that which on average produced higher concentrations of the contaminants of concern. The sampling methods were HYDRASleeve™ in BH1907, bailer in BH1915, HYDRASleeve™ in BH1924, bailer in BH1928, and bailer in BH1956.

This was the second event since 2015 where no LNAPL was detected on-Site. The first event was the previous Fall 2019 groundwater monitoring and sampling event. From a risk management perspective, this was the first sampling event without an exceedance of the Tier 2 Site-Specific Guidelines for the protection of human health. There was also a 3% increase in the number of monitoring wells meeting the AEP 2019 Tier 1 Guidelines for both benzene and 1,2-DCA when compared to the last monitoring and sampling event.

BH1939 and BH1982 had previously been the most consistent to have sample results that exceed the Tier 2 Site-Specific Guidelines. These two monitoring wells have seen significant contaminant reduction following the PlumeStop™ injections. BH1939 is now below the AEP 2019 Tier 1 Guidelines for benzene for the first time since 2015. BH1982 still exceeds the AEP 2019 Tier 1 Guidelines for benzene and 1,2-DCA and BH1939 still exceeds for 1,2-DCA. The other five monitoring wells included in the program assessing the PRB (BH1928, BH1929, BH1936, BH1937, and BH1954) are currently below detection limits for benzene and only BH1954 had a detection of 1,2-DCA.

The updated trend analysis of monitoring wells with exceedances of PHCs show that most of the wells are displaying stable or decreasing trends. However, three wells were identified as having an increasing benzene trend and two monitoring wells were identified as having an increasing or probably increasing 1,2-DCA trend. Monitoring well BH1910, located in Lions Park, was indicated to have an increasing trend for both benzene and 1,2-DCA.

The other three monitoring wells with increasing trends were located south of 11$^{th}$ Avenue in Hounsfield Heights Park and in the laneway between 15$^{th}$ and 16$^{th}$ Streets NW. The PlumeStop™ injections were completed on 11$^{th}$ Avenue NW and the predominant groundwater flow direction in all units was in a

southernly direction making these wells downgradient. With further groundwater monitoring and sampling programs, sample results from these monitoring wells may begin to show the positive effects of the PRB.

In addition to this, a preliminary decay rate assessment also shows that based on current and historical groundwater trends some monitoring wells may potentially achieve the AEP 2019 Tier 1 Guidelines as quickly as 2020. This assessment will need to be expanded to consider the effect of the DPVE, the PRB, and biodegradation as well as to include more monitoring wells and potentially more constituents.

Lastly, an initial assessment of natural attenuation has shown that dissolved oxygen concentrations are high enough to promote aerobic biodegradation. In addition, injections of ORC have increased the dissolved oxygen content in areas of the plume along and downgradient to 11$^{th}$ Avenue NW. The dissolved oxygen content may even be high enough to surpass the oxygen demand for the PHCs and allow for the aerobic degradation of 1,2-DCA. There is some evidence that anaerobic degradation may be occurring, but additional data over time will be required to perform a more accurate assessment of anaerobic biodegradation through reduction of nitrate, sulphate, iron, and manganese across the Site.

A Record of Site Condition Form has been attached in Appendix E.

# 5.0 Closure

This report was prepared by Clifton Associates Ltd. on behalf of Suncor Energy Products Partnership. It is intended for the sole use and exclusive use of and Suncor Energy Products Partnership, their affiliated companies and partners and their respective insurers, agents, employees and advisors (collectively known Suncor). The material in it reflects Clifton Associates Ltd. best judgment available to it at the time of preparation. Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, other than by Suncor, are the responsibility of such third parties. Clifton Associates Ltd. and Suncor accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report has been prepared in accordance with generally accepted engineering practice common to the local area. No other warranty expressed or implied is made.

No conclusions should be made based on this report regarding any concentrations of substances in other areas of the Site. Other Contaminants of Concern may be present at the Site in areas that were not investigated. Clifton Associates Ltd. accepts no responsibility for any deficiencies or inaccuracies in the information provided in this report that are the direct result of intentional or unintentional misrepresentations, errors or omissions of the persons interviewed, or information reviewed.

No environmental site investigation or remediation can wholly eliminate uncertainty regarding environmental conditions in connection with a property. This investigation is intended to reduce, but not eliminate the uncertainty regarding environmental conditions. Conclusions regarding the condition of the Site do not represent a warranty that all areas within the site and beneath structures are of the same quality as those sampled. Further, contamination could also exist in forms not indicated by the investigation.

The work was based in part upon the environmental quality guidelines and regulations in effect when the work was begun. Future regulatory changes may require reassessment of the findings of this investigation.

Copying or distributing this report, or use of or reliance on the information presented within it, in whole or part, other than by Suncor, is not permitted without written consent from Clifton Associates Ltd.

# 6.0 References

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# Figures

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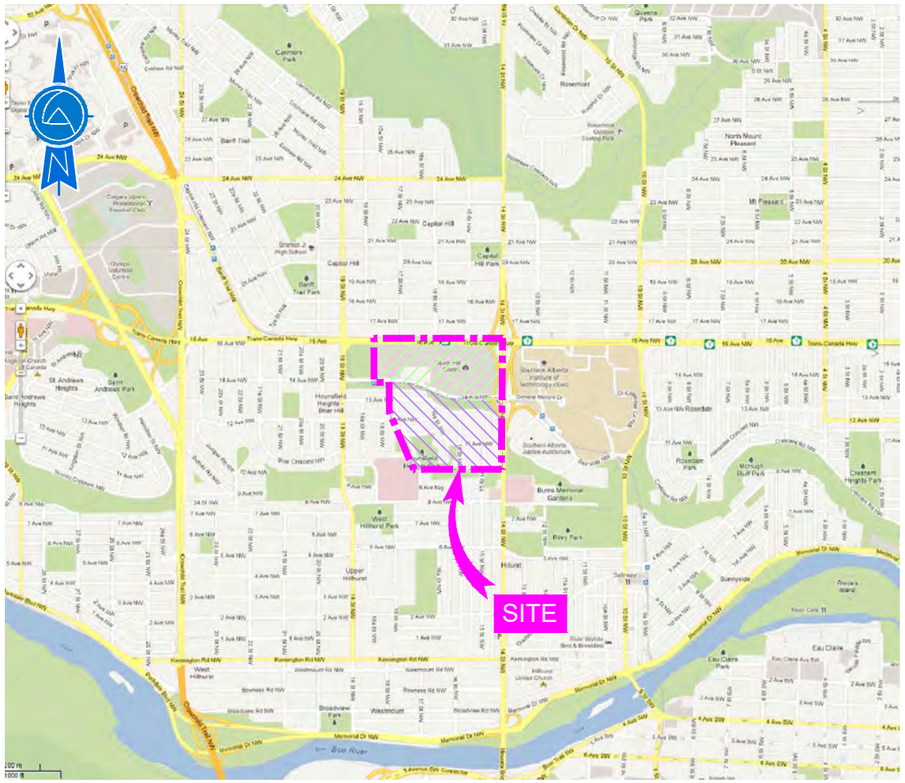


GENERAL SITE LOCATION

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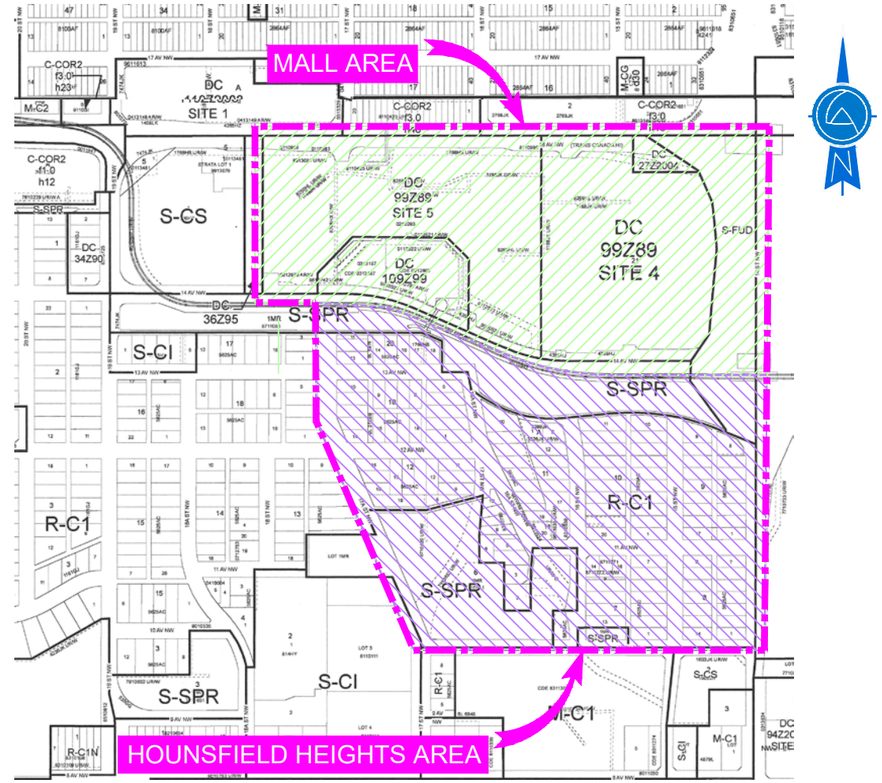


SURROUNDING LAND USE

SCALE 1:7,500

0 100 200 300 m

LEGEND:

SITE BOUNDARY

MALL AREA

HOUNSFIELD HEIGHTS AREA

CITY OF CALGARY BY-LAW ZONING

LAND USE DISTRICTS:

| | |
|---|---|
| RESIDENTIAL - CONTEXTUAL ONE DWELLING DISTRICT | R-C1 |
| MULTI-RESIDENTIAL - CONTEXTUAL LOW-PROFILE DISTRICT | MC-1 |
| MULTI-RESIDENTIAL - CONTEXTUAL GRADE-ORIENTED DISTRICT | MC-G |
| COMMERCIAL - CORRIDOR 2 DISTRICT | C-COR2 |
| SPECIAL PURPOSE - SCHOOL, PARK, AND COMMUNITY RESERVE DISTRICT | S-SPR |
| SPECIAL PURPOSE - COMMUNITY INSTITUTION DISTRICT | S-CI |
| SPECIAL PURPOSE - COMMUNITY SERVICE DISTRICT | S-CS |
| SPECIAL PURPOSE - FUTURE URBAN DEVELOPMENT DISTRICT | S-FUD |
| DIRECT CONTROL DISTRICT | DC |

NOTES:

1. CITY OF CALGARY ROAD MAP PROVIDED BY CANADIAN CARTOGRAPHICS CORPORATION, 2012.
2. LAND USE MAP PROVIDED BY THE CITY OF CALGARY.

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

SITE LOCATION AND SURROUNDING LAND USE

| DESIGNED | SCALE | DATE |
|---|---|---|
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| DRAWN IW | PROJECT NO. CG2430.1 E49 | FIG. 1 |
| CHECKED KB | FILE NO. CG2430.1-E49-01 | |

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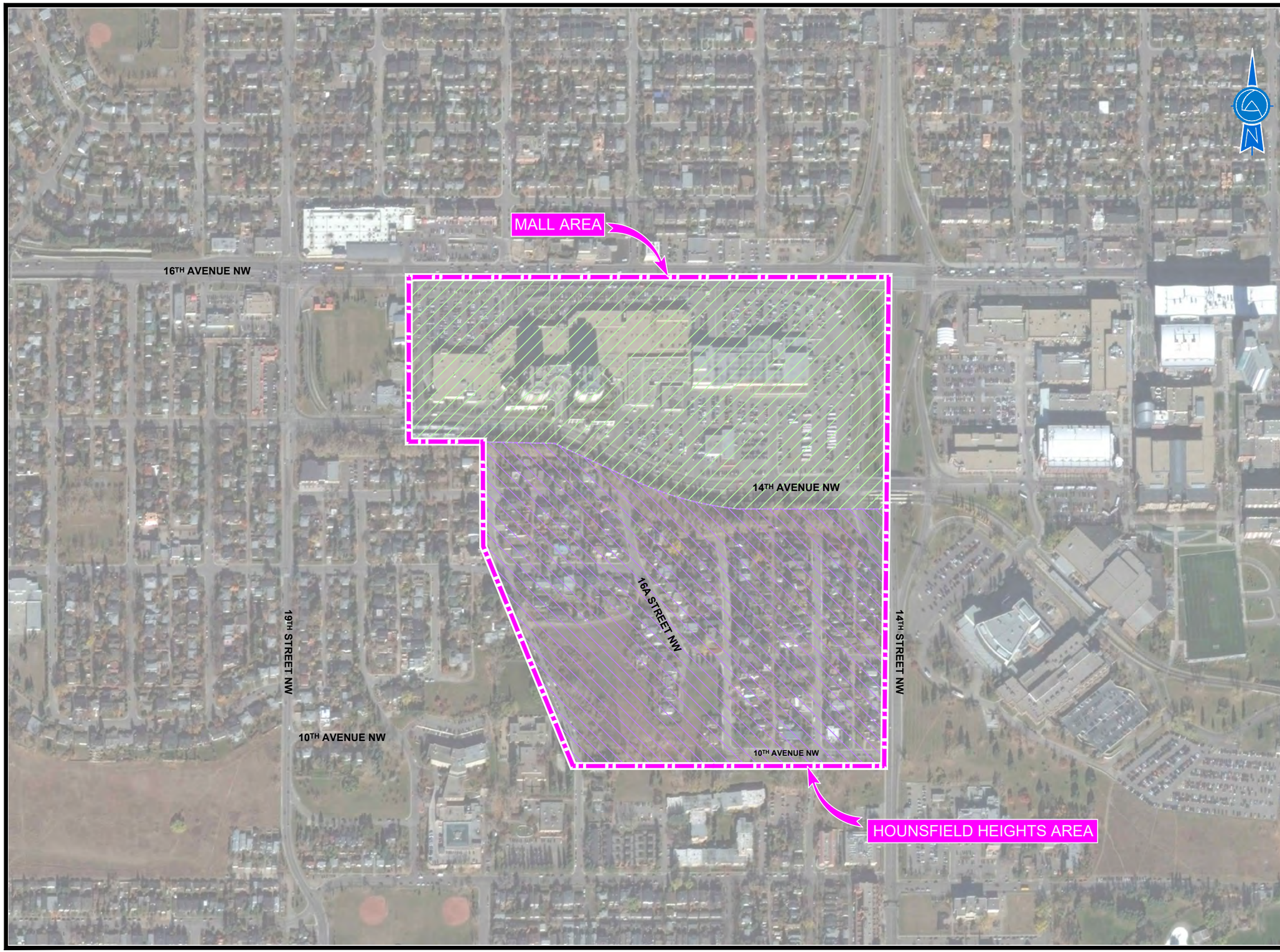


LEGEND:

- SITE BOUNDARY
- MALL AREA
- HOUNSFIELD HEIGHTS AREA

NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY GOOGLE EARTH PRO. AIR PHOTO DATE: OCT 23, 2015.

0 50 100 150 200 250m

ENGINEER: Clifton

CLIENT: SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT: 2020 SPRING MONITORING AND SAMPLING EVENT HOUNSFIELD HEIGHTS AND MALL AREAS CALGARY, ALBERTA

TITLE: SITE AND SURROUNDING PROPERTIES

| DESIGNED | SCALE | DATE |
|---|---|---|
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| CHECKED: KB | FILE NO. CG2430.1-E49-02 | |

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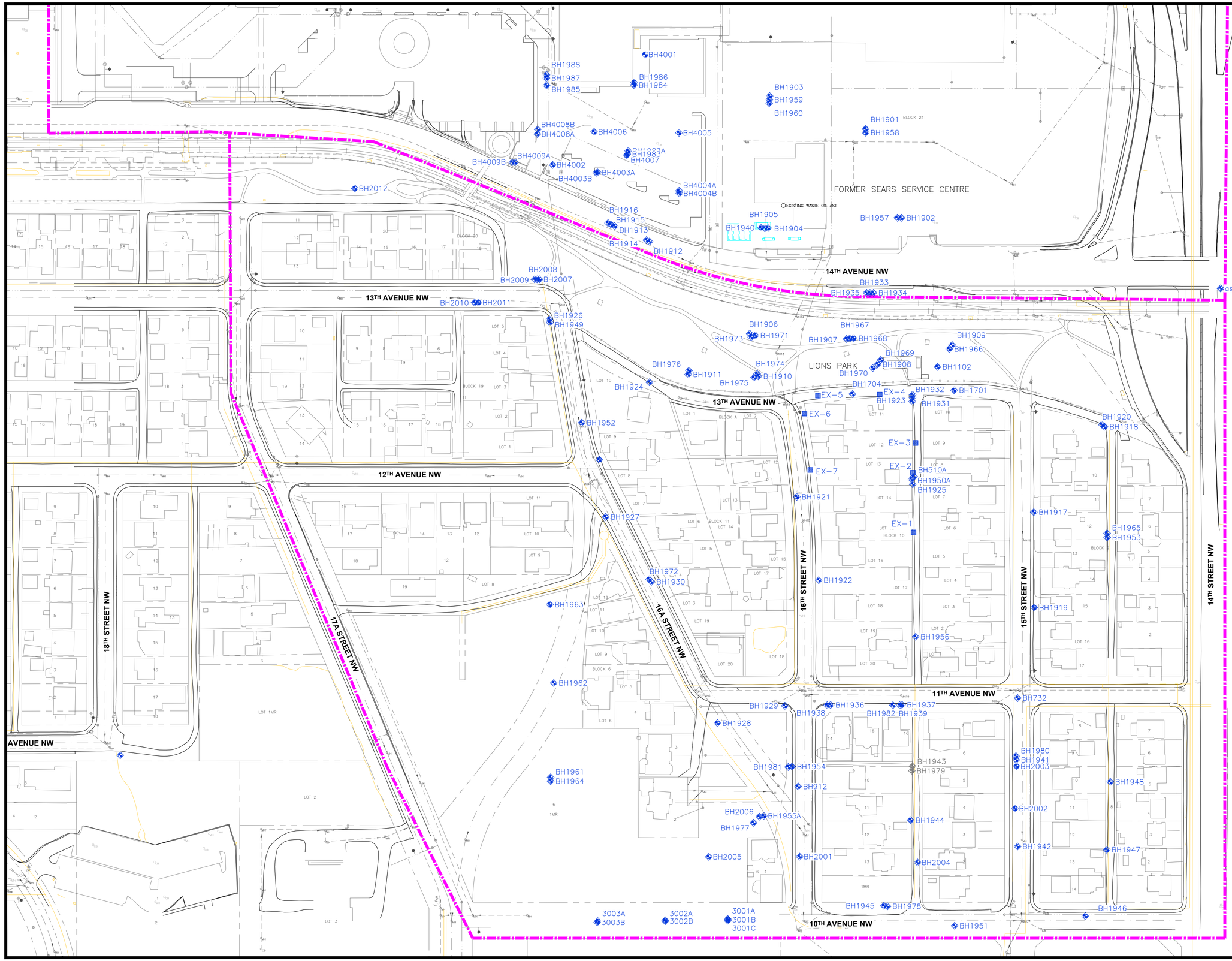


## LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

MONITORING WELL LOCATION PLAN

| DESIGNED | SCALE 1:1000 | DATE 2020-11-09 |
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| CHECKED KB | FILE NO. CG2430.1-E49-03 | |

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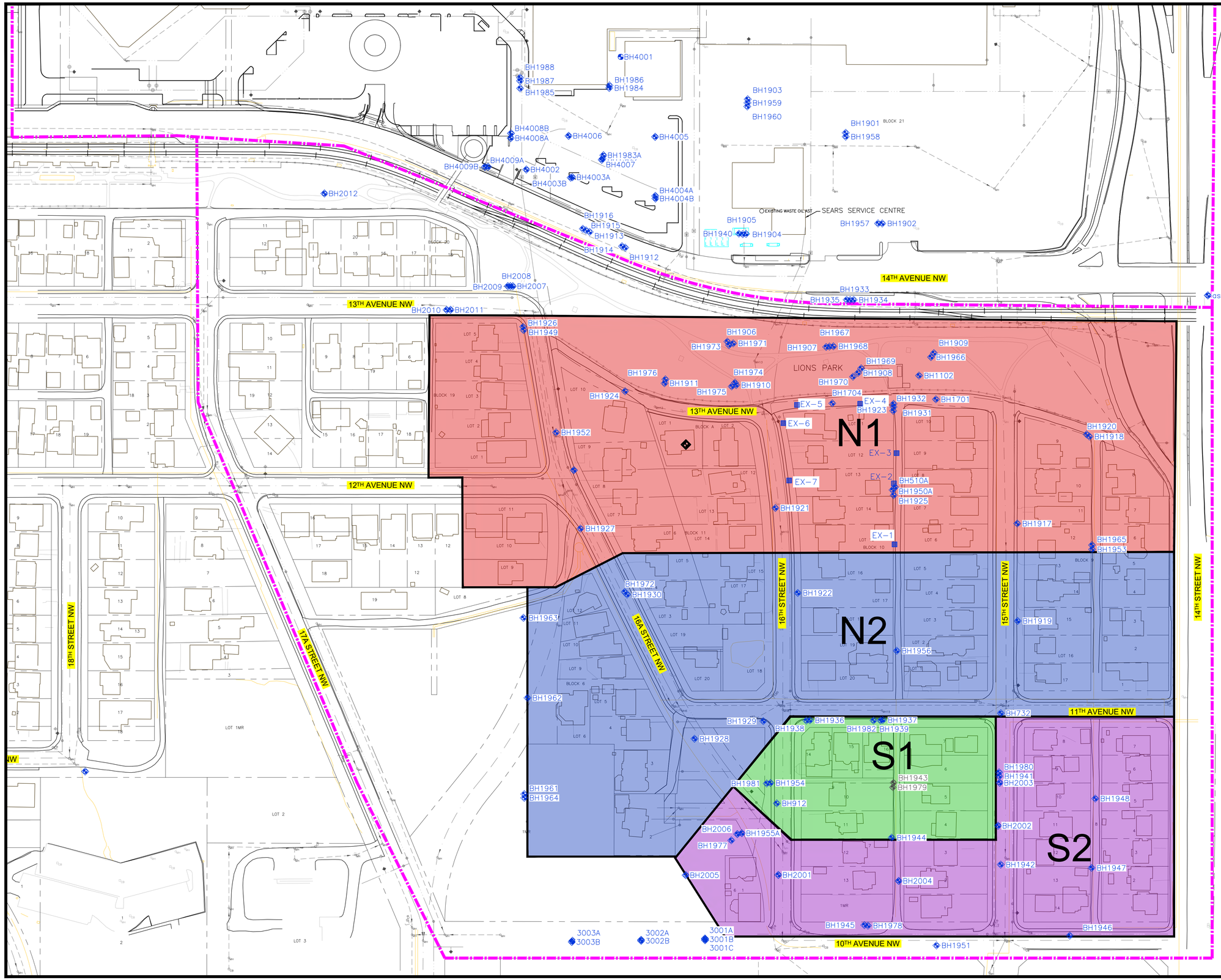


## LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

TIER 2 SITE SPECIFIC GROUNDWATER GUIDELINES ZONES

| DESIGNED | SCALE | DATE |
|---|---|---|
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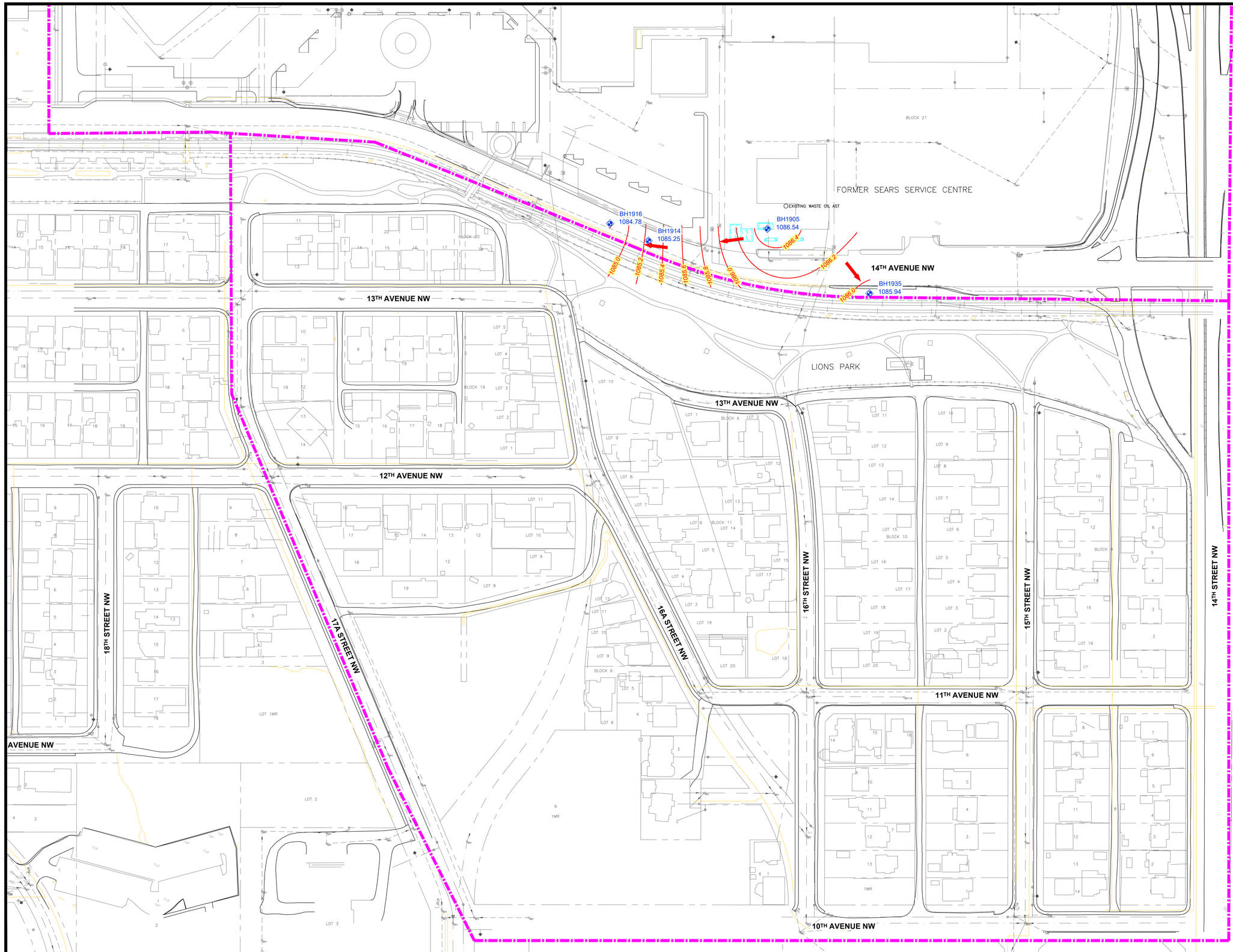


## LEGEND

- SITE BOUNDARY
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- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- POTENTIOMETRIC CONTOUR
- POTENTIOMETRIC ELEVATION — 1080.0
- INTERPRETED DIRECTION OF GROUNDWATER FLOW

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

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PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

POTENTIOMETRIC SURFACE UNIT 1

| DESIGNED | SCALE | DATE |
|---|---|---|
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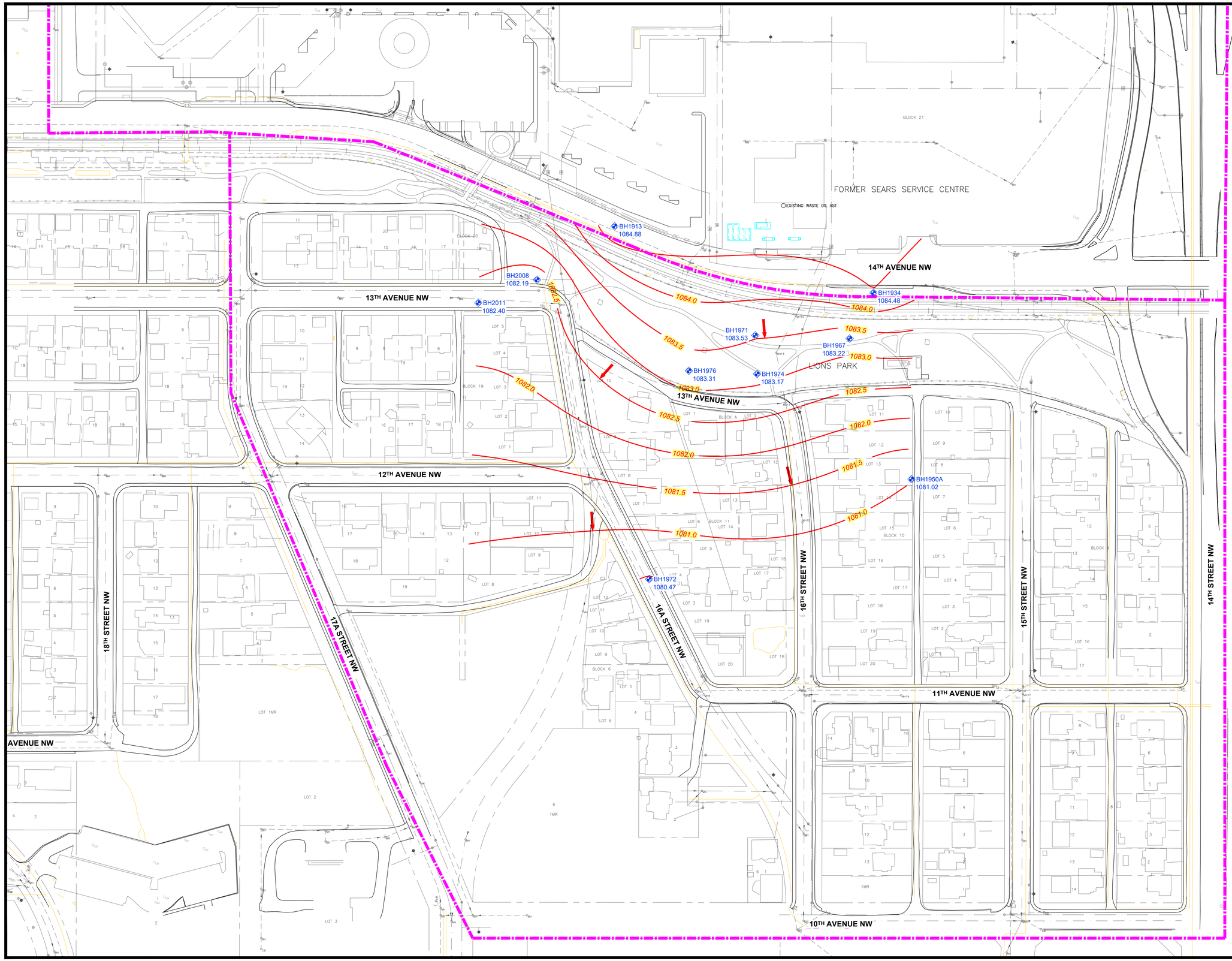


## LEGEND

- SITE BOUNDARY
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- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- POTENTIOMETRIC CONTOUR
- POTENTIOMETRIC ELEVATION — 1080.0
- INTERPRETED DIRECTION OF GROUNDWATER FLOW

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

POTENTIOMETRIC SURFACE UNIT 2

| DESIGNED | SCALE | DATE |
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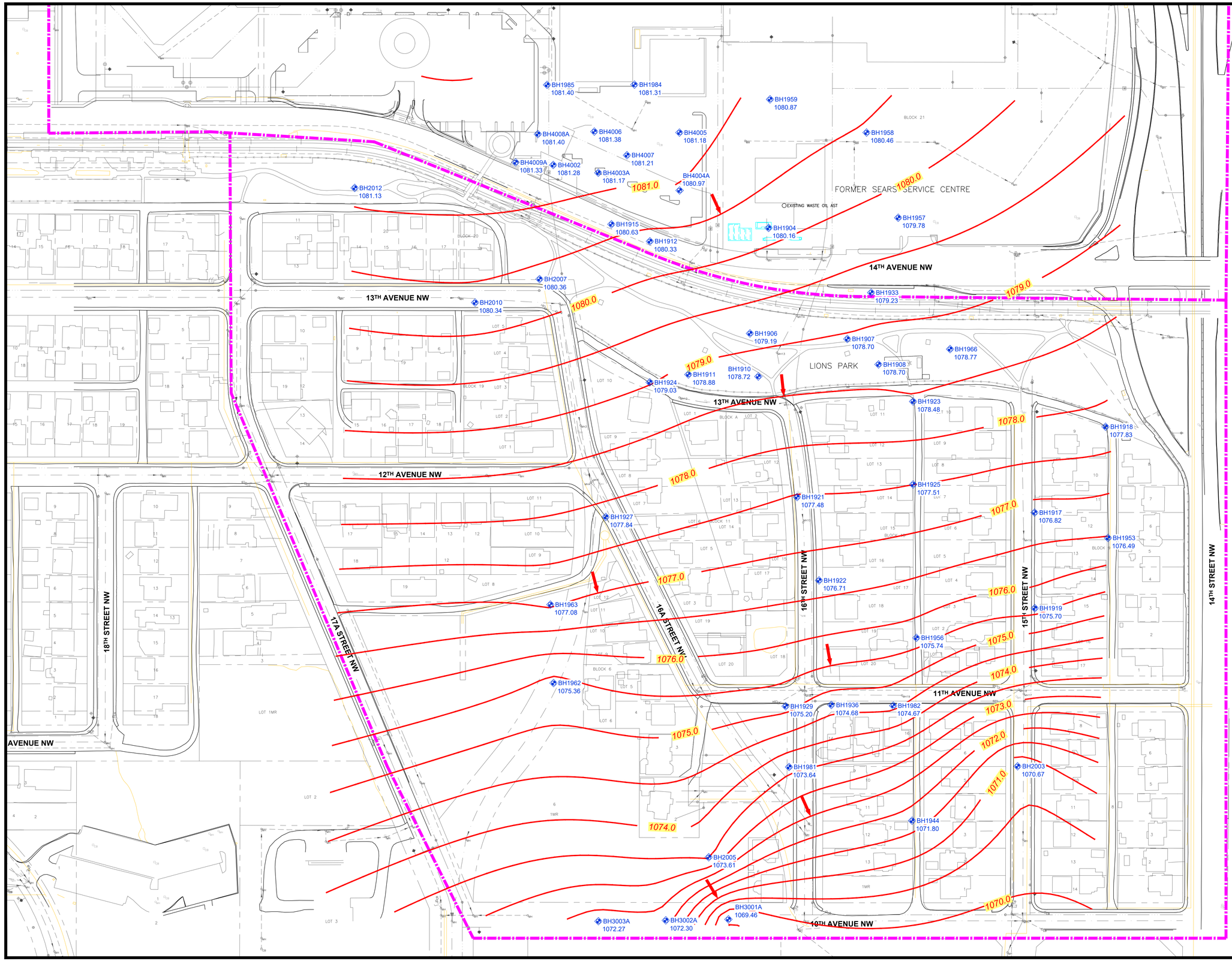


## LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
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- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- POTENTIOMETRIC CONTOUR
- POTENTIOMETRIC ELEVATION — 1080.0
- INTERPRETED DIRECTION OF GROUNDWATER FLOW

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

POTENTIOMETRIC SURFACE UNIT 3

| DESIGNED | SCALE 1:1000 | DATE 2020-11-09 |
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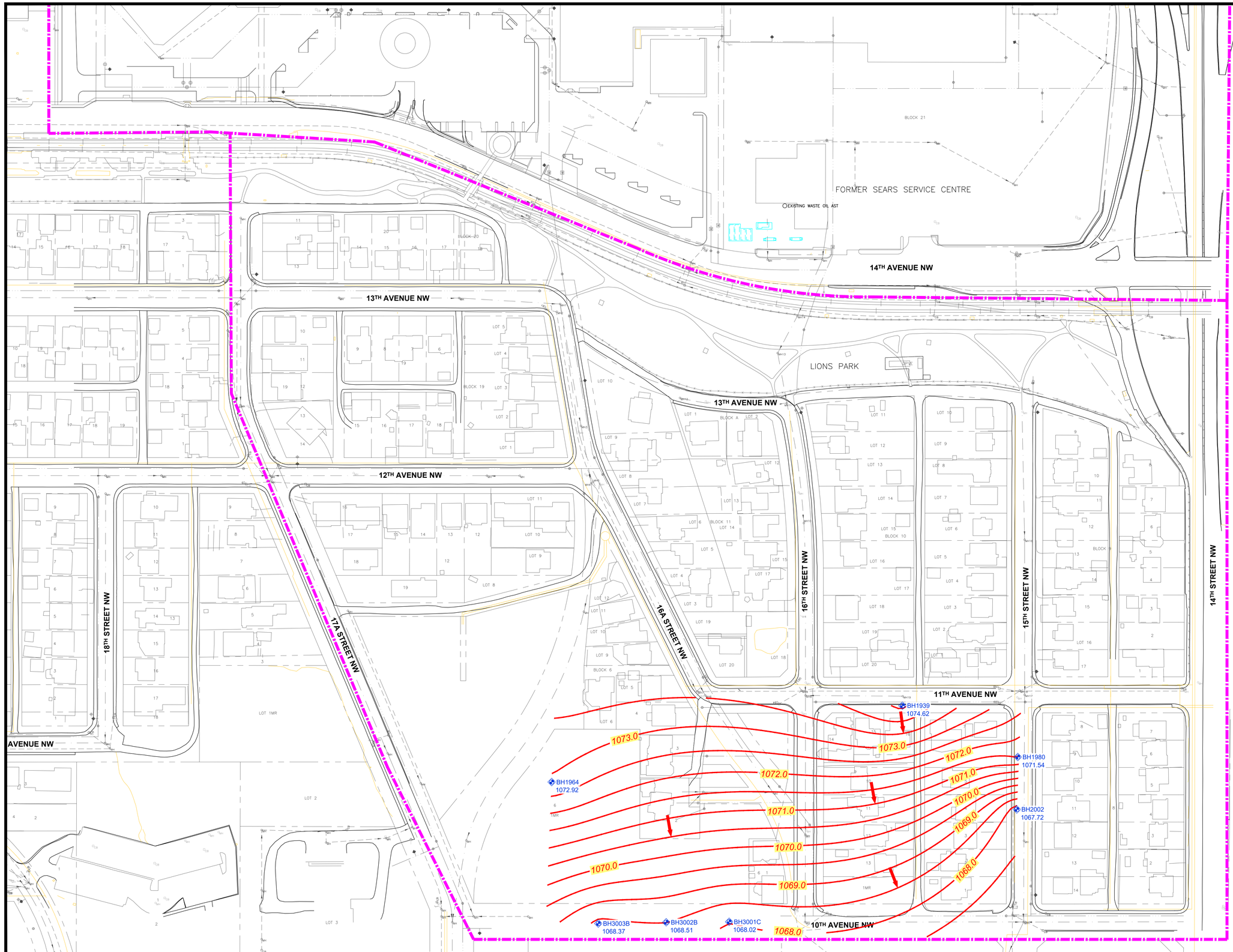


## LEGEND

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- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- POTENTIOMETRIC CONTOUR
- POTENTIOMETRIC ELEVATION — 1080.0
- INTERPRETED DIRECTION OF GROUNDWATER FLOW

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

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0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

POTENTIOMETRIC SURFACE UNIT 4

| DESIGNED | SCALE | DATE |
|---|---|---|
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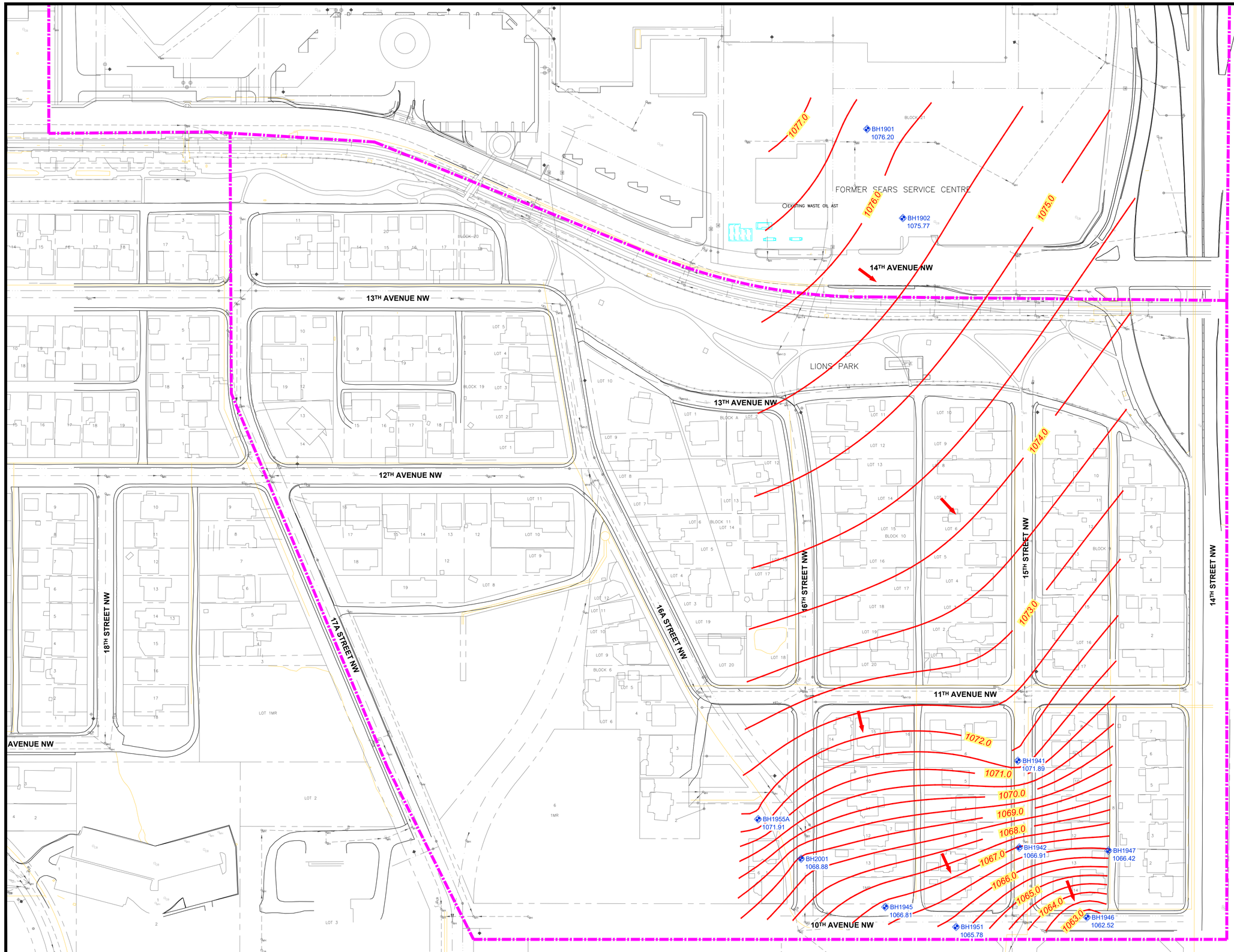



## LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- POTENTIOMETRIC CONTOUR
- POTENTIOMETRIC ELEVATION — 1080.0
- INTERPRETED DIRECTION OF GROUNDWATER FLOW

## UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

0 10 20 30 40 50 m

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

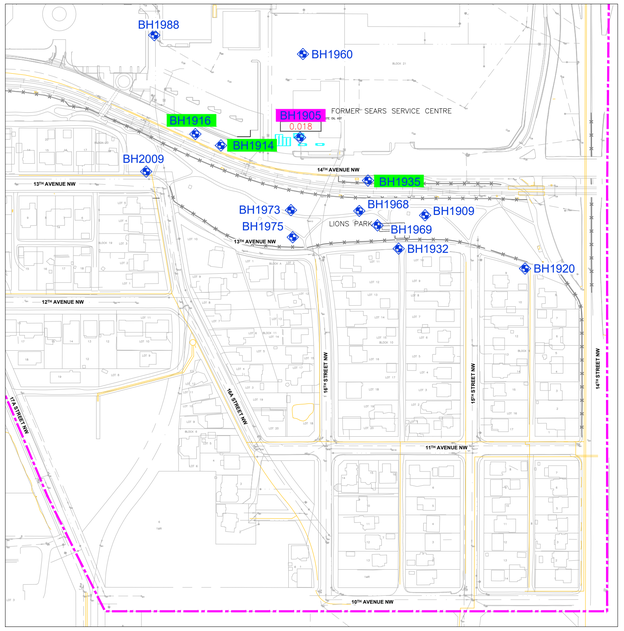
PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

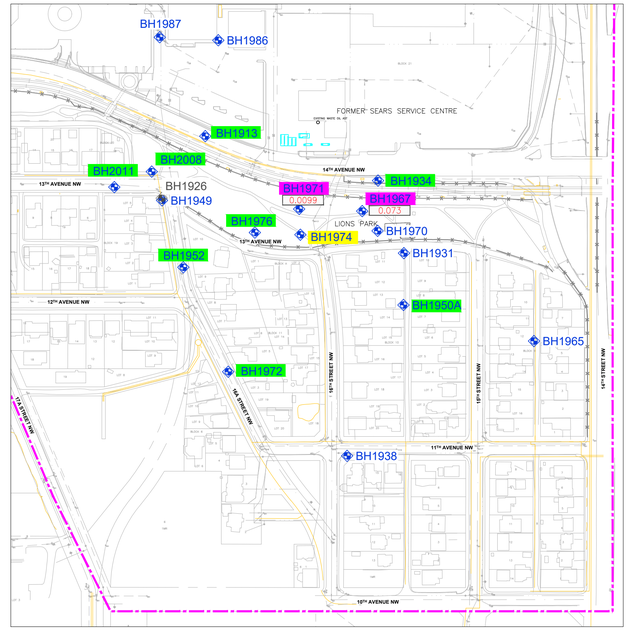
TITLE

POTENTIOMETRIC SURFACE UNIT 5

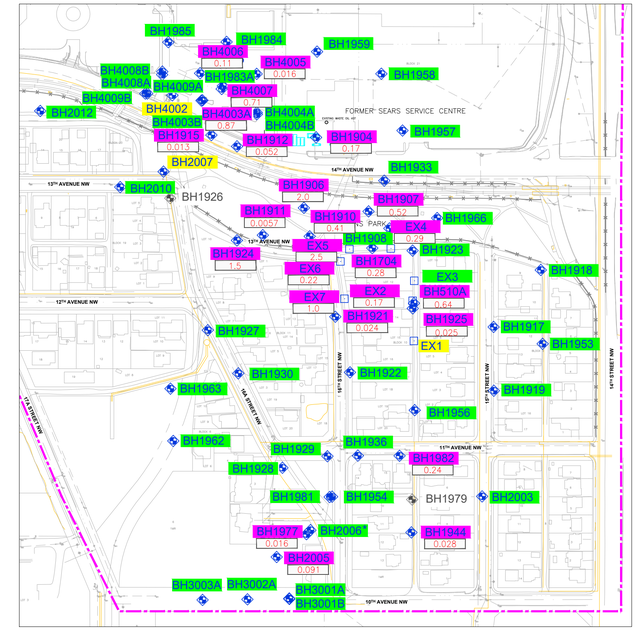
| | | |
|---|---|---|
| DESIGNED | SCALE 1:1000 | DATE 2020-11-09 |
| DRAWN IW | PROJECT NO. CG2430.1 E49 | FIG. 9 |
| CHECKED KB | FILE NO. CG2430.1-E49-09 | |



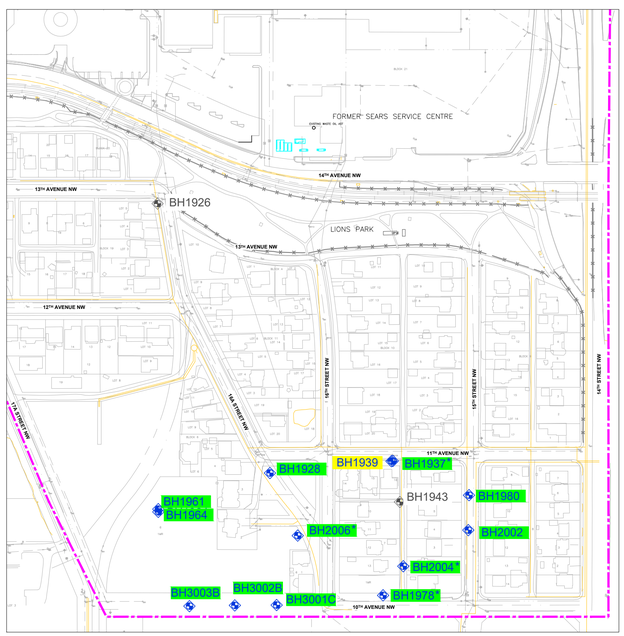

UNIT 1 - UPPER SILTY SAND



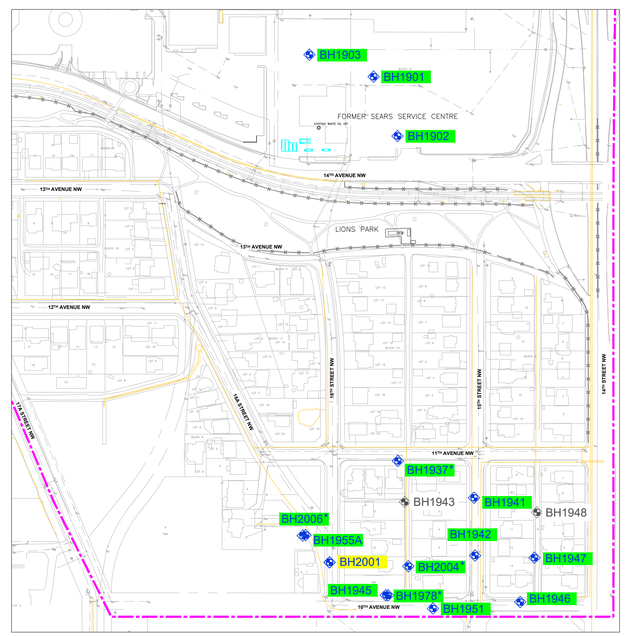

UNIT 2 - UPPER CLAYEY SILT




UNIT 3 - MIDDLE SANDY SILT




UNIT 4 - LOWER CLAYEY SILT




UNIT 5 - LOWER SILTY SAND AND GRAVEL

LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- EXCEEDS AEP 2019 TIER 1 GUIDELINES — BH1907 0.055
- DETECTED BUT BELOW GUIDELINES — BH1921
- BELOW DETECTION LIMIT — BH1917
- NOT SAMPLED — BH1905

| ALBERTA ENVIRONMENT AND PARKS 2019 TIER 1 GUIDELINES FOR COARSE-GRAINED SOIL | | |
|---|---|---|
| AEP CRITERIA CATEGORY | RESIDENTIAL GUIDELINE (mg/L) | COMMERCIAL GUIDELINE (mg/L) |
| BENZENE | 0.005 | 0.005 |

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

* MONITORING WELL WAS SCREENED AND SAMPLED IN MULTIPLE UNITS.

50 0 50 100 150
METRES 1:2500
PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

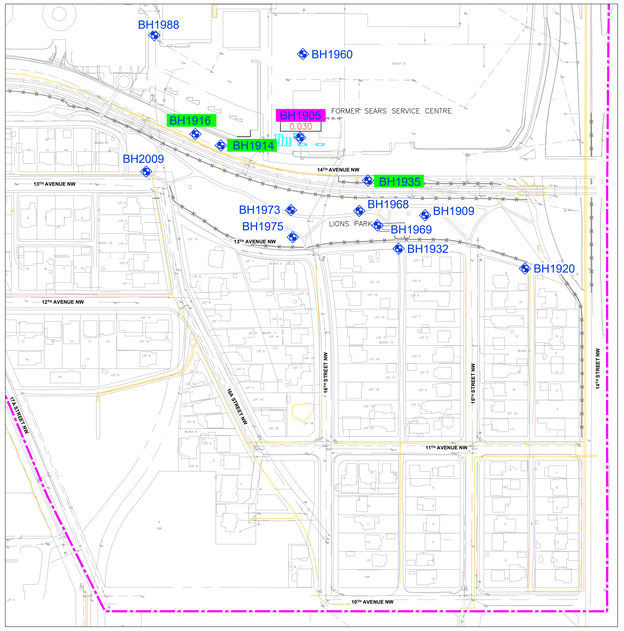
2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

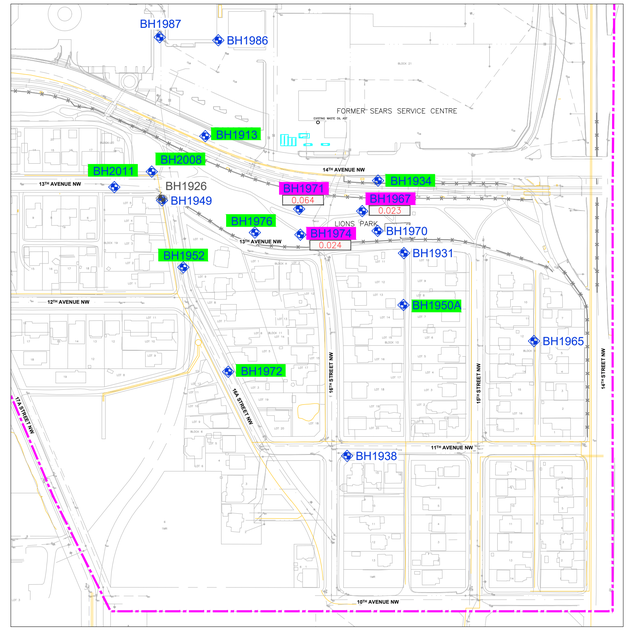
GROUNDWATER EXCEEDANCES - BENZENE

| DESIGNED | SCALE | DATE |
|---|---|---|
| | 1:2500 | 2020-11-09 |
| DRAWN IW | PROJECT NO. CG2430.1 E49 | FIG. 10 |
| CHECKED KB | FILE NO. CG2430.1-E49-10 | |

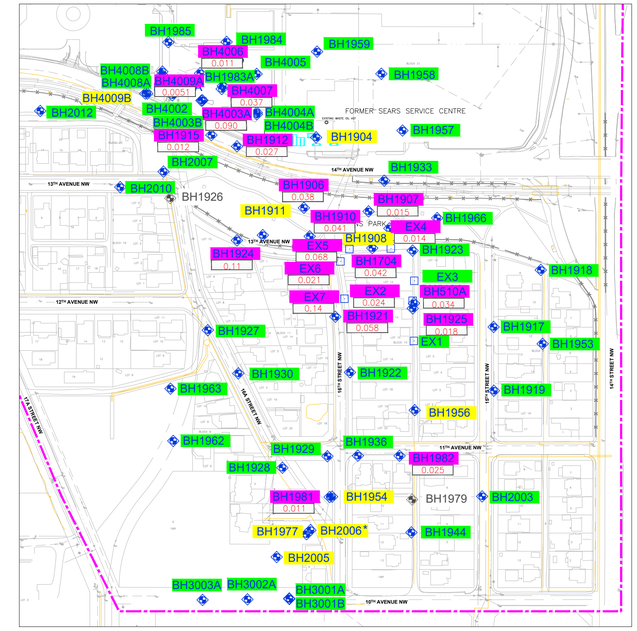
File: K:\CG2430.1\2020\11\09\CG2430.1-E49-10-GW-EXCEEDANCES-BENZENE.DWG, 11/9/2020 9:36



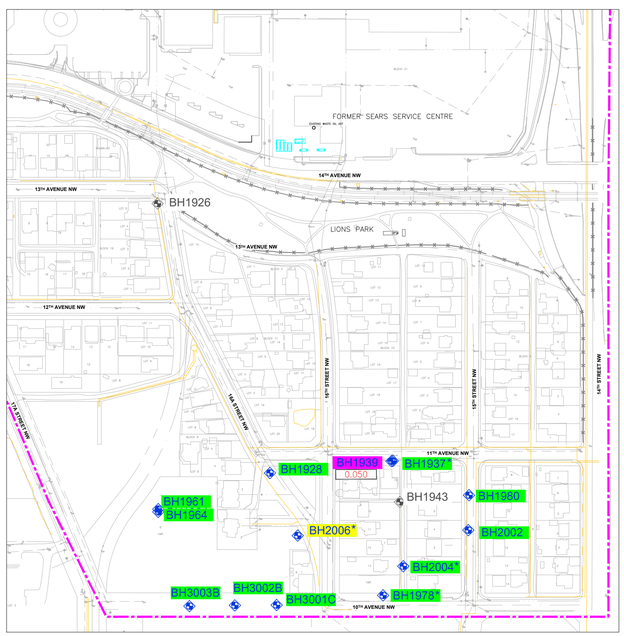

UNIT 1 - UPPER SILTY SAND



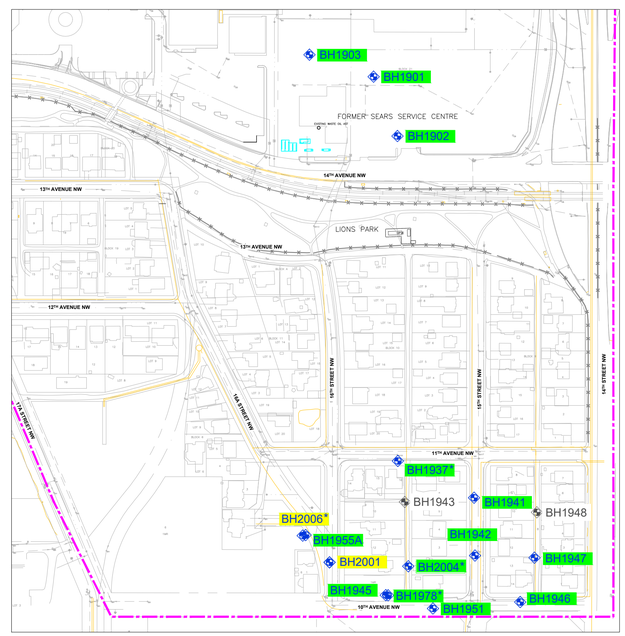

UNIT 2 - UPPER CLAYEY SILT




UNIT 3 - MIDDLE SANDY SILT




UNIT 4 - LOWER CLAYEY SILT




UNIT 5 - LOWER SILTY SAND AND GRAVEL

LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL
- EXCEEDS AEP 2019 TIER 1 GUIDELINES — BH1907 0.055
- DETECTED BUT BELOW GUIDELINES — BH1921
- BELOW DETECTION LIMIT — BH1917
- NOT SAMPLED — BH1905

| ALBERTA ENVIRONMENT AND PARKS 2019 TIER 1 GUIDELINES FOR COARSE-GRAINED SOIL | | |
|---|---|---|
| AEP CRITERIA CATEGORY | RESIDENTIAL GUIDELINE (mg/L) | COMMERCIAL GUIDELINE (mg/L) |
| 1,2 - DCA | 0.005 | 0.005 |

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

* MONITORING WELL WAS SCREENED AND SAMPLED IN MULTIPLE UNITS.

50 0 50 100 150
METRES 1:2500
PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

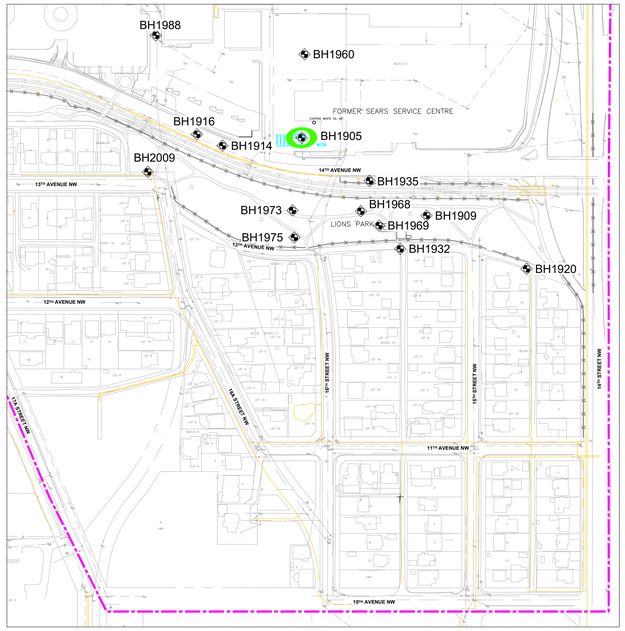
2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

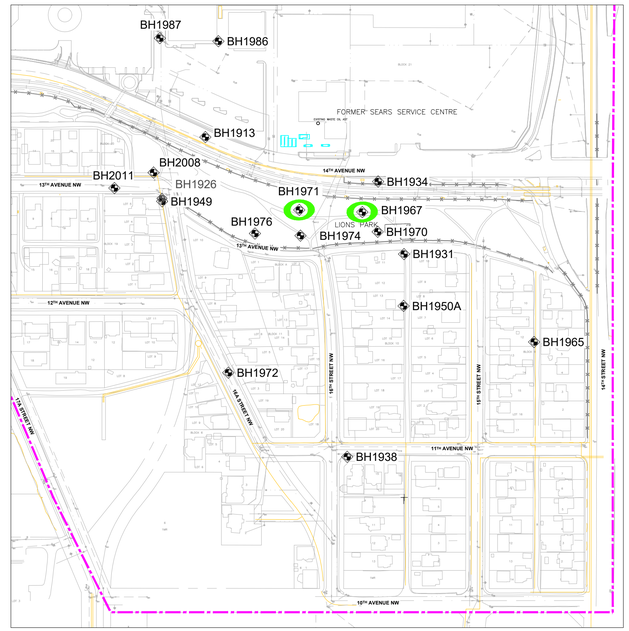
GROUNDWATER EXCEEDANCES - 1,2-DCA

| DESIGNED | SCALE 1:2500 | DATE 2020-11-09 |
|---|---|---|
| DRAWN IW | PROJECT NO. CG2430.1 E49 | FIG. 11 |
| CHECKED KB | FILE NO. CG2430.1-E49-11 | |

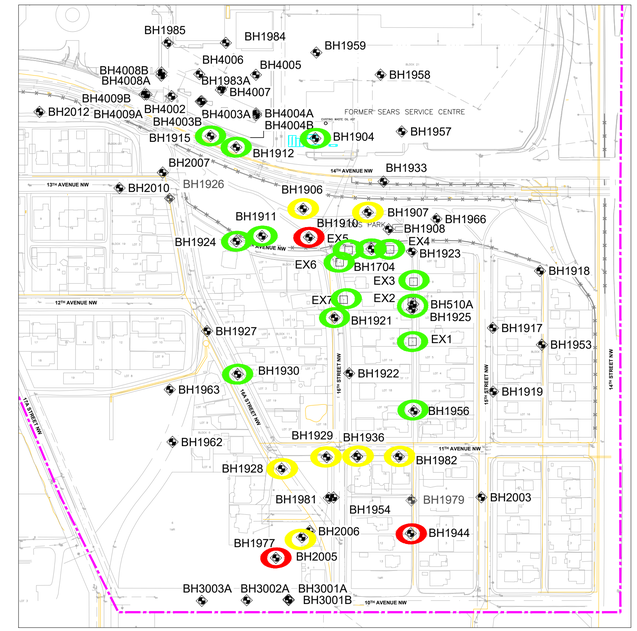
Rev 0 2020-11-09 | 1:1700/22x34 | Tab:11-Map | J:\CG2430.1\CG2430.1-E49\CG2430.1-E49-11.dwg



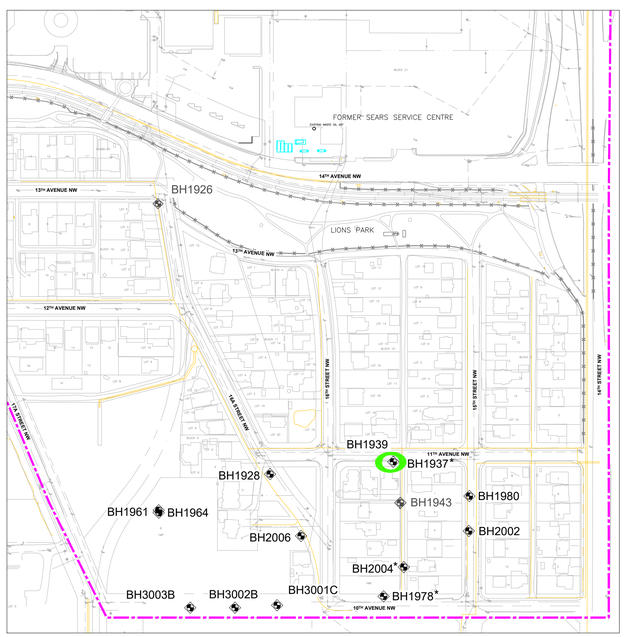

UNIT 1 - UPPER SILTY SAND



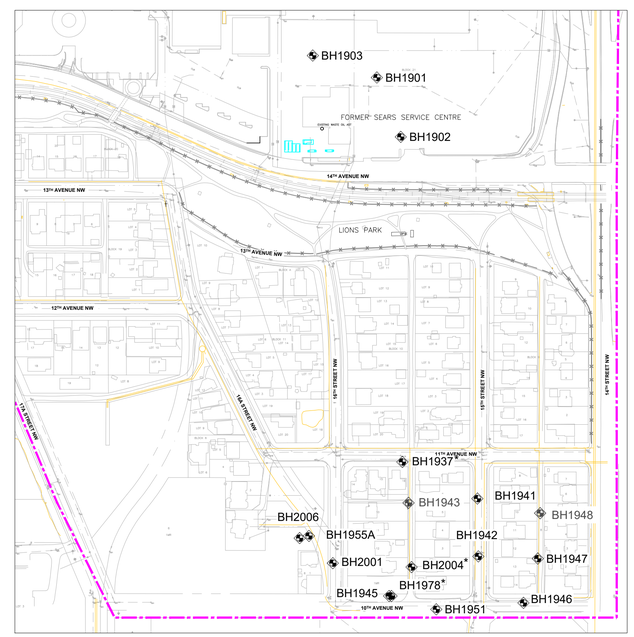

UNIT 2 - UPPER CLAYEY SILT




UNIT 3 - MIDDLE SANDY SILT




UNIT 4 - LOWER CLAYEY SILT




UNIT 5 - LOWER SILTY SAND AND GRAVEL

LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL

PLUME STABILITY ANALYSIS

- DECREASING AND PROBABLY DECREASING
- STABLE / NO TREND
- INCREASING AND PROBABLY INCREASING

UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

* MONITORING WELL WAS SCREENED AND SAMPLED IN MULTIPLE UNITS.

50 0 50 100 150

METRES 1:2500

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

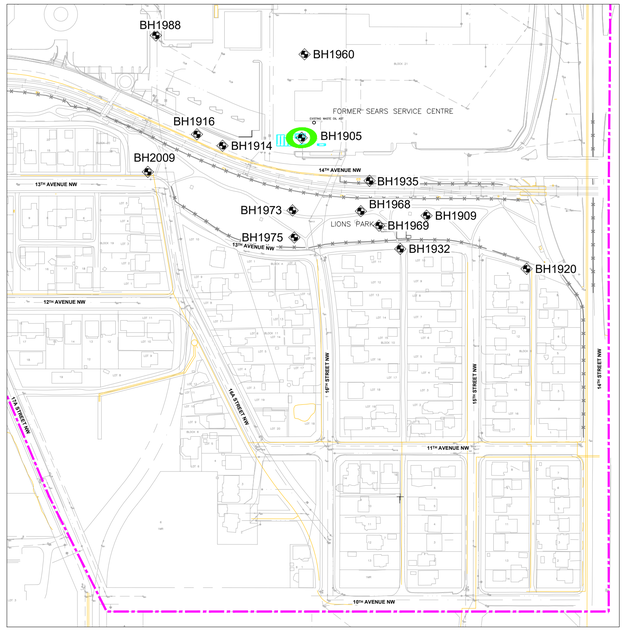
PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

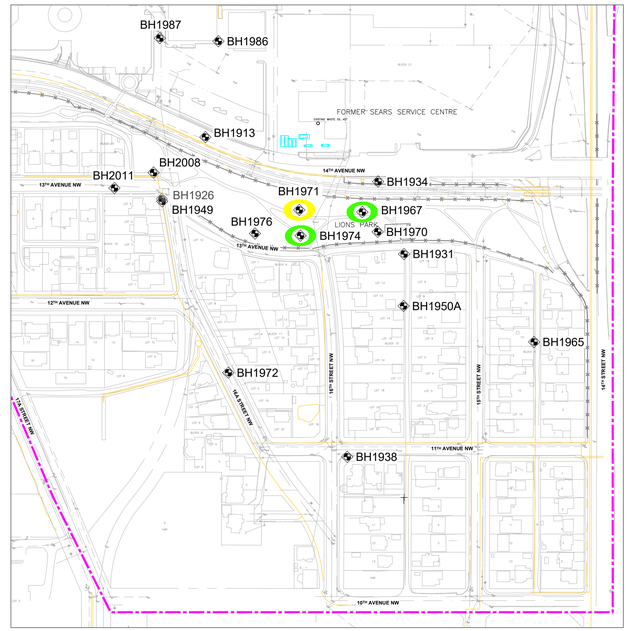
TITLE

BENZENE PLUME STABILITY ANALYSIS

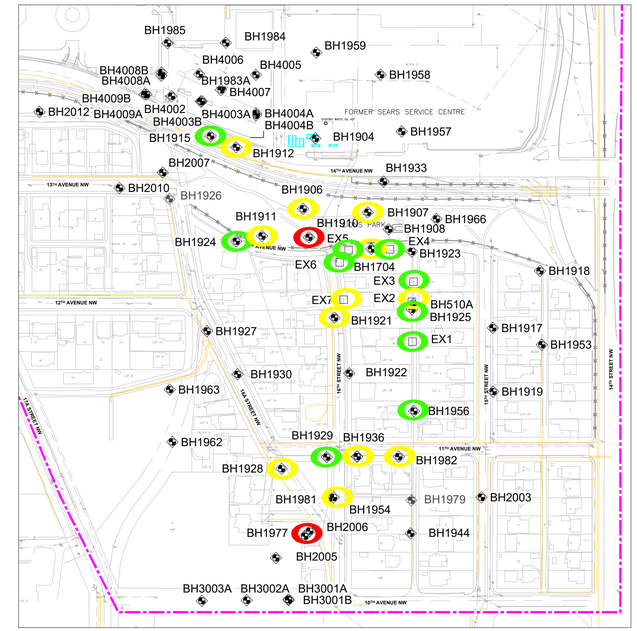
| DESIGNED | SCALE | DATE |
|---|---|---|
| | 1:2500 | 2020-11-09 |
| DRAWN IW | PROJECT NO. CG2430.1 E49 | FIG. 12 |
| CHECKED KB | FILE NO. CG2430.1-E49-12 | |



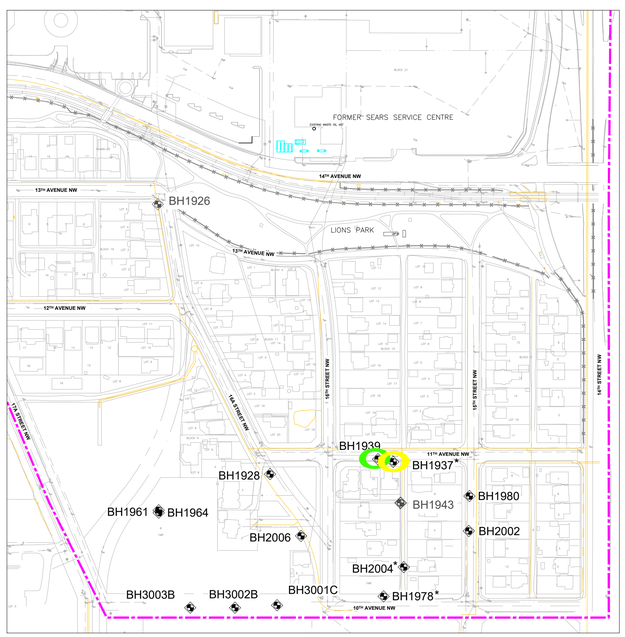

UNIT 1 - UPPER SILTY SAND



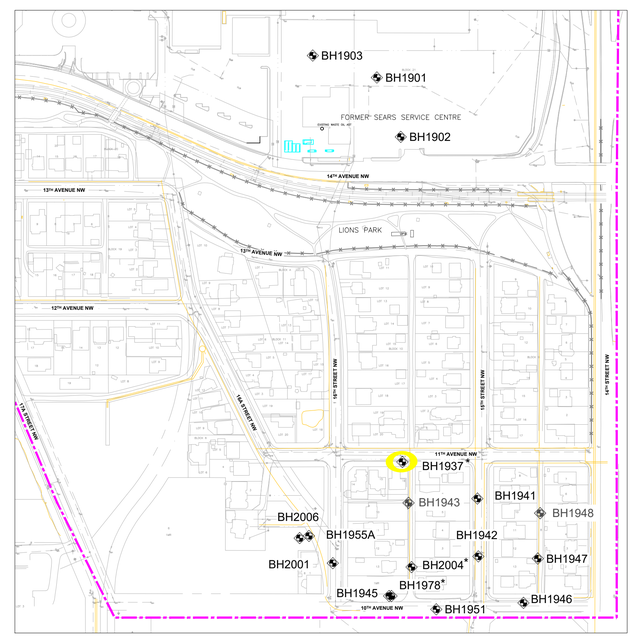

UNIT 2 - UPPER CLAYEY SILT




UNIT 3 - MIDDLE SANDY SILT




UNIT 4 - LOWER CLAYEY SILT




UNIT 5 - LOWER SILTY SAND AND GRAVEL

## LEGEND

- SITE BOUNDARY
- EXTRACTION WELL
- LRT TRACKS
- FENCE LINE
- LEGAL LINE
- FORMER FACILITY/FEATURE
- BUILDING
- GROUNDWATER MONITORING WELL
- BOREHOLE
- DAMAGED / DESTROYED MONITORING WELL

### PLUME STABILITY ANALYSIS

- DECREASING AND PROBABLY DECREASING
- STABLE / NO TREND
- INCREASING AND PROBABLY INCREASING

### UTILITY LINES & SYMBOLS

- NATURAL GAS LINE
- SANITARY SEWER
- STORM SEWER
- WATER
- CATCH BASIN
- FIRE HYDRANT
- LIGHT STANDARD
- MANHOLE
- UTILITY POLE

NOTES:

1 DRAWING COMPILED FROM PLANIMETRIC FILES SUPPLIED BY THE CITY OF CALGARY (INCLUDING U/G UTILITIES) & FROM SITE ASSESSMENT INFORMATION. ADDITIONAL REFERENCES FROM SEACOR ENVIRONMENTAL ENGINEERING INC., DRAWINGS 149-5A11.DWG, 149-5A6.DWG.

* MONITORING WELL WAS SCREENED AND SAMPLED IN MULTIPLE UNITS.

50 0 50 100 150

METRES 1:2500

PLOT SIZE 22x34

ENGINEER

Clifton

CLIENT

SUNCOR ENERGY PRODUCTS PARTNERSHIP

PROJECT

2020 SPRING MONITORING AND SAMPLING EVENT
HOUNSFIELD HEIGHTS AND MALL AREAS
CALGARY, ALBERTA

TITLE

1,2 - DICHLOROETHANE
PLUME STABILITY ANALYSIS

| DESIGNED | SCALE | DATE |
|---|---|---|
| | 1:2500 | 2020-11-09 |
| DRAWN IW | PROJECT NO. CG2430.1 E49 | FIG. 13 |
| CHECKED KB | FILE NO. CG2430.1-E49-13 | |

W:\CG2430.1 Calgary\Drawings\CG2430.1-149-13.dwg, 11/09/2020 3:33:37 PM

# Tables

Clifton

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1901 | 5 | 26-May-20 | 1090.30 | 1090.44 | 23.68 | - | 14.10 | 0.00 | 14.24 | 1076.20 | 0/0 |
| | | 3-Jan-20 | 1090.30 | 1090.44 | 23.69 | - | 14.10 | 0.00 | 14.24 | 1076.20 | 0/0 |
| | | 2-May-19 | 1090.30 | 1090.44 | 23.69 | - | 14.24 | 0.00 | 14.38 | 1076.07 | 0/0 |
| | | 7-Nov-18 | 1090.30 | 1090.44 | 23.69 | - | 14.26 | 0.00 | 14.40 | 1076.05 | 0/0 |
| | | 19-Mar-18 | 1090.30 | 1090.44 | 23.70 | - | 14.26 | 0.00 | 14.40 | 1076.05 | 0/0 |
| | | 7-Sep-17 | 1090.30 | 1090.44 | 23.66 | - | 14.27 | 0.00 | 14.41 | 1076.03 | 0/0 |
| | | 26-Apr-17 | 1090.30 | 1090.44 | 23.70 | - | 14.17 | 0.00 | 14.31 | 1076.14 | 0/0 |
| | | 24-Feb-17 | 1090.30 | 1090.44 | 23.67 | - | 14.22 | 0.00 | 14.36 | 1076.07 | 0/3 |
| | | 31-Oct-16 | 1090.30 | 1090.44 | 23.70 | - | 14.17 | 0.00 | 14.31 | 1076.13 | 0/1 |
| | | 17-Aug-16 | 1090.30 | 1090.44 | 23.67 | - | 14.16 | 0.00 | 14.30 | 1076.14 | 20/0 |
| | | 4-May-16 | 1090.30 | 1090.44 | 23.92 | - | 14.26 | 0.00 | 14.40 | 1076.04 | 0/1 |
| | | 16-Feb-16 | 1090.30 | 1090.44 | 23.67 | - | 14.26 | 0.00 | 14.40 | 1076.04 | 0/0 |
| | | 9-Nov-15 | 1090.30 | 1090.44 | 23.88 | - | 14.17 | 0.00 | 14.31 | 1076.13 | 0/0 |
| | | 1-Sep-15 | 1090.30 | 1090.44 | 23.67 | - | 14.16 | 0.00 | 14.30 | 1076.14 | 0/1 |
| | | 9-Jun-15 | 1090.30 | 1090.44 | 24.06 | - | 14.23 | 0.00 | 14.37 | 1076.07 | 0/1 |
| | | 23-Feb-15 | 1090.30 | 1090.44 | 23.24 | - | 14.14 | 0.00 | 14.28 | 1076.16 | 10/2 |
| BH1902 | 5 | 29-May-20 | 1089.74 | 1089.92 | 30.00 | - | 13.97 | 0.00 | 14.15 | 1075.77 | 0/0 |
| | | 3-Jan-20 | 1089.74 | 1089.92 | 29.96 | - | 13.97 | 0.00 | 14.15 | 1075.77 | 0/0 |
| | | 2-May-19 | 1089.74 | 1089.92 | 29.96 | - | 14.09 | 0.00 | 14.27 | 1075.66 | 0/0 |
| | | 7-Nov-18 | 1089.74 | 1089.92 | 29.96 | - | 14.07 | 0.00 | 14.25 | 1075.68 | 0/0 |
| | | 19-Mar-18 | 1089.74 | 1089.92 | 29.97 | - | 14.12 | 0.00 | 14.30 | 1075.62 | 0/0 |
| | | 7-Sep-17 | 1089.74 | 1089.92 | 29.99 | - | 14.14 | 0.00 | 14.32 | 1075.61 | 35/0 |
| | | 26-Apr-17 | 1089.74 | 1089.92 | 29.97 | - | 14.02 | 0.00 | 14.20 | 1075.72 | 0/1 |
| | | 24-Feb-17 | 1089.74 | 1089.92 | 30.01 | - | 14.08 | 0.00 | 14.26 | 1075.66 | 0/2 |
| | | 31-Oct-16 | 1089.74 | 1089.92 | 29.97 | - | 14.03 | 0.00 | 14.21 | 1075.72 | 0/1 |
| | | 17-Aug-16 | 1089.74 | 1089.92 | 29.98 | - | 14.06 | 0.00 | 14.24 | 1075.68 | 10/0 |
| | | 4-May-16 | 1089.74 | 1089.92 | 30.21 | - | 14.12 | 0.00 | 14.30 | 1075.62 | 30/0 |
| | | 16-Feb-16 | 1089.74 | 1089.92 | 30.10 | - | 14.04 | 0.00 | 14.22 | 1075.70 | 50/1 |
| | | 9-Nov-15 | 1089.74 | 1089.92 | 30.27 | - | 14.03 | 0.00 | 14.21 | 1075.71 | 1,750/1 |
| | | 1-Sep-15 | 1089.74 | 1089.92 | 30.33 | - | 14.02 | 0.00 | 14.20 | 1075.72 | >11,100/2 |
| | | 9-Jun-15 | 1089.74 | 1089.92 | 30.40 | - | 14.09 | 0.00 | 14.27 | 1075.65 | 11,100/100 |
| | | 18-Feb-15 | 1089.74 | 1089.92 | 29.69 | - | 14.03 | 0.00 | 14.21 | 1075.71 | 11,100/10 |
| BH1903 | 5 | 29-May-20 | 1090.32 | 1090.42 | 26.49 | - | 12.86 | 0.00 | 12.96 | 1077.46 | 0/0 |
| | | 3-Jan-20 | 1090.32 | 1090.42 | 26.48 | - | 12.87 | 0.00 | 12.97 | 1077.46 | 0/0 |
| | | 2-May-19 | 1090.32 | 1090.42 | 26.48 | - | 13.07 | 0.00 | 13.17 | 1077.26 | 0/0 |
| | | 7-Nov-18 | 1090.32 | 1090.42 | 26.48 | - | 12.94 | 0.00 | 13.04 | 1077.38 | 0/0 |
| | | 19-Mar-18 | - | - | - | - | - | - | - | - | Could Not Locate |
| | | 7-Sep-17 | 1090.32 | 1090.42 | 26.46 | - | 13.10 | 0.00 | 13.20 | 1077.22 | 25/0 |
| | | 26-Apr-17 | 1090.32 | 1090.42 | 26.50 | - | 12.99 | 0.00 | 13.09 | 1077.33 | 0/1 |
| | | 24-Feb-17 | 1090.32 | 1090.42 | 26.71 | - | 12.99 | 0.00 | 13.09 | 1077.33 | 0/0 |
| | | 31-Oct-16 | 1090.32 | 1090.42 | 26.49 | - | 13.01 | 0.00 | 13.11 | 1077.31 | 0/0 |
| | | 17-Aug-16 | 1090.32 | 1090.42 | 26.50 | - | 12.99 | 0.00 | 13.09 | 1077.33 | 30/0 |
| | | 4-May-16 | 1090.32 | 1090.42 | 26.81 | - | 13.08 | 0.00 | 13.17 | 1077.25 | 5/0 |
| | | 16-Feb-16 | 1090.32 | 1090.42 | 26.53 | - | 12.98 | 0.00 | 13.08 | 1077.34 | 0/1 |
| | | 12-Nov-15 | 1090.32 | 1090.42 | 26.88 | - | 12.93 | 0.00 | 13.03 | 1077.39 | 0/1 |
| | | 1-Sep-15 | 1090.32 | 1090.42 | 26.83 | - | 12.95 | 0.00 | 13.05 | 1077.37 | 20/3 |
| | | 9-Jun-15 | 1090.32 | 1090.42 | 26.83 | - | 12.99 | 0.00 | 13.09 | 1077.33 | 15/1 |
| | | 19-Mar-15 | 1090.32 | 1090.42 | 26.63 | - | 12.97 | 0.00 | 13.07 | 1077.35 | 55/4 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1904 | 3 | 27-May-20 | 1090.49 | 1090.58 | 16.35 | - | 10.33 | 0.00 | 10.42 | 1080.16 | 0/0 |
| | | 3-Jan-20 | 1090.49 | 1090.58 | 16.35 | - | 10.30 | 0.00 | 10.39 | 1080.19 | 0/0 |
| | | 2-May-19 | 1090.49 | 1090.58 | 16.35 | - | 10.48 | 0.00 | 10.56 | 1080.02 | 0/0 |
| | | 7-Nov-18 | 1090.49 | 1090.58 | 16.35 | - | 10.48 | 0.00 | 10.56 | 1080.02 | 0/0 |
| | | 19-Mar-18 | 1090.49 | 1090.58 | 16.39 | - | 10.42 | 0.00 | 10.51 | 1080.07 | 10/1 |
| | | 7-Sep-17 | 1090.49 | 1090.58 | 16.38 | - | 10.36 | 0.00 | 10.45 | 1080.13 | 10/0 |
| | | 26-Apr-17 | 1090.49 | 1090.58 | 16.39 | - | 10.26 | 0.00 | 10.35 | 1080.23 | 25/1 |
| | | 24-Feb-17 | 1090.49 | 1090.58 | 16.40 | - | 10.38 | 0.00 | 10.47 | 1080.11 | 0/3 |
| | | 31-Oct-16 | 1090.49 | 1090.58 | 16.39 | - | 10.18 | 0.00 | 10.27 | 1080.31 | 0/1 |
| | | 17-Aug-16 | 1090.49 | 1090.58 | 16.36 | - | 10.36 | 0.00 | 10.45 | 1080.13 | 1/0 |
| | | 4-May-16 | 1090.49 | 1090.58 | 16.43 | - | 10.28 | 0.00 | 10.38 | 1080.20 | 5/1 |
| | | 16-Feb-16 | 1090.49 | 1090.58 | 16.42 | - | 10.22 | 0.00 | 10.31 | 1080.26 | 20/1 |
| | | 9-Nov-15 | 1090.49 | 1090.58 | 16.60 | - | 10.28 | 0.00 | 10.37 | 1080.21 | 0/1 |
| | | 1-Sep-15 | 1090.49 | 1090.58 | 16.39 | - | 10.24 | 0.00 | 10.33 | 1080.25 | 0/2 |
| | | 9-Jun-15 | 1090.49 | 1090.58 | 16.54 | - | 10.32 | 0.00 | 10.41 | 1080.16 | 25/9 |
| | | 12-Mar-15 | 1090.49 | 1090.58 | 15.90 | - | 10.28 | 0.00 | 10.37 | 1080.21 | - |
| | | 24-Feb-15 | 1090.49 | 1090.58 | 15.51 | - | 10.18 | 0.00 | 10.27 | 1080.31 | 110/43 |
| BH1905 | 1 | 1-Jun-20 | 1090.43 | 1090.57 | 5.68 | - | 3.89 | 0.00 | 4.03 | 1086.54 | 165/77 |
| | | 3-Jan-20 | 1090.43 | 1090.57 | 5.74 | - | 4.00 | 0.00 | 4.13 | 1086.44 | 310/147 |
| | | 2-May-19 | 1090.43 | 1090.57 | 5.64 | - | 4.41 | 0.00 | 4.55 | 1086.02 | 310/147 |
| | | 7-Nov-18 | 1090.43 | 1090.57 | 5.64 | - | 4.24 | 0.00 | 4.38 | 1086.19 | 550/166 |
| | | 19-Mar-18 | 1090.43 | 1090.57 | 5.55 | - | 4.40 | 0.00 | 4.54 | 1086.03 | 1,060/471 |
| | | 7-Sep-17 | 1090.43 | 1090.57 | 5.54 | - | 4.13 | 0.00 | 4.27 | 1086.30 | >11,100/>2,000 |
| | | 26-Apr-17 | 1090.43 | 1090.57 | 5.59 | - | 4.24 | 0.00 | 4.38 | 1086.19 | 1,800/950 |
| | | 24-Feb-17 | 1090.43 | 1090.57 | 5.59 | - | 4.33 | 0.00 | 4.47 | 1086.10 | 520/350 |
| | | 31-Oct-16 | 1090.43 | 1090.57 | 5.75 | - | 4.00 | 0.00 | 4.14 | 1086.43 | 650/587 |
| | | 17-Aug-16 | 1090.43 | 1090.57 | 5.73 | - | 4.12 | 0.00 | 4.26 | 1086.31 | 620/500 |
| | | 4-May-16 | 1090.43 | 1090.57 | 5.72 | - | 4.37 | 0.00 | 4.51 | 1086.06 | 1,300/1,235 |
| | | 16-Feb-16 | 1090.43 | 1090.57 | 5.74 | - | 4.23 | 0.00 | 4.37 | 1086.21 | 350/375 |
| | | 9-Nov-15 | 1090.43 | 1090.57 | 5.80 | - | 4.06 | 0.00 | 4.20 | 1086.37 | 155/210 |
| | | 1-Sep-15 | 1090.43 | 1090.57 | 5.83 | - | 4.02 | 0.00 | 4.16 | 1086.41 | 590/511 |
| | | 9-Jun-15 | 1090.43 | 1090.57 | 5.91 | - | 4.29 | 0.00 | 4.42 | 1086.15 | 2,000/>2,000 |
| | | 24-Feb-15 | 1090.43 | 1090.57 | 5.93 | - | 4.15 | 0.00 | 4.29 | 1086.28 | 570/443 |
| BH1906 | 3 | 26-May-20 | 1090.95 | 1091.03 | 19.17 | - | 11.76 | 0.00 | 11.84 | 1079.19 | 0/78 |
| | | 14-Nov-19 | 1090.95 | 1091.03 | 19.22 | - | 11.85 | 0.00 | 11.93 | 1079.10 | 35/74 |
| | | 8-May-19 | 1090.95 | 1091.03 | 19.24 | - | 12.04 | 0.00 | 12.12 | 1078.91 | 35/74 |
| | | 9-Oct-18 | 1090.95 | 1091.03 | 19.24 | - | 12.07 | 0.00 | 12.15 | 1078.88 | 110/54 |
| | | 20-Mar-18 | 1090.95 | 1091.03 | 19.23 | - | 11.91 | 0.00 | 11.99 | 1079.04 | 330/130 |
| | | 5-Sep-17 | 1090.95 | 1091.03 | 19.23 | - | 11.96 | 0.00 | 12.04 | 1078.99 | 450/231 |
| | | 1-May-17 | 1090.95 | 1091.03 | 19.25 | - | 11.85 | 0.00 | 11.93 | 1079.10 | 200/50 |
| | | 16-Feb-17 | 1090.95 | 1091.03 | 19.24 | - | 11.69 | 0.00 | 11.77 | 1079.26 | 350/200 |
| | | 27-Oct-16 | 1090.95 | 1091.03 | 19.24 | - | 11.76 | 0.00 | 11.84 | 1079.19 | 520/310 |
| | | 16-Aug-16 | 1090.95 | 1091.03 | 19.26 | - | 11.83 | 0.00 | 11.91 | 1079.12 | 350/200 |
| | | 4-May-16 | 1090.95 | 1091.03 | 19.24 | - | 11.80 | 0.00 | 11.88 | 1079.15 | 380/257 |
| | | 16-Feb-16 | 1090.95 | 1091.03 | 19.26 | - | 11.80 | 0.00 | 11.88 | 1079.15 | 840/301 |
| | | 9-Nov-15 | 1090.95 | 1091.03 | 19.43 | - | 11.83 | 0.00 | 11.91 | 1079.12 | 320/240 |
| | | 1-Sep-15 | 1090.95 | 1091.03 | 19.28 | - | 11.78 | 0.00 | 11.86 | 1079.17 | 850/329 |
| | | 9-Jun-15 | 1090.95 | 1091.03 | 19.32 | - | 11.85 | 0.00 | 11.93 | 1079.10 | 510/250 |
| | | 6-Apr-15 | 1090.95 | 1091.03 | 19.39 | - | 11.80 | 0.00 | 11.88 | 1079.15 | - |
| | | 25-Feb-15 | 1090.95 | 1091.03 | 18.54 | - | 11.95 | 0.00 | 12.03 | 1079.00 | 280/128 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1907 | 3 | 6-May-20 | 1090.14 | 1090.22 | 16.35 | - | 11.19 | 0.00 | 11.27 | 1078.95 | >11,100/570 |
| | | 14-Nov-19 | 1090.14 | 1090.22 | 16.35 | - | 11.26 | 0.00 | 11.34 | 1078.88 | >11,100/850 |
| | | 8-May-19 | 1090.14 | 1090.22 | 16.46 | - | 11.44 | 0.00 | 11.52 | 1078.70 | >11,100/725 |
| | | 9-Oct-18 | 1090.14 | 1090.22 | 16.46 | - | 11.44 | 0.00 | 11.52 | 1078.70 | 60/41 |
| | | 20-Mar-18 | 1090.14 | 1090.22 | 16.90 | - | 11.40 | 0.00 | 11.48 | 1078.74 | >11,100/>2,000 |
| | | 5-Sep-17 | 1090.14 | 1090.22 | 16.59 | - | 11.36 | 0.00 | 11.45 | 1078.78 | >11,100/>2,000 |
| | | 1-May-17 | 1090.14 | 1090.22 | 16.87 | - | 11.31 | 0.00 | 11.40 | 1078.83 | >11,100/>2,000 |
| | | 16-Feb-17 | 1090.14 | 1090.22 | 16.92 | - | 11.29 | 0.00 | 11.38 | 1078.85 | >11,100/>5,000 |
| | | 27-Oct-16 | 1090.14 | 1090.22 | 17.18 | - | 11.23 | 0.00 | 11.31 | 1078.91 | >11,000/1,711 |
| | | 16-Aug-16 | 1090.14 | 1090.22 | 17.19 | - | 11.29 | 0.00 | 11.38 | 1078.85 | >11,100/>2,000 |
| | | 4-May-16 | 1090.14 | 1090.22 | 16.26 | - | 11.26 | 0.00 | 11.34 | 1078.88 | >11,100/>2,000 |
| | | 17-Feb-16 | 1090.14 | 1090.22 | 16.28 | - | 11.18 | 0.00 | 11.27 | 1078.96 | >11,100/>2,000 |
| | | 9-Nov-15 | 1090.14 | 1090.22 | 16.40 | - | 11.26 | 0.00 | 11.34 | 1078.88 | 830/809 |
| | | 1-Sep-15 | 1090.14 | 1090.22 | 16.45 | - | 11.21 | 0.00 | 11.30 | 1078.93 | >11,100/>2,000 |
| | | 9-Jun-15 | 1090.14 | 1090.22 | 16.78 | - | 11.28 | 0.00 | 11.37 | 1078.85 | >11,100/>2,000 |
| | | 28-Apr-15 | 1090.14 | 1090.22 | 18.10 | - | 11.21 | 0.00 | 11.29 | 1078.93 | 11,100/2,000 |
| | | 25-Feb-15 | 1090.14 | 1090.22 | 17.51 | - | 11.22 | 0.00 | 11.31 | 1078.91 | 660/460 |
| BH1908 | 3 | 6-May-20 | 1089.44 | 1089.55 | 15.50 | - | 10.74 | 0.00 | 10.85 | 1078.70 | 300/50 |
| | | 14-Nov-19 | 1089.44 | 1089.55 | 15.55 | - | 10.80 | 0.00 | 10.91 | 1078.64 | 350/174 |
| | | 8-May-19 | 1089.44 | 1089.55 | 15.58 | - | 10.96 | 0.00 | 11.07 | 1078.48 | 350/174 |
| | | 9-Oct-18 | 1089.44 | 1089.55 | 15.58 | - | 10.96 | 0.00 | 11.07 | 1078.48 | 210/95 |
| | | 20-Mar-18 | 1089.44 | 1089.55 | 15.60 | - | 10.90 | 0.00 | 11.01 | 1078.54 | 930/380 |
| | | 5-Sep-17 | 1089.44 | 1089.55 | 15.57 | - | 10.90 | 0.00 | 11.00 | 1078.54 | 390/221 |
| | | 1-May-17 | 1089.44 | 1089.55 | 15.59 | - | 10.84 | 0.00 | 10.95 | 1078.60 | 300/130 |
| | | 16-Feb-17 | 1089.44 | 1089.55 | 15.64 | - | 10.84 | 0.00 | 10.95 | 1078.60 | 300/150 |
| | | 27-Oct-16 | 1089.44 | 1089.55 | 15.78 | - | 10.81 | 0.00 | 10.92 | 1078.63 | 250/200 |
| | | 16-Aug-16 | 1089.44 | 1089.55 | 15.73 | - | 10.83 | 0.00 | 10.93 | 1078.61 | 188/104 |
| | | 4-May-16 | 1089.44 | 1089.55 | 14.98 | - | 10.79 | 0.00 | 10.90 | 1078.65 | 1,200/628 |
| | | 17-Feb-16 | 1089.44 | 1089.55 | 15.03 | - | 10.74 | 0.00 | 10.85 | 1078.70 | 1,800/954 |
| | | 9-Nov-15 | 1089.44 | 1089.55 | 15.12 | - | 10.79 | 0.00 | 10.90 | 1078.65 | 450/382 |
| | | 1-Sep-15 | 1089.44 | 1089.55 | 15.04 | - | 10.77 | 0.00 | 10.88 | 1078.67 | 1,600/754 |
| | | 9-Jun-15 | 1089.44 | 1089.55 | 15.04 | - | 10.85 | 0.00 | 10.96 | 1078.59 | 200/149 |
| | | 23-Apr-15 | 1089.44 | 1089.55 | 16.00 | - | 10.76 | 0.00 | 10.87 | 1078.68 | 1,450/1,000 |
| | | 24-Feb-15 | 1089.44 | 1089.55 | 16.80 | - | 10.73 | 0.00 | 10.84 | 1078.71 | 0/1 |
| BH1909 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1089.48 | 1089.56 | 7.29 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 8-May-19 | 1089.48 | 1089.56 | 7.29 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Oct-18 | 1089.48 | 1089.56 | 7.29 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 20-Mar-18 | 1089.48 | 1089.56 | 7.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Sep-17 | 1089.48 | 1089.56 | 7.27 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 1-May-17 | 1089.48 | 1089.56 | 7.28 | - | - | 0.00 | - | - | 30/0 (DRY) |
| | | 21-Feb-17 | 1089.48 | 1089.56 | 7.28 | - | - | 0.00 | - | - | 30/0 (DRY) |
| | | 27-Oct-16 | 1089.48 | 1089.56 | 7.25 | - | - | 0.00 | - | - | 50/0 (DRY) |
| | | 16-Aug-16 | 1089.48 | 1089.56 | 7.26 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-May-16 | 1089.48 | 1089.56 | 7.27 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 17-Feb-16 | 1089.48 | 1089.56 | 7.24 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Nov-15 | 1089.48 | 1089.56 | 7.25 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 1-Sep-15 | 1089.48 | 1089.56 | 7.25 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1089.48 | 1089.56 | 7.27 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 24-Feb-15 | 1089.48 | 1089.56 | 7.25 | - | - | 0.00 | - | - | 0/0 (DRY) |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1910 | 3 | 6-May-20 | 1090.08 | 1090.23 | 17.73 | - | 11.36 | 0.00 | 11.51 | 1078.72 | 0/3 |
| | | 14-Nov-19 | 1090.08 | 1090.23 | 17.79 | - | 11.46 | 0.00 | 11.60 | 1078.62 | 0/0 |
| | | 8-May-19 | 1090.08 | 1090.23 | 17.86 | - | 11.64 | 0.00 | 11.79 | 1078.44 | 0/0 |
| | | 9-Oct-18 | 1090.08 | 1090.23 | 17.86 | - | 11.67 | 0.00 | 11.81 | 1078.41 | 0/0 |
| | | 20-Mar-18 | 1090.08 | 1090.23 | 17.80 | - | 11.56 | 0.00 | 11.71 | 1078.52 | 0/0 |
| | | 5-Sep-17 | 1090.08 | 1090.23 | 17.79 | - | 11.60 | 0.00 | 11.74 | 1078.48 | 0/1 |
| | | 1-May-17 | 1090.08 | 1090.23 | 17.80 | - | 11.49 | 0.00 | 11.63 | 1078.59 | 0/1 |
| | | 16-Feb-17 | 1090.08 | 1090.23 | 17.84 | - | 11.40 | 0.00 | 11.55 | 1078.68 | 0/1 |
| | | 27-Oct-16 | 1090.08 | 1090.23 | 17.82 | - | 16.42 | 0.00 | 16.57 | 1073.65 | 0/1 |
| | | 16-Aug-16 | 1090.08 | 1090.23 | 17.87 | - | 11.49 | 0.00 | 11.63 | 1078.59 | 40/2 |
| | | 4-May-16 | 1090.08 | 1090.23 | 17.81 | - | 11.47 | 0.00 | 11.62 | 1078.61 | 0/6 |
| | | 16-Feb-16 | 1090.08 | 1090.23 | 17.83 | - | 11.39 | 0.00 | 11.54 | 1078.69 | 0/1 |
| | | 9-Nov-15 | 1090.08 | 1090.23 | 17.87 | - | 11.46 | 0.00 | 11.60 | 1078.62 | 25/8 |
| | | 1-Sep-15 | 1090.08 | 1090.23 | 17.87 | - | 11.42 | 0.00 | 11.57 | 1078.66 | - |
| | | 9-Jun-15 | 1090.08 | 1090.23 | 17.96 | - | 11.49 | 0.00 | 11.64 | 1078.59 | 85/27 |
| | | 20-Apr-15 | 1090.08 | 1090.23 | 18.61 | - | 11.45 | 0.00 | 11.60 | 1078.63 | 5/1 |
| | | 9-Apr-15 | 1090.08 | 1090.23 | 18.60 | - | 11.49 | 0.00 | 11.63 | 1078.59 | 0/1 |
| | | 26-Feb-15 | 1090.08 | 1090.23 | 17.04 | - | 11.47 | 0.00 | 11.61 | 1078.61 | 2/3 |
| BH1911 | 3 | 5-May-20 | 1092.86 | 1092.96 | 18.14 | - | 13.97 | 0.00 | 14.07 | 1078.88 | 55/24 |
| | | 14-Nov-19 | 1092.86 | 1092.96 | 18.19 | - | 13.93 | 0.00 | 14.03 | 1078.93 | 0/0 |
| | | 8-May-19 | 1092.86 | 1092.96 | 18.32 | - | 14.13 | 0.00 | 14.23 | 1078.73 | 35/90 |
| | | 9-Oct-18 | 1092.86 | 1092.96 | 18.32 | - | 14.16 | 0.00 | 14.26 | 1078.70 | 105/100 |
| | | 20-Mar-18 | 1092.86 | 1092.96 | 18.64 | - | 14.06 | 0.00 | 14.16 | 1078.80 | 80/53 |
| | | 5-Sep-17 | 1092.86 | 1092.96 | 18.20 | - | 14.06 | 0.00 | 14.16 | 1078.80 | 10/97 |
| | | 1-May-17 | 1092.86 | 1092.96 | 18.21 | - | 13.93 | 0.00 | 14.03 | 1078.93 | 200/55 |
| | | 16-Feb-17 | 1092.86 | 1092.96 | 18.20 | - | 13.81 | 0.00 | 13.91 | 1079.05 | 400/150 |
| | | 27-Oct-16 | 1092.86 | 1092.96 | 18.19 | - | 13.85 | 0.00 | 13.95 | 1079.01 | 270/130 |
| | | 16-Aug-16 | 1092.86 | 1092.96 | 18.19 | - | 13.90 | 0.00 | 14.00 | 1078.96 | 60/80 |
| | | 4-May-16 | 1092.86 | 1092.96 | 18.18 | - | 13.89 | 0.00 | 13.99 | 1078.97 | 135/73 |
| | | 17-Feb-16 | 1092.86 | 1092.96 | 18.22 | - | 13.82 | 0.00 | 13.92 | 1079.04 | 180/57 |
| | | 9-Nov-15 | 1092.86 | 1092.96 | 18.48 | - | 13.91 | 0.00 | 14.01 | 1078.95 | 35/32 |
| | | 1-Sep-15 | 1092.86 | 1092.96 | 18.22 | - | 13.84 | 0.00 | 13.94 | 1079.02 | 0/21 |
| | | 9-Jun-15 | 1092.86 | 1092.96 | 18.24 | - | 13.94 | 0.00 | 14.04 | 1078.92 | 25/15 |
| | | 8-Apr-15 | 1092.86 | 1092.96 | 17.64 | - | 13.90 | 0.00 | 14.00 | 1078.96 | - |
| BH1912 | 3 | 25-May-20 | 1091.04 | 1091.09 | 20.87 | - | 10.70 | 0.00 | 10.76 | 1080.33 | 0/3 |
| | | 9-Dec-19 | 1091.04 | 1091.09 | 20.85 | - | 10.72 | 0.00 | 10.77 | 1080.32 | 0/0 |
| | | 30-Apr-19 | 1091.04 | 1091.09 | 21.11 | - | 10.84 | 0.00 | 10.89 | 1080.20 | 0/0 |
| | | 29-Oct-18 | 1091.04 | 1091.09 | 21.11 | - | 10.79 | 0.00 | 10.85 | 1080.24 | 0/0 |
| | | 5-Apr-18 | 1091.04 | 1091.09 | 21.16 | - | 10.89 | 0.00 | 10.94 | 1080.15 | 0/0 |
| | | 13-Sep-17 | 1091.04 | 1091.09 | 20.89 | - | 10.75 | 0.00 | 10.80 | 1080.29 | 10/28 |
| | | 17-May-17 | 1091.04 | 1091.09 | 20.89 | - | 10.76 | 0.00 | 10.81 | 1080.28 | 100/30 |
| | | 24-Feb-17 | 1091.04 | 1091.09 | 20.91 | - | 10.78 | 0.00 | 10.83 | 1080.26 | 320/100 |
| | | 3-Nov-16 | 1091.04 | 1091.09 | 20.92 | - | 10.64 | 0.00 | 10.69 | 1080.40 | 130/73 |
| | | 17-Aug-16 | 1091.04 | 1091.09 | 20.93 | - | 10.70 | 0.00 | 10.75 | 1080.34 | 100/30 |
| | | 10-May-16 | 1091.04 | 1091.09 | 20.68 | - | 10.78 | 0.00 | 10.83 | 1080.26 | 300/212 |
| | | 16-Feb-16 | 1091.04 | 1091.09 | 20.93 | - | 10.62 | 0.00 | 10.67 | 1080.42 | 350/124 |
| | | 12-Nov-15 | 1091.04 | 1091.09 | 20.69 | - | 10.64 | 0.00 | 10.70 | 1080.39 | 360/140 |
| | | 8-Sep-15 | 1091.04 | 1091.09 | 21.08 | - | 10.64 | 0.00 | 10.69 | 1080.40 | 520/192 |
| | | 17-Jun-15 | 1091.04 | 1091.09 | 21.24 | - | 9.75 | 0.00 | 9.80 | 1081.29 | 400/250 |
| | | 9-Mar-15 | 1091.04 | 1091.09 | 20.21 | - | 10.57 | 0.00 | 10.62 | 1080.47 | 310/97 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1913 | 2 | 25-May-20 | 1091.05 | 1091.11 | 10.17 | - | 6.18 | 0.00 | 6.23 | 1084.88 | 90/0 |
| | | 9-Dec-19 | 1091.05 | 1091.11 | 10.19 | - | 5.90 | 0.00 | 5.96 | 1085.15 | 0/0 |
| | | 30-Apr-19 | 1091.05 | 1091.11 | 10.24 | - | 6.59 | 0.00 | 6.64 | 1084.47 | 0/0 |
| | | 29-Oct-18 | 1091.05 | 1091.11 | 10.24 | - | 6.33 | 0.00 | 6.39 | 1084.72 | 0/0 |
| | | 5-Apr-18 | 1091.05 | 1091.11 | 10.24 | - | 6.53 | 0.00 | 6.59 | 1084.52 | 0/0 |
| | | 13-Sep-17 | 1091.05 | 1091.11 | 10.23 | - | 6.25 | 0.00 | 6.31 | 1084.80 | 0/0 |
| | | 17-May-17 | 1091.05 | 1091.11 | 10.23 | - | 6.25 | 0.00 | 6.31 | 1084.80 | 0/0 |
| | | 24-Feb-17 | 1091.05 | 1091.11 | 10.23 | - | 5.95 | 0.00 | 6.01 | 1085.10 | 10/3 |
| | | 3-Nov-16 | 1091.05 | 1091.11 | 10.20 | - | 5.96 | 0.00 | 6.01 | 1085.10 | 0/0 |
| | | 17-Aug-16 | 1091.05 | 1091.11 | 10.26 | - | 5.87 | 0.00 | 5.93 | 1085.18 | 5/0 |
| | | 10-May-16 | 1091.05 | 1091.11 | 9.15 | - | 6.32 | 0.00 | 6.38 | 1084.73 | 5/0 |
| | | 16-Feb-16 | 1091.05 | 1091.11 | 9.17 | - | 6.07 | 0.00 | 6.13 | 1084.98 | 10/0 |
| | | 12-Nov-15 | 1091.05 | 1091.11 | 9.15 | - | 5.84 | 0.00 | 5.90 | 1085.22 | 15/0 |
| | | 8-Sep-15 | 1091.05 | 1091.11 | 9.20 | - | 5.90 | 0.00 | 5.96 | 1085.15 | 0/5 |
| | | 17-Jun-15 | 1091.05 | 1091.11 | 9.18 | - | 6.22 | 0.00 | 6.28 | 1084.83 | 0/1 |
| | | 25-Feb-15 | 1091.05 | 1091.11 | 9.71 | - | 6.07 | 0.00 | 6.12 | 1084.99 | 0/0 |
| BH1914 | 1 | 25-May-20 | 1091.03 | 1091.08 | 7.18 | - | 5.79 | 0.00 | 5.83 | 1085.25 | 0/0 |
| | | 9-Dec-19 | 1091.03 | 1091.08 | 7.23 | - | 5.52 | 0.00 | 5.56 | 1085.52 | 0/0 |
| | | 30-Apr-19 | 1091.03 | 1091.08 | 7.31 | - | 6.22 | 0.00 | 6.27 | 1084.81 | 0/0 |
| | | 29-Oct-18 | 1091.03 | 1091.08 | 7.31 | - | 5.91 | 0.00 | 5.95 | 1085.12 | 0/0 |
| | | 5-Apr-18 | 1091.03 | 1091.08 | 7.40 | - | 6.21 | 0.00 | 6.25 | 1084.83 | 0/0 |
| | | 13-Sep-17 | 1091.03 | 1091.08 | 7.42 | - | 5.86 | 0.00 | 5.90 | 1085.17 | 0/0 |
| | | 17-May-17 | 1091.03 | 1091.08 | 7.42 | - | 5.94 | 0.00 | 5.99 | 1085.09 | 0/0 |
| | | 24-Feb-17 | 1091.03 | 1091.08 | 7.41 | - | 5.61 | 0.00 | 5.65 | 1085.43 | 0/3 |
| | | 3-Nov-16 | 1091.03 | 1091.08 | 7.42 | - | 5.44 | 0.00 | 5.49 | 1085.59 | 0/0 |
| | | 17-Aug-16 | 1091.03 | 1091.08 | 7.43 | - | 5.43 | 0.00 | 5.47 | 1085.60 | 5/0 |
| | | 10-May-16 | 1091.03 | 1091.08 | 7.44 | - | 6.01 | 0.00 | 6.05 | 1085.02 | 5/0 |
| | | 16-Feb-16 | 1091.03 | 1091.08 | 7.44 | - | 5.76 | 0.00 | 5.80 | 1085.27 | 0/0 |
| | | 12-Nov-15 | 1091.03 | 1091.08 | 7.46 | - | 5.48 | 0.00 | 5.52 | 1085.55 | 0/0 |
| | | 8-Sep-15 | 1091.03 | 1091.08 | 7.55 | - | 5.49 | 0.00 | 5.53 | 1085.54 | 0/2 |
| | | 17-Jun-15 | 1091.03 | 1091.08 | 7.59 | - | 5.83 | 0.00 | 5.87 | 1085.20 | 0/1 |
| | | 25-Feb-15 | 1091.03 | 1091.08 | 7.67 | - | 5.56 | 0.00 | 5.61 | 1085.47 | 0/0 |
| BH1915 | 3 | 25-May-20 | 1091.06 | 1091.10 | 13.73 | - | 10.43 | 0.00 | 10.47 | 1080.63 | >11,100/872 |
| | | 9-Dec-19 | 1091.06 | 1091.10 | 15.75 | - | 10.79 | 0.00 | 10.84 | 1080.26 | 8,400/123 |
| | | 30-Apr-19 | 1091.06 | 1091.10 | 16.72 | - | 10.69 | 0.00 | 10.73 | 1080.37 | 8,400/123 |
| | | 29-Oct-18 | 1091.06 | 1091.10 | 16.72 | - | 10.54 | 0.00 | 10.58 | 1080.52 | 8,400/123 |
| | | 5-Apr-18 | 1091.06 | 1091.10 | 17.57 | - | 10.53 | 0.00 | 10.57 | 1080.53 | 10,200/64 |
| | | 13-Sep-17 | 1091.06 | 1091.10 | 18.61 | - | 10.51 | 0.00 | 10.55 | 1080.55 | >11,100/>2,000 |
| | | 17-May-17 | 1091.06 | 1091.10 | 18.61 | - | 10.51 | 0.00 | 10.56 | 1080.54 | 500/150 |
| | | 24-Feb-17 | 1091.06 | 1091.10 | 17.58 | - | 10.51 | 0.00 | 10.55 | 1080.55 | 1,100/620 |
| | | 3-Nov-16 | 1091.06 | 1091.10 | 18.67 | - | 10.73 | 0.00 | 10.78 | 1080.32 | >11,100/1,717 |
| | | 17-Aug-16 | 1091.06 | 1091.10 | 18.72 | - | 10.49 | 0.00 | 10.53 | 1080.57 | >11,100/>2,000 |
| | | 10-May-16 | 1091.06 | 1091.10 | 15.93 | - | 10.54 | 0.00 | 10.58 | 1080.52 | >11,100/>2,000 |
| | | 16-Feb-16 | 1091.06 | 1091.10 | 16.42 | - | 10.39 | 0.00 | 10.43 | 1080.67 | >11,100/1,880 |
| | | 12-Nov-15 | 1091.06 | 1091.10 | 16.65 | - | 10.44 | 0.00 | 10.49 | 1080.61 | >11,100/895 |
| | | 8-Sep-15 | 1091.06 | 1091.10 | 16.91 | - | 10.44 | 0.00 | 10.48 | 1080.62 | >11,100/>2,000 |
| | | 17-Jun-15 | 1091.06 | 1091.10 | 17.70 | - | 10.53 | 0.00 | 10.57 | 1080.53 | >11,100/1,800 |
| | | 25-Feb-15 | 1091.06 | 1091.10 | 18.53 | - | 10.51 | 0.00 | 10.55 | 1080.55 | 11,100/1,450 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1916 | 1 | 25-May-20 | 1091.06 | 1091.12 | 6.80 | - | 6.29 | 0.00 | 6.34 | 1084.78 | 25/0 |
| | | 9-Dec-19 | 1091.06 | 1091.12 | 6.79 | - | 5.74 | 0.00 | 5.79 | 1085.33 | 0/0 |
| | | 30-Apr-19 | 1091.06 | 1091.12 | 6.80 | - | 6.68 | 0.00 | 6.74 | 1084.38 | 0/0 |
| | | 29-Oct-18 | 1091.06 | 1091.12 | 6.83 | - | 6.40 | 0.00 | 6.45 | 1084.67 | 0/0 |
| | | 5-Apr-18 | 1091.06 | 1091.12 | 6.83 | - | 6.59 | 0.00 | 6.64 | 1084.48 | 0/0 |
| | | 13-Sep-17 | 1091.06 | 1091.12 | 6.82 | - | 6.31 | 0.00 | 6.37 | 1084.75 | 0/0 |
| | | 17-May-17 | 1091.06 | 1091.12 | 6.82 | - | 6.24 | 0.00 | 6.29 | 1084.83 | 0/0 |
| | | 24-Feb-17 | 1091.06 | 1091.12 | 6.81 | - | 5.33 | 0.00 | 5.39 | 1085.73 | 0/7 |
| | | 3-Nov-16 | 1091.06 | 1091.12 | 6.79 | - | 5.50 | 0.00 | 5.56 | 1085.56 | 0/0 |
| | | 17-Aug-16 | 1091.06 | 1091.12 | 6.78 | - | 5.62 | 0.00 | 5.67 | 1085.45 | 1/0 |
| | | 10-May-16 | 1091.06 | 1091.12 | 6.79 | - | 6.36 | 0.00 | 6.41 | 1084.71 | 0/1 |
| | | 16-Feb-16 | 1091.06 | 1091.12 | 6.80 | - | 5.98 | 0.00 | 6.03 | 1085.09 | 0/0 |
| | | 12-Nov-15 | 1091.06 | 1091.12 | 6.88 | - | 5.64 | 0.00 | 5.70 | 1085.42 | 55/1 |
| | | 8-Sep-15 | 1091.06 | 1091.12 | 6.77 | - | 5.70 | 0.00 | 5.76 | 1085.36 | 0/0 |
| | | 17-Jun-15 | 1091.06 | 1091.12 | 6.79 | - | 6.21 | 0.00 | 6.27 | 1084.86 | 0/0 |
| | | 23-Feb-15 | 1091.06 | 1091.12 | 6.79 | - | 5.82 | 0.00 | 5.88 | 1085.24 | 0/0 |
| BH1917 | 3 | 6-May-20 | 1089.39 | 1089.55 | 15.97 | - | 12.57 | 0.00 | 12.73 | 1076.82 | 0/0 |
| | | 13-Nov-19 | 1089.39 | 1089.55 | 16.01 | - | 12.57 | 0.00 | 12.73 | 1076.82 | 0/0 |
| | | 8-May-19 | 1089.39 | 1089.55 | 16.04 | - | 12.73 | 0.00 | 12.89 | 1076.66 | 0/0 |
| | | 5-Oct-18 | 1089.39 | 1089.55 | 16.04 | - | 12.70 | 0.00 | 12.85 | 1076.69 | 0/0 |
| | | 20-Mar-18 | 1089.39 | 1089.55 | 16.27 | - | 12.72 | 0.00 | 12.88 | 1076.67 | 0/0 |
| | | 7-Sep-17 | 1089.39 | 1089.55 | 16.02 | - | 12.71 | 0.00 | 12.86 | 1076.68 | 5/0 |
| | | 2-May-17 | 1089.39 | 1089.55 | 16.05 | - | 12.72 | 0.00 | 12.88 | 1076.67 | 5/0 |
| | | 24-Feb-17 | 1089.39 | 1089.55 | 16.05 | - | 12.76 | 0.00 | 12.92 | 1076.62 | 10/0 |
| | | 27-Oct-16 | 1089.39 | 1089.55 | 16.02 | - | 12.72 | 0.00 | 12.88 | 1076.67 | 35/1 |
| | | 18-Aug-16 | 1089.39 | 1089.55 | 16.03 | - | 12.78 | 0.00 | 12.94 | 1076.61 | 0/0 |
| | | 3-May-16 | 1089.39 | 1089.55 | 16.06 | - | 12.77 | 0.00 | 12.93 | 1076.62 | 15/1 |
| | | 18-Feb-16 | 1089.39 | 1089.55 | 16.09 | - | 12.64 | 0.00 | 12.80 | 1076.75 | 0/1 |
| | | 10-Nov-15 | 1089.39 | 1089.55 | 16.15 | - | 12.70 | 0.00 | 12.85 | 1076.69 | 5/1 |
| | | 2-Sep-15 | 1089.39 | 1089.55 | 16.33 | - | 12.70 | 0.00 | 12.86 | 1076.69 | 0/0 |
| | | 9-Jun-15 | 1089.39 | 1089.55 | 16.16 | - | 12.74 | 0.00 | 12.90 | 1076.64 | 0/0 |
| | | 7-May-15 | 1089.39 | 1089.55 | 16.13 | - | 12.74 | 0.00 | 12.89 | 1076.65 | 0/0 |
| BH1918 | 3 | 6-May-20 | 1087.23 | 1087.27 | 12.97 | - | 9.40 | 0.00 | 9.44 | 1077.83 | 0/0 |
| | | 13-Nov-19 | 1087.23 | 1087.27 | 13.01 | - | 9.40 | 0.00 | 9.43 | 1077.83 | 0/0 |
| | | 8-May-19 | 1087.23 | 1087.27 | 13.04 | - | 9.53 | 0.00 | 9.56 | 1077.71 | 0/0 |
| | | 5-Oct-18 | 1087.23 | 1087.27 | 13.04 | - | 9.52 | 0.00 | 9.56 | 1077.71 | 0/0 |
| | | 22-Mar-18 | 1087.23 | 1087.27 | 13.19 | - | 9.55 | 0.00 | 9.59 | 1077.68 | 0/0 |
| | | 7-Sep-17 | 1087.23 | 1087.27 | 13.03 | - | 9.51 | 0.00 | 9.55 | 1077.72 | 0/0 |
| | | 2-May-17 | 1087.23 | 1087.27 | 13.05 | - | 9.53 | 0.00 | 9.57 | 1077.70 | 35/0 |
| | | 23-Feb-17 | 1087.23 | 1087.27 | 13.04 | - | 9.56 | 0.00 | 9.60 | 1077.67 | 70/0 |
| | | 27-Oct-16 | 1087.23 | 1087.27 | 13.06 | - | 9.45 | 0.00 | 9.49 | 1077.78 | 0/0 |
| | | 16-Aug-16 | 1087.23 | 1087.27 | 13.06 | - | 9.48 | 0.00 | 9.52 | 1077.75 | 0/1 |
| | | 5-May-16 | 1087.23 | 1087.27 | 13.08 | - | 9.54 | 0.00 | 9.58 | 1077.69 | 0/0 |
| | | 18-Feb-16 | 1087.23 | 1087.27 | 13.13 | - | 9.36 | 0.00 | 9.39 | 1077.88 | 15/0 |
| | | 10-Nov-15 | 1087.23 | 1087.27 | 13.13 | - | 9.41 | 0.00 | 9.45 | 1077.82 | 10/0 |
| | | 2-Sep-15 | 1087.23 | 1087.27 | 13.22 | - | 9.44 | 0.00 | 9.48 | 1077.79 | 0/0 |
| | | 9-Jun-15 | 1087.23 | 1087.27 | 13.39 | - | 9.45 | 0.00 | 9.49 | 1077.78 | 0/0 |
| | | 27-Mar-15 | 1087.23 | 1087.27 | 13.40 | - | 9.43 | 0.00 | 9.46 | 1077.80 | 0/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1919 | 3 | 6-May-20 | 1085.47 | 1085.52 | 15.44 | - | 9.77 | 0.00 | 9.82 | 1075.70 | 0/1 |
| | | 13-Nov-19 | 1085.47 | 1085.52 | 15.47 | - | 9.77 | 0.00 | 9.82 | 1075.70 | 0/1 |
| | | 8-May-19 | 1085.47 | 1085.52 | 15.60 | - | 9.98 | 0.00 | 10.03 | 1075.49 | 0/1 |
| | | 5-Oct-18 | 1085.47 | 1085.52 | 15.60 | - | 9.92 | 0.00 | 9.97 | 1075.55 | 0/1 |
| | | 22-Mar-18 | 1085.47 | 1085.52 | 15.59 | - | 10.01 | 0.00 | 10.06 | 1075.46 | 10/0 |
| | | 7-Sep-17 | 1085.47 | 1085.52 | 15.48 | - | 10.00 | 0.00 | 10.06 | 1075.46 | 0/0 |
| | | 2-May-17 | 1085.47 | 1085.52 | 15.47 | - | 10.10 | 0.00 | 10.15 | 1075.37 | 15/0 |
| | | 21-Feb-17 | 1085.47 | 1085.52 | 15.49 | - | 10.18 | 0.00 | 10.23 | 1075.29 | 0/1 |
| | | 27-Oct-16 | 1085.47 | 1085.52 | 15.51 | - | 10.21 | 0.00 | 10.26 | 1075.26 | 45/0 |
| | | 18-Aug-16 | 1085.47 | 1085.52 | 15.48 | - | 10.23 | 0.00 | 10.28 | 1075.24 | 0/1 |
| | | 3-May-16 | 1085.47 | 1085.52 | 15.50 | - | 10.28 | 0.00 | 10.33 | 1075.19 | 0/0 |
| | | 18-Feb-16 | 1085.47 | 1085.52 | 15.49 | - | 10.16 | 0.00 | 10.21 | 1075.31 | 0/1 |
| | | 10-Nov-15 | 1085.47 | 1085.52 | 15.66 | - | 10.17 | 0.00 | 10.22 | 1075.30 | 0/1 |
| | | 2-Sep-15 | 1085.47 | 1085.52 | 15.70 | - | 10.17 | 0.00 | 10.22 | 1075.30 | 0/0 |
| | | 9-Jun-15 | 1085.47 | 1085.52 | 15.31 | - | 10.25 | 0.00 | 10.30 | 1075.22 | 0/0 |
| | | 5-May-15 | 1085.47 | 1085.52 | 15.54 | - | 10.19 | 0.00 | 10.25 | 1075.27 | 25/1 |
| BH1920 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 13-Nov-19 | 1087.16 | 1087.27 | 4.81 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 8-May-19 | 1087.16 | 1087.27 | 4.81 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Oct-18 | 1087.16 | 1087.27 | 4.81 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 22-Mar-18 | 1087.16 | 1087.27 | 4.81 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 7-Sep-17 | 1087.16 | 1087.27 | 4.83 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 2-May-17 | 1087.16 | 1087.27 | 4.81 | - | - | 0.00 | - | - | 25/0 (DRY) |
| | | 23-Feb-17 | 1087.16 | 1087.27 | 4.84 | - | - | 0.00 | - | - | 30/0 (DRY) |
| | | 27-Oct-16 | 1087.16 | 1087.27 | 4.80 | - | - | 0.00 | - | - | 25/0 (DRY) |
| | | 16-Aug-16 | 1087.16 | 1087.27 | 4.79 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 5-May-16 | 1087.16 | 1087.27 | 4.83 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 18-Feb-16 | 1087.16 | 1087.27 | 4.80 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 10-Nov-15 | 1087.16 | 1087.27 | 4.79 | - | - | 0.00 | - | - | 5/0 (DRY) |
| | | 2-Sep-15 | 1087.16 | 1087.27 | 4.90 | - | - | 0.00 | - | - | 0/10 (DRY) |
| | | 9-Jun-15 | 1087.16 | 1087.27 | 4.79 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 27-Mar-15 | 1087.16 | 1087.27 | 4.81 | - | - | 0.00 | - | - | 0/0 (DRY) |
| BH1921 | 3 | 7-May-20 | 1088.92 | 1089.11 | 18.67 | - | 11.45 | 0.00 | 11.63 | 1077.48 | 0/0 |
| | | 13-Nov-19 | 1088.92 | 1089.11 | 18.70 | - | 11.47 | 0.00 | 11.66 | 1077.45 | 0/0 |
| | | 25-Apr-19 | 1088.92 | 1089.11 | 18.71 | - | 11.56 | 0.00 | 11.74 | 1077.37 | 0/0 |
| | | 5-Oct-18 | 1088.92 | 1089.11 | 18.71 | - | 11.60 | 0.00 | 11.78 | 1077.33 | 0/0 |
| | | 22-Mar-18 | 1088.92 | 1089.11 | 18.96 | - | 11.57 | 0.00 | 11.76 | 1077.35 | 10/1 |
| | | 6-Sep-17 | 1088.92 | 1089.11 | 18.73 | - | 11.52 | 0.00 | 11.71 | 1077.40 | 20/0 |
| | | 3-May-17 | 1088.92 | 1089.11 | 18.72 | - | 11.44 | 0.00 | 11.63 | 1077.48 | 35/0 |
| | | 21-Feb-17 | 1088.92 | 1089.11 | 18.72 | - | 11.47 | 0.00 | 11.65 | 1077.46 | 0/4 |
| | | 31-Oct-16 | 1088.92 | 1089.11 | 18.71 | - | 11.42 | 0.00 | 11.60 | 1077.51 | 0/1 |
| | | 18-Aug-16 | 1088.92 | 1089.11 | 18.74 | - | 11.47 | 0.00 | 11.66 | 1077.45 | 0/1 |
| | | 5-May-16 | 1088.92 | 1089.11 | 18.74 | - | 11.51 | 0.00 | 11.70 | 1077.41 | 0/0 |
| | | 18-Feb-16 | 1088.92 | 1089.11 | 18.76 | - | 11.40 | 0.00 | 11.59 | 1077.52 | 0/1 |
| | | 10-Nov-15 | 1088.92 | 1089.11 | 18.91 | - | 11.41 | 0.00 | 11.59 | 1077.52 | 0/1 |
| | | 1-Sep-15 | 1088.92 | 1089.11 | 19.08 | - | 11.46 | 0.00 | 11.65 | 1077.46 | 0/1 |
| | | 9-Jun-15 | 1088.92 | 1089.11 | 18.85 | - | 11.49 | 0.00 | 11.68 | 1077.43 | 15/8 |
| | | 28-Apr-15 | 1088.92 | 1089.11 | 18.88 | - | 11.43 | 0.00 | 11.62 | 1077.49 | 0/1 |

## Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1922 | 3 | 7-May-20 | 1087.65 | 1087.76 | 18.47 | - | 10.94 | 0.00 | 11.05 | 1076.71 | 0/0 |
| | | 13-Nov-19 | 1087.65 | 1087.76 | 18.47 | - | 10.90 | 0.00 | 11.00 | 1076.75 | 0/0 |
| | | 25-Apr-19 | 1087.65 | 1087.76 | 18.51 | - | 11.11 | 0.00 | 11.21 | 1076.54 | 0/0 |
| | | 5-Oct-18 | 1087.65 | 1087.76 | 18.51 | - | 11.10 | 0.00 | 11.21 | 1076.55 | 0/0 |
| | | 22-Mar-18 | 1087.65 | 1087.76 | 18.72 | - | 11.09 | 0.00 | 11.20 | 1076.56 | 0/0 |
| | | 5-Sep-17 | 1087.65 | 1087.76 | 18.50 | - | 11.01 | 0.00 | 11.11 | 1076.64 | 0/1 |
| | | 3-May-17 | 1087.65 | 1087.76 | 18.51 | - | 11.02 | 0.00 | 11.12 | 1076.63 | 0/0 |
| | | 21-Feb-17 | 1087.65 | 1087.76 | 18.51 | - | 11.06 | 0.00 | 11.17 | 1076.59 | 0/3 |
| | | 31-Oct-16 | 1087.65 | 1087.76 | 18.52 | - | 10.95 | 0.00 | 11.06 | 1076.70 | 40/0 |
| | | 18-Aug-16 | 1087.65 | 1087.76 | 18.49 | - | 11.04 | 0.00 | 11.15 | 1076.61 | 0/0 |
| | | 5-May-16 | 1087.65 | 1087.76 | 18.55 | - | 11.05 | 0.00 | 11.15 | 1076.60 | 0/0 |
| | | 18-Feb-16 | 1087.65 | 1087.76 | 18.51 | - | 10.93 | 0.00 | 11.04 | 1076.72 | 0/1 |
| | | 10-Nov-15 | 1087.65 | 1087.76 | 18.67 | - | 11.05 | 0.00 | 11.16 | 1076.60 | 0/2 |
| | | 1-Sep-15 | 1087.65 | 1087.76 | 18.57 | - | 11.03 | 0.00 | 11.14 | 1076.62 | 0/2 |
| | | 9-Jun-15 | 1087.65 | 1087.76 | 17.72 | - | 11.20 | 0.00 | 11.31 | 1076.45 | 5/0 |
| | | 5-May-15 | 1087.65 | 1087.76 | 17.72 | - | 11.08 | 0.00 | 11.19 | 1076.57 | 0/0 |
| BH1923 | 3 | 6-May-20 | 1088.64 | 1088.70 | 15.24 | - | 10.16 | 0.00 | 10.43 | 1078.48 | 10/3 |
| | | 14-Nov-19 | 1088.64 | 1088.70 | 15.24 | - | 10.26 | 0.00 | 10.43 | 1078.38 | 0/1 |
| | | 25-Apr-19 | 1088.64 | 1088.70 | 15.26 | - | 10.39 | 0.00 | 10.43 | 1078.25 | 0/1 |
| | | 5-Oct-18 | 1088.64 | 1088.70 | 15.26 | - | 10.38 | 0.00 | 10.43 | 1078.27 | 0/1 |
| | | 22-Mar-18 | 1088.64 | 1088.70 | 15.26 | - | 10.38 | 0.00 | 10.43 | 1078.27 | 0/3 |
| | | 5-Sep-17 | 1088.64 | 1088.70 | 15.25 | - | 10.35 | 0.00 | 10.41 | 1078.29 | 25/0 |
| | | 2-May-17 | 1088.64 | 1088.70 | 15.26 | - | 10.30 | 0.00 | 10.35 | 1078.35 | 0/3 |
| | | 23-Feb-17 | 1088.64 | 1088.70 | 15.26 | - | 10.34 | 0.00 | 10.40 | 1078.30 | 110/11 |
| | | 31-Oct-16 | 1088.64 | 1088.70 | 15.26 | - | 10.26 | 0.00 | 10.31 | 1078.39 | 0/3 |
| | | 16-Aug-16 | 1088.64 | 1088.70 | 15.23 | - | 10.32 | 0.00 | 10.37 | 1078.33 | 5/31 |
| | | 5-May-16 | 1088.64 | 1088.70 | 15.23 | - | 10.25 | 0.00 | 10.30 | 1078.40 | 45/45 |
| | | 17-Feb-16 | 1088.64 | 1088.70 | 15.26 | - | 10.21 | 0.00 | 10.27 | 1078.43 | 260/113 |
| | | 10-Nov-15 | 1088.64 | 1088.70 | 15.41 | - | 10.23 | 0.00 | 10.29 | 1078.41 | 80/85 |
| | | 2-Sep-15 | 1088.64 | 1088.70 | 15.19 | - | 10.25 | 0.00 | 10.30 | 1078.39 | 0/23 |
| | | 9-Jun-15 | 1088.64 | 1088.70 | 15.54 | - | 10.30 | 0.00 | 10.35 | 1078.35 | 25/6 |
| | | 2-Apr-15 | 1088.64 | 1088.70 | 15.83 | - | 10.18 | 0.00 | 10.23 | 1078.46 | 165/8 |
| BH1924 | 3 | 6-May-20 | 1093.31 | 1093.39 | 17.67 | - | 14.28 | 0.00 | 14.36 | 1079.03 | >11,100/280 |
| | | 14-Nov-19 | 1093.31 | 1093.39 | 17.82 | - | 14.31 | 0.00 | 14.39 | 1079.00 | 3,000/250 |
| | | 8-May-19 | 1093.31 | 1093.39 | 17.95 | - | 14.53 | 0.00 | 14.61 | 1078.78 | 3,500/326 |
| | | 9-Oct-18 | 1093.31 | 1093.39 | 17.95 | - | 14.57 | 0.00 | 14.65 | 1078.74 | 3,800/384 |
| | | 20-Mar-18 | 1093.31 | 1093.39 | 18.40 | - | 14.30 | 0.00 | 14.38 | 1079.01 | 6,700/1,200 |
| | | 5-Sep-17 | 1093.31 | 1093.39 | 18.15 | - | 14.47 | 0.00 | 14.54 | 1078.85 | >11,100/1,074 |
| | | 1-May-17 | 1093.31 | 1093.39 | 18.41 | - | 14.30 | 0.00 | 14.38 | 1079.01 | >11,100/>2,000 |
| | | 21-Feb-17 | 1093.31 | 1093.39 | 18.48 | - | 14.30 | 0.00 | 14.37 | 1079.02 | 8,200/520 |
| | | 31-Oct-16 | 1093.31 | 1093.39 | 19.18 | - | 14.17 | 0.00 | 14.25 | 1079.15 | 4,100/1,414 |
| | | 17-Aug-16 | 1093.31 | 1093.39 | 19.21 | - | 14.31 | 0.00 | 14.39 | 1079.01 | >11,100/>2,000 |
| | | 4-May-16 | 1093.31 | 1093.39 | 18.36 | - | 14.28 | 0.00 | 14.36 | 1079.04 | >11,100/848 |
| | | 17-Feb-16 | 1093.31 | 1093.39 | 18.39 | - | 14.21 | 0.00 | 14.29 | 1079.10 | 6,800/850 |
| | | 9-Nov-15 | 1093.31 | 1093.39 | 18.62 | - | 14.30 | 0.00 | 14.38 | 1079.02 | 8,350/1,305 |
| | | 1-Sep-15 | 1093.31 | 1093.39 | 18.86 | - | 14.22 | 0.00 | 14.30 | 1079.09 | >11,100/1,130 |
| | | 9-Jun-15 | 1093.31 | 1093.39 | 17.65 | - | 14.31 | 0.00 | 14.39 | 1079.01 | 2,950/508 |
| | | 6-May-15 | 1093.31 | 1093.39 | 17.60 | - | 14.30 | 0.00 | 14.38 | 1079.01 | 2,760/830 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1925 | 3 | 6-May-20 | 1091.15 | 1091.24 | 18.71 | - | 13.64 | 0.00 | 13.74 | 1077.51 | 0/0 |
| | | 14-Nov-19 | 1091.15 | 1091.24 | 18.73 | - | 13.70 | 0.00 | 13.80 | 1077.45 | 0/0 |
| | | 25-Apr-19 | 1091.15 | 1091.24 | 18.88 | - | 13.83 | 0.00 | 13.93 | 1077.32 | 0/0 |
| | | 5-Oct-18 | 1091.15 | 1091.24 | 18.88 | - | 13.84 | 0.00 | 13.93 | 1077.31 | 0/0 |
| | | 22-Mar-18 | 1091.15 | 1091.24 | 19.07 | - | 13.82 | 0.00 | 13.91 | 1077.33 | 0/0 |
| | | 5-Sep-17 | 1091.15 | 1091.24 | 18.85 | - | 13.82 | 0.00 | 13.91 | 1077.33 | 15/0 |
| | | 2-May-17 | 1091.15 | 1091.24 | 18.87 | - | 13.76 | 0.00 | 13.85 | 1077.39 | 0/1 |
| | | 27-Feb-17 | 1091.15 | 1091.24 | 18.86 | - | 13.76 | 0.00 | 13.85 | 1077.39 | 25/5 |
| | | 31-Oct-16 | 1091.15 | 1091.24 | 18.90 | - | 13.73 | 0.00 | 13.83 | 1077.42 | 150/79 |
| | | 16-Aug-16 | 1091.15 | 1091.24 | 18.89 | - | 13.77 | 0.00 | 13.87 | 1077.38 | 145/20 |
| | | 5-May-16 | 1091.15 | 1091.24 | 18.93 | - | 13.82 | 0.00 | 13.91 | 1077.33 | 185/145 |
| | | 18-Feb-16 | 1091.15 | 1091.24 | 18.94 | - | 13.64 | 0.00 | 13.73 | 1077.51 | 160/110 |
| | | 10-Nov-15 | 1091.15 | 1091.24 | 19.08 | - | 13.73 | 0.00 | 13.83 | 1077.42 | 520/329 |
| | | 2-Sep-15 | 1091.15 | 1091.24 | 19.37 | - | 13.73 | 0.00 | 13.82 | 1077.42 | 130/105 |
| | | 9-Jun-15 | 1091.15 | 1091.24 | 17.40 | - | 13.79 | 0.00 | 13.88 | 1077.36 | 180/119 |
| | | 6-May-15 | 1091.15 | 1091.24 | 17.41 | - | 13.75 | 0.00 | 13.84 | 1077.40 | 185/73 |
| BH1926* | 2,3,4 | Well decommissioned on 14 April 2016. | | | | | | | | | |
| | | 14-Apr-16 | - | - | - | - | - | 0.00 | - | - | |
| | | 17-Feb-16 | 1091.01 | 1091.13 | 14.49 | - | 10.22 | 0.00 | 10.34 | 1080.78 | 0/2 |
| | | 9-Nov-15 | 1091.01 | 1091.13 | - | - | 10.32 | 0.00 | 10.44 | 1080.68 | 25/1 |
| | | 1-Sep-15 | 1091.01 | 1091.13 | - | - | 10.46 | 0.00 | 10.58 | 1080.55 | 0/1 |
| | | 9-Jun-15 | 1091.01 | 1091.13 | 15.80 | - | 10.60 | 0.00 | 10.72 | 1080.41 | 25/2 |
| | | 29-Apr-15 | 1091.01 | 1091.13 | 16.53 | - | 10.08 | 0.00 | 10.20 | 1080.92 | 0/1 |
| | | 31-Mar-15 | 1091.01 | 1091.13 | - | - | 9.97 | 0.00 | 10.09 | 1081.04 | 60/1 |
| BH1927 | 3 | 6-May-20 | 1090.31 | 1090.45 | 21.48 | - | 12.47 | 0.00 | 12.92 | 1077.84 | 0/0 |
| | | 13-Nov-19 | 1090.31 | 1090.45 | 21.52 | - | 12.59 | 0.00 | 12.92 | 1077.72 | 0/1 |
| | | 3-May-19 | 1090.31 | 1090.45 | 21.54 | - | 12.63 | 0.00 | 12.92 | 1077.69 | 0/1 |
| | | 4-Oct-18 | 1090.31 | 1090.45 | 21.54 | - | 12.90 | 0.00 | 12.92 | 1077.41 | 0/1 |
| | | 21-Mar-18 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 6-Sep-17 | 1090.31 | 1090.45 | 21.52 | - | 12.79 | 0.00 | 12.92 | 1077.52 | 0/1 |
| | | 1-May-17 | 1090.31 | 1090.45 | 21.52 | - | 12.62 | 0.00 | 12.75 | 1077.69 | 0/1 |
| | | 17-Feb-17 | 1090.31 | 1090.45 | 21.56 | - | 12.50 | 0.00 | 12.63 | 1077.81 | 40/2 |
| | | 27-Oct-16 | 1090.31 | 1090.45 | 21.51 | - | 12.73 | 0.00 | 12.87 | 1077.58 | 30/1 |
| | | 18-Aug-16 | 1090.31 | 1090.45 | 21.52 | - | 12.65 | 0.00 | 12.79 | 1077.66 | 0/1 |
| | | 4-May-16 | 1090.31 | 1090.45 | 21.15 | - | 12.57 | 0.00 | 12.71 | 1077.74 | 0/1 |
| | | 17-Feb-16 | 1090.31 | 1090.45 | 21.17 | - | 12.50 | 0.00 | 12.64 | 1077.81 | 580/5 |
| | | 9-Nov-15 | 1090.31 | 1090.45 | 21.46 | - | 12.60 | 0.00 | 12.74 | 1077.71 | 180/67 |
| | | 1-Sep-15 | 1090.31 | 1090.45 | 21.49 | - | 12.52 | 0.00 | 12.66 | 1077.79 | 300/97 |
| | | 9-Jun-15 | 1090.31 | 1090.45 | 21.77 | - | 12.68 | 0.00 | 12.81 | 1077.63 | 30/27 |
| | | 30-Apr-15 | 1090.31 | 1090.45 | 22.35 | - | 12.57 | 0.00 | 12.70 | 1077.74 | 270/71 |
| BH1928 | 3,4 | 4-May-20 | 1083.60 | 1083.72 | 16.14 | - | 7.97 | 0.00 | 8.08 | 1075.64 | 0/1 |
| | | 13-Nov-19 | 1083.60 | 1083.72 | 16.14 | - | 8.56 | 0.00 | 8.67 | 1075.05 | 0/1 |
| | | 25-Apr-19 | 1083.60 | 1083.72 | 16.28 | - | 8.73 | 0.00 | 8.84 | 1074.88 | 0/1 |
| | | 4-Oct-18 | 1083.60 | 1083.72 | 16.28 | - | 8.77 | 0.00 | 8.88 | 1074.83 | 0/0 |
| | | 21-Mar-18 | 1083.60 | 1083.72 | 16.51 | - | 8.68 | 0.00 | 8.80 | 1074.92 | 55/0 |
| | | 6-Sep-17 | 1083.60 | 1083.72 | 16.37 | - | 8.78 | 0.00 | 8.90 | 1074.82 | 1,000/314 |
| | | 3-May-17 | 1083.60 | 1083.72 | 16.51 | - | 8.55 | 0.00 | 8.66 | 1075.06 | 140/80 |
| | | 17-Feb-17 | 1083.60 | 1083.72 | 16.53 | - | 8.65 | 0.00 | 8.76 | 1074.96 | 15/2 |
| | | 27-Oct-16 | 1083.60 | 1083.72 | 16.74 | - | 8.52 | 0.00 | 8.64 | 1075.08 | 6,200/520 |
| | | 17-Aug-16 | 1083.60 | 1083.72 | 16.77 | - | 8.52 | 0.00 | 8.64 | 1075.08 | 860/300 |
| | | 3-May-16 | 1083.60 | 1083.72 | 15.14 | - | 8.65 | 0.00 | 8.77 | 1074.95 | 730/212 |
| | | 17-Feb-16 | 1083.60 | 1083.72 | 15.17 | - | 8.61 | 0.00 | 8.72 | 1074.99 | 0/1 |
| | | 9-Nov-15 | 1083.60 | 1083.72 | 15.30 | - | 8.69 | 0.00 | 8.80 | 1074.92 | 260/146 |
| | | 1-Sep-15 | 1083.60 | 1083.72 | 16.69 | - | 8.63 | 0.00 | 8.75 | 1074.97 | 630/235 |
| | | 9-Jun-15 | 1083.60 | 1083.72 | 14.53 | - | 8.70 | 0.00 | 8.82 | 1074.90 | 500/200 |
| | | 4-May-15 | 1083.60 | 1083.72 | 14.57 | - | 8.68 | 0.00 | 8.79 | 1074.93 | 230/52 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1929 | 3 | 4-May-20 | 1082.55 | 1082.67 | 14.56 | - | 7.36 | 0.00 | 7.47 | 1075.20 | 0/0 |
| | | 13-Nov-19 | 1082.55 | 1082.67 | 13.21 | - | 7.62 | 0.00 | 7.74 | 1074.93 | 0/0 |
| | | 25-Apr-19 | 1082.55 | 1082.67 | 13.33 | - | 7.78 | 0.00 | 7.89 | 1074.78 | 0/0 |
| | | 15-Oct-18 | 1082.55 | 1082.67 | 13.33 | - | 7.81 | 0.00 | 7.93 | 1074.74 | 0/0 |
| | | 21-Mar-18 | 1082.55 | 1082.67 | 14.89 | - | 7.75 | 0.00 | 7.87 | 1074.80 | 15/0 |
| | | 6-Sep-17 | 1082.55 | 1082.67 | 14.88 | - | 7.90 | 0.00 | 8.02 | 1074.65 | 0/1 |
| | | 3-May-17 | 1082.55 | 1082.67 | 14.89 | - | 7.68 | 0.00 | 7.79 | 1074.88 | 25/1 |
| | | 22-Feb-17 | 1082.55 | 1082.67 | 14.92 | - | 7.82 | 0.00 | 7.94 | 1074.73 | 60/0 |
| | | 27-Oct-16 | 1082.55 | 1082.67 | 14.90 | - | 7.66 | 0.00 | 7.77 | 1074.90 | 65/0 |
| | | 17-Aug-16 | 1082.55 | 1082.67 | 14.99 | - | 7.66 | 0.00 | 7.78 | 1074.89 | 10/0 |
| | | 3-May-16 | 1082.55 | 1082.67 | 14.93 | - | 7.74 | 0.00 | 7.86 | 1074.81 | 5/0 |
| | | 17-Feb-16 | 1082.55 | 1082.67 | 14.91 | - | 7.73 | 0.00 | 7.85 | 1074.83 | 0/0 |
| | | 9-Nov-15 | 1082.55 | 1082.67 | 14.88 | - | 7.80 | 0.00 | 7.92 | 1074.75 | 5/2 |
| | | 1-Sep-15 | 1082.55 | 1082.67 | 14.88 | - | 7.75 | 0.00 | 7.87 | 1074.80 | 0/2 |
| | | 9-Jun-15 | 1082.55 | 1082.67 | 14.11 | - | 7.77 | 0.00 | 7.89 | 1074.78 | 0/1 |
| | | 1-May-15 | 1082.55 | 1082.67 | 14.31 | - | 7.72 | 0.00 | 7.84 | 1074.84 | 0/0 |
| BH1930 | 2,3 | 6-May-20 | 1088.51 | 1088.73 | 17.40 | - | 11.17 | 0.00 | 11.39 | 1077.34 | 0/0 |
| | | 13-Nov-19 | 1088.51 | 1088.73 | 17.69 | - | 11.20 | 0.00 | 11.42 | 1077.31 | 0/0 |
| | | 3-May-19 | 1088.51 | 1088.73 | 17.61 | - | 11.27 | 0.00 | 11.49 | 1077.24 | 0/0 |
| | | 5-Oct-18 | 1088.51 | 1088.73 | 17.61 | - | 11.47 | 0.00 | 11.68 | 1077.05 | 0/0 |
| | | 19-Mar-18 | 1088.51 | 1088.73 | 17.61 | - | 11.44 | 0.00 | 11.66 | 1077.07 | 0/0 |
| | | 6-Sep-17 | 1088.51 | 1088.73 | 17.51 | - | 11.95 | 0.00 | 12.16 | 1076.57 | 0/3 |
| | | 1-May-17 | 1088.51 | 1088.73 | 17.50 | - | 11.82 | 0.00 | 12.04 | 1076.69 | 0/2 |
| | | 17-Feb-17 | 1088.51 | 1088.73 | 17.51 | - | 11.44 | 0.00 | 11.66 | 1077.07 | 60/2 |
| | | 27-Oct-16 | 1088.51 | 1088.73 | 17.49 | - | 11.32 | 0.00 | 11.54 | 1077.19 | 55/3 |
| | | 17-Aug-16 | 1088.51 | 1088.73 | 17.47 | - | 11.29 | 0.00 | 11.51 | 1077.22 | 0/1 |
| | | 5-May-16 | 1088.51 | 1088.73 | 17.54 | - | 11.57 | 0.00 | 11.79 | 1076.94 | 0/2 |
| | | 17-Feb-16 | 1088.51 | 1088.73 | 17.54 | - | 11.66 | 0.00 | 11.88 | 1076.85 | 0/3 |
| | | 9-Nov-15 | 1088.51 | 1088.73 | 17.67 | - | 11.64 | 0.00 | 11.85 | 1076.88 | 0/2 |
| | | 1-Sep-15 | 1088.51 | 1088.73 | 17.66 | - | 11.41 | 0.00 | 11.63 | 1077.10 | 0/4 |
| | | 9-Jun-15 | 1088.51 | 1088.73 | 17.70 | - | 11.68 | 0.00 | 11.90 | 1076.83 | 0/2 |
| | | 30-Apr-15 | 1088.51 | 1088.73 | 18.31 | - | 11.55 | 0.00 | 11.77 | 1076.96 | 0/2 |
| | | 6-Apr-15 | 1088.51 | 1088.73 | 17.08 | - | 11.86 | 0.00 | 12.07 | 1076.66 | 0/8 |
| BH1931 | 2 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1088.64 | 1088.74 | 7.39 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 25-Apr-19 | 1088.64 | 1088.74 | 7.39 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Oct-18 | 1088.64 | 1088.74 | 7.39 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 22-Mar-18 | 1088.64 | 1088.74 | 7.38 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Sep-17 | 1088.64 | 1088.74 | 7.38 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 2-May-17 | 1088.64 | 1088.74 | 7.36 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 23-Feb-17 | 1088.64 | 1088.74 | 7.38 | - | - | 0.00 | - | - | 35/0 (DRY) |
| | | 31-Oct-16 | 1088.64 | 1088.74 | 7.36 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 16-Aug-16 | 1088.64 | 1088.74 | 7.36 | - | - | 0.00 | - | - | 15/1 (DRY) |
| | | 5-May-16 | 1088.64 | 1088.74 | 7.39 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 17-Feb-16 | 1088.64 | 1088.74 | 7.36 | - | - | 0.00 | - | - | 5/2 (DRY) |
| | | 10-Nov-15 | 1088.64 | 1088.74 | 7.35 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 2-Sep-15 | 1088.64 | 1088.74 | 7.36 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1088.64 | 1088.74 | 7.41 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 30-Mar-15 | 1088.64 | 1088.74 | 7.35 | - | - | 0.00 | - | - | 0/0 (DRY) |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1932 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1088.61 | 1088.69 | 4.20 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 25-Apr-19 | 1088.61 | 1088.69 | 4.20 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Oct-18 | 1088.61 | 1088.69 | 4.20 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 22-Mar-18 | 1088.61 | 1088.69 | 4.20 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Sep-17 | 1088.61 | 1088.69 | 4.21 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 2-May-17 | 1088.61 | 1088.69 | 4.17 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 23-Feb-17 | 1088.61 | 1088.69 | 4.21 | - | - | 0.00 | - | - | 65/3 (DRY) |
| | | 31-Oct-16 | 1088.61 | 1088.69 | 4.17 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 16-Aug-16 | 1088.61 | 1088.69 | 4.16 | - | - | 0.00 | - | - | 5/0 (DRY) |
| | | 5-May-16 | 1088.61 | 1088.69 | 4.19 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 17-Feb-16 | 1088.61 | 1088.69 | 4.18 | - | - | 0.00 | - | - | 45/0 (DRY) |
| | | 10-Nov-15 | 1088.61 | 1088.69 | 4.18 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 2-Sep-15 | 1088.61 | 1088.69 | 4.16 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1088.61 | 1088.69 | 4.21 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 30-Mar-15 | 1088.61 | 1088.69 | 4.18 | - | - | 0.00 | - | - | 0/0 (DRY) |
| BH1933 | 3 | 7-May-20 | 1090.41 | 1090.53 | 17.17 | - | 11.18 | 0.00 | 11.30 | 1079.23 | 110/7 |
| | | 26-Nov-19 | 1090.41 | 1090.53 | 17.25 | - | 11.17 | 0.00 | 11.30 | 1079.24 | 30/16 |
| | | 2-May-19 | 1090.41 | 1090.53 | 17.23 | - | 11.25 | 0.00 | 11.37 | 1079.16 | 30/16 |
| | | 11-Oct-18 | 1090.41 | 1090.53 | 17.23 | - | 11.30 | 0.00 | 11.42 | 1079.11 | 5/49 |
| | | 23-Mar-18 | 1090.41 | 1090.53 | 17.23 | - | 11.33 | 0.00 | 11.46 | 1079.08 | 120/107 |
| | | 7-Sep-17 | 1090.41 | 1090.53 | 17.23 | - | 11.23 | 0.00 | 11.35 | 1079.18 | 380/376 |
| | | 26-Apr-17 | 1090.41 | 1090.53 | 17.22 | - | 11.15 | 0.00 | 11.28 | 1079.26 | 120/107 |
| | | 27-Feb-17 | 1090.41 | 1090.53 | 17.22 | - | 11.16 | 0.00 | 11.28 | 1079.25 | 400/250 |
| | | 31-Oct-16 | 1090.41 | 1090.53 | 17.19 | - | 11.10 | 0.00 | 11.22 | 1079.31 | 250/277 |
| | | 17-Aug-16 | 1090.41 | 1090.53 | 17.22 | - | 11.25 | 0.00 | 11.37 | 1079.16 | 0/5 |
| | | 4-May-16 | 1090.41 | 1090.53 | 17.23 | - | 11.19 | 0.00 | 11.31 | 1079.22 | 1,750/842 |
| | | 16-Feb-16 | 1090.41 | 1090.53 | 17.30 | - | 11.12 | 0.00 | 11.24 | 1079.29 | 1,100/755 |
| | | 9-Nov-15 | 1090.41 | 1090.53 | 17.45 | - | 11.19 | 0.00 | 11.31 | 1079.22 | 15/52 |
| | | 1-Sep-15 | 1090.41 | 1090.53 | 17.22 | - | 11.18 | 0.00 | 11.30 | 1079.23 | 1,650/225 |
| | | 9-Jun-15 | 1090.41 | 1090.53 | 17.50 | - | 11.26 | 0.00 | 11.38 | 1079.15 | 0/14 |
| | | 6-Mar-15 | 1090.41 | 1090.53 | 17.31 | - | 11.13 | 0.00 | 11.26 | 1079.28 | 135/121 |
| BH1934 | 2 | 7-May-20 | 1090.47 | 1090.55 | 8.39 | - | 5.99 | 0.00 | 6.07 | 1084.48 | 0/0 |
| | | 26-Nov-19 | 1090.47 | 1090.55 | 8.40 | - | 5.86 | 0.00 | 5.94 | 1084.61 | 0/0 |
| | | 2-May-19 | 1090.47 | 1090.55 | 8.44 | - | 6.35 | 0.00 | 6.43 | 1084.13 | 0/0 |
| | | 11-Oct-18 | 1090.47 | 1090.55 | 8.44 | - | 5.95 | 0.00 | 6.03 | 1084.52 | 0/0 |
| | | 23-Mar-18 | 1090.47 | 1090.55 | 8.44 | - | 6.72 | 0.00 | 6.80 | 1083.75 | 20/1 |
| | | 7-Sep-17 | 1090.47 | 1090.55 | 8.44 | - | 6.62 | 0.00 | 6.70 | 1083.85 | 0/1 |
| | | 26-Apr-17 | 1090.47 | 1090.55 | 8.43 | - | 6.55 | 0.00 | 6.63 | 1083.92 | 0/1 |
| | | 27-Feb-17 | 1090.47 | 1090.55 | 8.45 | - | 6.85 | 0.00 | 6.93 | 1083.62 | 0/3 |
| | | 31-Oct-16 | 1090.47 | 1090.55 | 8.42 | - | 6.37 | 0.00 | 6.45 | 1084.11 | 0/2 |
| | | 17-Aug-16 | 1090.47 | 1090.55 | 8.42 | - | 6.31 | 0.00 | 6.39 | 1084.16 | 0/1 |
| | | 4-May-16 | 1090.47 | 1090.55 | 8.45 | - | 6.74 | 0.00 | 6.82 | 1083.73 | 0/1 |
| | | 16-Feb-16 | 1090.47 | 1090.55 | 8.45 | - | 6.88 | 0.00 | 6.96 | 1083.60 | 0/1 |
| | | 9-Nov-15 | 1090.47 | 1090.55 | 8.48 | - | 6.11 | 0.00 | 6.19 | 1084.36 | 0/1 |
| | | 1-Sep-15 | 1090.47 | 1090.55 | 8.45 | - | 5.91 | 0.00 | 5.99 | 1084.56 | 15/1 |
| | | 9-Jun-15 | 1090.47 | 1090.55 | 8.51 | - | 6.25 | 0.00 | 6.33 | 1084.22 | 0/1 |
| | | 20-Feb-15 | 1090.47 | 1090.55 | 8.46 | - | 6.19 | 0.00 | 6.27 | 1084.28 | 0/2 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1935 | 1 | 7-May-20 | 1090.48 | 1090.60 | 5.13 | - | 4.55 | 0.00 | 4.67 | 1085.94 | 0/0 |
| | | 26-Nov-19 | 1090.48 | 1090.60 | 5.12 | - | 4.32 | 0.00 | 4.44 | 1086.17 | 0/0 |
| | | 2-May-19 | 1090.48 | 1090.60 | 5.13 | - | 4.79 | 0.00 | 4.91 | 1085.70 | 0/0 |
| | | 11-Oct-18 | 1090.48 | 1090.60 | 5.15 | - | 4.45 | 0.00 | 4.57 | 1086.03 | 0/0 |
| | | 23-Mar-18 | 1090.48 | 1090.60 | 5.16 | - | 4.65 | 0.00 | 4.77 | 1085.83 | 5/1 |
| | | 7-Sep-17 | 1090.48 | 1090.60 | 5.15 | - | 4.58 | 0.00 | 4.70 | 1085.90 | 40/1 |
| | | 26-Apr-17 | 1090.48 | 1090.60 | 5.17 | - | 4.71 | 0.00 | 4.83 | 1085.77 | 10/1 |
| | | 27-Feb-17 | 1090.48 | 1090.60 | 5.15 | - | 4.61 | 0.00 | 4.73 | 1085.87 | 0/2 |
| | | 31-Oct-16 | 1090.48 | 1090.60 | 5.13 | - | 4.35 | 0.00 | 4.47 | 1086.13 | 0/0 |
| | | 17-Aug-16 | 1090.48 | 1090.60 | 5.12 | - | 4.39 | 0.00 | 4.51 | 1086.09 | 0/0 |
| | | 4-May-16 | 1090.48 | 1090.60 | 5.10 | - | 4.77 | 0.00 | 4.89 | 1085.71 | 10/0 |
| | | 16-Feb-16 | 1090.48 | 1090.60 | 5.11 | - | 4.56 | 0.00 | 4.68 | 1085.92 | 0/4 |
| | | 9-Nov-15 | 1090.48 | 1090.60 | 5.15 | - | 4.43 | 0.00 | 4.55 | 1086.06 | 0/1 |
| | | 1-Sep-15 | 1090.48 | 1090.60 | 5.12 | - | 4.44 | 0.00 | 4.56 | 1086.04 | 0/1 |
| | | 9-Jun-15 | 1090.48 | 1090.60 | 5.16 | - | 4.74 | 0.00 | 4.86 | 1085.74 | 0/1 |
| | | 20-Feb-15 | 1090.48 | 1090.60 | 5.13 | - | 4.59 | 0.00 | 4.71 | 1085.90 | 0/0 |
| BH1936 | 3 | 4-May-20 | 1082.18 | 1082.26 | 10.79 | - | 7.50 | 0.00 | 7.58 | 1074.68 | 0/0 |
| | | 12-Nov-19 | 1082.18 | 1082.26 | 10.06 | - | 7.33 | 0.00 | 7.42 | 1074.85 | 0/0 |
| | | 25-Apr-19 | 1082.18 | 1082.26 | 14.68 | - | 7.58 | 0.00 | 7.66 | 1074.60 | 0/0 |
| | | 4-Oct-18 | 1082.18 | 1082.26 | 14.68 | - | 7.57 | 0.00 | 7.65 | 1074.61 | 0/0 |
| | | 21-Mar-18 | 1082.18 | 1082.26 | 14.88 | - | 7.56 | 0.00 | 7.65 | 1074.62 | 25/0 |
| | | 6-Sep-17 | 1082.18 | 1082.26 | 14.69 | - | 7.56 | 0.00 | 7.64 | 1074.62 | 5/0 |
| | | 3-May-17 | 1082.18 | 1082.26 | 14.68 | - | 7.50 | 0.00 | 7.59 | 1074.67 | 0/0 |
| | | 22-Feb-17 | 1082.18 | 1082.26 | 14.71 | - | 7.62 | 0.00 | 7.71 | 1074.56 | 0/0 |
| | | 27-Oct-16 | 1082.18 | 1082.26 | 14.67 | - | 7.46 | 0.00 | 7.55 | 1074.72 | 15/1 |
| | | 18-Aug-16 | 1082.18 | 1082.26 | 14.69 | - | 7.53 | 0.00 | 7.62 | 1074.65 | 0/0 |
| | | 3-May-16 | 1082.18 | 1082.26 | 14.70 | - | 7.57 | 0.00 | 7.66 | 1074.61 | 5/0 |
| | | 17-Feb-16 | 1082.18 | 1082.26 | 14.88 | - | 7.55 | 0.00 | 7.64 | 1074.62 | 0/1 |
| | | 10-Nov-15 | 1082.18 | 1082.26 | 14.89 | - | 7.59 | 0.00 | 7.67 | 1074.59 | 0/1 |
| | | 1-Sep-15 | 1082.18 | 1082.26 | 14.88 | - | 7.59 | 0.00 | 7.68 | 1074.59 | 0/3 |
| | | 9-Jun-15 | 1082.18 | 1082.26 | 13.68 | - | 7.60 | 0.00 | 7.69 | 1074.57 | 0/19 |
| | | 1-May-15 | 1082.18 | 1082.26 | 13.92 | - | 7.54 | 0.00 | 7.63 | 1074.64 | 0/1 |
| BH1937 | 4,5 | 4-May-20 | 1080.60 | 1080.75 | 10.64 | - | 6.01 | 0.00 | 6.16 | 1074.59 | 0/0 |
| | | 12-Nov-19 | 1080.60 | 1080.75 | 10.71 | - | 5.89 | 0.00 | 6.04 | 1074.71 | 0/0 |
| | | 25-Apr-19 | 1080.60 | 1080.75 | 11.66 | - | 6.25 | 0.00 | 6.40 | 1074.35 | 0/0 |
| | | 4-Oct-18 | 1080.60 | 1080.75 | 11.66 | - | 6.28 | 0.00 | 6.43 | 1074.32 | 0/0 |
| | | 21-Mar-18 | 1080.60 | 1080.75 | 11.75 | - | 6.28 | 0.00 | 6.43 | 1074.32 | 0/0 |
| | | 6-Sep-17 | 1080.60 | 1080.75 | 11.60 | - | 6.34 | 0.00 | 6.49 | 1074.26 | 5/0 |
| | | 3-May-17 | 1080.60 | 1080.75 | 11.63 | - | 6.32 | 0.00 | 6.47 | 1074.28 | 0/0 |
| | | 22-Feb-17 | 1080.60 | 1080.75 | 11.66 | - | 6.36 | 0.00 | 6.51 | 1074.24 | 0/1 |
| | | 27-Oct-16 | 1080.60 | 1080.75 | 11.75 | - | 6.31 | 0.00 | 6.46 | 1074.30 | 0/0 |
| | | 18-Aug-16 | 1080.60 | 1080.75 | 11.85 | - | 6.34 | 0.00 | 6.49 | 1074.27 | 0/1 |
| | | 3-May-16 | 1080.60 | 1080.75 | 11.50 | - | 6.41 | 0.00 | 6.56 | 1074.19 | 0/0 |
| | | 17-Feb-16 | 1080.60 | 1080.75 | 11.63 | - | 6.36 | 0.00 | 6.51 | 1074.24 | 0/1 |
| | | 10-Nov-15 | 1080.60 | 1080.75 | 11.67 | - | 6.34 | 0.00 | 6.50 | 1074.26 | 0/1 |
| | | 2-Sep-15 | 1080.60 | 1080.75 | 11.72 | - | 6.38 | 0.00 | 6.53 | 1074.22 | 0/1 |
| | | 9-Jun-15 | 1080.60 | 1080.75 | 11.73 | - | 6.40 | 0.00 | 6.55 | 1074.20 | 0/1 |
| | | 7-Apr-15 | 1080.60 | 1080.75 | 12.51 | - | 6.36 | 0.00 | 6.51 | 1074.25 | 130/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1938 | 2 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 12-Nov-19 | 1082.20 | 1082.30 | 5.10 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 25-Apr-19 | 1082.20 | 1082.30 | 5.10 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-Oct-18 | 1082.20 | 1082.30 | 5.10 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 21-Mar-18 | 1082.20 | 1082.30 | 5.10 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 6-Sep-17 | 1082.20 | 1082.30 | 5.11 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 3-May-17 | 1082.20 | 1082.30 | 5.09 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 3-May-17 | 1082.20 | 1082.30 | 5.10 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 22-Feb-17 | 1082.20 | 1082.30 | 5.11 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 27-Oct-16 | 1082.20 | 1082.30 | 5.09 | - | - | 0.00 | - | - | 60/1 (DRY) |
| | | 18-Aug-16 | 1082.20 | 1082.30 | 5.08 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 3-May-16 | 1082.20 | 1082.30 | 5.11 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 17-Feb-16 | 1082.20 | 1082.30 | 5.09 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 10-Nov-15 | 1082.20 | 1082.30 | 5.08 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-Sep-15 | 1082.20 | 1082.30 | 5.08 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1082.20 | 1082.30 | 5.08 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 8-Apr-15 | 1082.20 | 1082.30 | 5.07 | - | - | 0.00 | - | - | 0/0 (DRY) |
| BH1939 | 4 | 4-May-20 | 1080.66 | 1080.75 | 8.70 | - | 6.04 | 0.00 | 6.13 | 1074.62 | 0/1 |
| | | 12-Nov-19 | 1080.66 | 1080.75 | 8.70 | - | 5.88 | 0.00 | 5.98 | 1074.78 | 0/0 |
| | | 25-Apr-19 | 1080.66 | 1080.75 | 8.73 | - | 6.21 | 0.00 | 6.31 | 1074.45 | 0/0 |
| | | 4-Oct-18 | 1080.66 | 1080.75 | 8.73 | - | 6.24 | 0.00 | 6.33 | 1074.42 | 0/0 |
| | | 21-Mar-18 | 1080.66 | 1080.75 | 8.73 | - | 6.24 | 0.00 | 6.33 | 1074.42 | 0/10 |
| | | 6-Sep-17 | 1080.66 | 1080.75 | 8.73 | - | 6.25 | 0.00 | 6.35 | 1074.41 | 25/18 |
| | | 3-May-17 | 1080.66 | 1080.75 | 8.73 | - | 6.26 | 0.00 | 6.35 | 1074.40 | 250/10 |
| | | 22-Feb-17 | 1080.66 | 1080.75 | 8.70 | - | 6.31 | 0.00 | 6.40 | 1074.35 | 50/38 |
| | | 27-Oct-16 | 1080.66 | 1080.75 | 8.75 | - | 6.52 | 0.00 | 6.61 | 1074.14 | 115/91 |
| | | 18-Aug-16 | 1080.66 | 1080.75 | 8.70 | - | 6.36 | 0.00 | 6.45 | 1074.30 | 200/150 |
| | | 3-May-16 | 1080.66 | 1080.75 | 8.71 | - | 6.39 | 0.00 | 6.48 | 1074.27 | 210/89 |
| | | 17-Feb-16 | 1080.66 | 1080.75 | 8.70 | - | 6.59 | 0.00 | 6.68 | 1074.07 | 165/104 |
| | | 10-Nov-15 | 1080.66 | 1080.75 | 8.73 | - | 6.44 | 0.00 | 6.54 | 1074.22 | 280/136 |
| | | 2-Sep-15 | 1080.66 | 1080.75 | 8.70 | - | 6.41 | 0.00 | 6.50 | 1074.25 | 180/127 |
| | | 9-Jun-15 | 1080.66 | 1080.75 | 8.70 | - | 6.35 | 0.00 | 6.45 | 1074.31 | 230/230 |
| | | 7-Apr-15 | 1080.66 | 1080.75 | 8.69 | - | 6.30 | 0.00 | 6.39 | 1074.36 | 830/110 |
| | | 31-Mar-15 | 1080.66 | 1080.75 | 8.65 | - | 6.38 | 0.00 | 6.47 | 1074.28 | 450/180 |
| BH1940* | 3 | Decommissioned on 13 April 2016. | | | | | | | | | |
| | | 13-Apr-16 | - | - | - | - | - | 0.00 | - | - | |
| | | 16-Feb-16 | 1090.45 | 1090.58 | 16.08 | - | 10.19 | 0.00 | 10.32 | 1080.26 | 20/8 |
| | | 9-Nov-15 | 1090.45 | 1090.58 | - | - | 10.28 | 0.00 | 10.41 | 1080.17 | 70/7 |
| | | 1-Sep-15 | 1090.45 | 1090.58 | - | - | 10.20 | 0.00 | 10.33 | 1080.25 | 580/15 |
| | | 9-Jun-15 | 1090.45 | 1090.58 | 16.08 | - | 10.30 | 0.00 | 10.43 | 1080.15 | 720/12 |
| | | 24-Feb-15 | 1090.45 | 1090.58 | 16.08 | - | 10.15 | 0.00 | 10.27 | 1080.30 | 2,700/23 |
| BH1941 | 4,5 | 6-May-20 | 1073.80 | 1073.95 | 10.61 | - | 1.91 | 0.00 | 2.05 | 1071.89 | 0/0 |
| | | 12-Nov-19 | 1073.80 | 1073.95 | 10.64 | - | 1.91 | 0.00 | 2.06 | 1071.89 | 0/0 |
| | | 25-Apr-19 | 1073.80 | 1073.95 | 10.71 | - | 2.02 | 0.00 | 2.16 | 1071.78 | 0/0 |
| | | 3-Oct-18 | 1073.80 | 1073.95 | 10.71 | - | 2.02 | 0.00 | 2.16 | 1071.78 | 0/0 |
| | | 21-Mar-18 | 1073.80 | 1073.95 | 10.77 | - | 2.15 | 0.00 | 2.29 | 1071.65 | 0/1 |
| | | 7-Sep-17 | 1073.80 | 1073.95 | 10.73 | - | 2.21 | 0.00 | 2.36 | 1071.59 | 15/2 |
| | | 3-May-17 | 1073.80 | 1073.95 | 10.78 | - | 2.23 | 0.00 | 2.38 | 1071.57 | 0/1 |
| | | 21-Feb-17 | 1073.80 | 1073.95 | 10.80 | - | 2.24 | 0.00 | 2.39 | 1071.56 | 10/3 |
| | | 28-Oct-16 | 1073.80 | 1073.95 | 10.82 | - | 2.15 | 0.00 | 2.30 | 1071.65 | 0/1 |
| | | 18-Aug-16 | 1073.80 | 1073.95 | 10.75 | - | 2.19 | 0.00 | 2.34 | 1071.61 | 15/1 |
| | | 3-May-16 | 1073.80 | 1073.95 | 10.17 | - | 2.31 | 0.00 | 2.46 | 1071.49 | 25/0 |
| | | 17-Feb-16 | 1073.80 | 1073.95 | 10.19 | - | 2.29 | 0.00 | 2.43 | 1071.51 | 0/1 |
| | | 10-Nov-15 | 1073.80 | 1073.95 | 10.16 | - | 2.24 | 0.00 | 2.38 | 1071.56 | 5/0 |
| | | 2-Sep-15 | 1073.80 | 1073.95 | 10.37 | - | 2.04 | 0.00 | 2.19 | 1071.76 | 0/3 |
| | | 9-Jun-15 | 1073.80 | 1073.95 | 10.35 | - | 2.20 | 0.00 | 2.35 | 1071.60 | 0/1 |
| | | 10-Apr-15 | 1073.80 | 1073.95 | 11.15 | - | 2.35 | 0.00 | 2.49 | 1071.45 | 90/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1942 | 5 | 6-May-20 | 1068.37 | 1068.54 | 8.30 | - | 1.45 | 0.00 | 1.63 | 1066.91 | 0/0 |
| | | 12-Nov-19 | 1068.37 | 1068.54 | 8.31 | - | 1.38 | 0.00 | 1.55 | 1066.99 | 0/0 |
| | | 25-Apr-19 | 1068.37 | 1068.54 | 8.33 | - | 1.66 | 0.00 | 1.84 | 1066.70 | 0/0 |
| | | 3-Oct-18 | 1068.37 | 1068.54 | 8.33 | - | 1.28 | 0.00 | 1.45 | 1067.09 | 0/0 |
| | | 21-Mar-18 | 1068.37 | 1068.54 | 8.31 | - | 1.44 | 0.00 | 1.62 | 1066.92 | 0/0 |
| | | 7-Sep-17 | 1068.37 | 1068.54 | 8.34 | - | 1.50 | 0.00 | 1.68 | 1066.87 | 10/2 |
| | | 3-May-17 | 1068.37 | 1068.54 | 8.34 | - | 1.54 | 0.00 | 1.72 | 1066.83 | 5/0 |
| | | 21-Feb-17 | 1068.37 | 1068.54 | 8.34 | - | 1.63 | 0.00 | 1.81 | 1066.74 | 0/4 |
| | | 28-Oct-16 | 1068.37 | 1068.54 | 8.32 | - | 1.36 | 0.00 | 1.54 | 1067.01 | 0/1 |
| | | 18-Aug-16 | 1068.37 | 1068.54 | 8.31 | - | 1.40 | 0.00 | 1.57 | 1066.97 | 20/0 |
| | | 11-May-16 | 1068.37 | 1068.54 | 8.31 | - | 1.60 | 0.00 | 1.78 | 1066.77 | 5/0 |
| | | 17-Feb-16 | 1068.37 | 1068.54 | 8.31 | - | 1.65 | 0.00 | 1.82 | 1066.72 | 0/1 |
| | | 10-Nov-15 | 1068.37 | 1068.54 | 8.31 | - | 1.52 | 0.00 | 1.70 | 1066.85 | 10/1 |
| | | 2-Sep-15 | 1068.37 | 1068.54 | 8.33 | - | 1.74 | 0.00 | 1.92 | 1066.63 | 0/1 |
| | | 9-Jun-15 | 1068.37 | 1068.54 | 8.34 | - | 1.35 | 0.00 | 1.53 | 1067.01 | 70/1 |
| | | 30-Mar-15 | 1068.37 | 1068.54 | 8.50 | - | 1.30 | 0.00 | 1.48 | 1067.07 | 7,850 Hex |
| BH1943 | 4,5 | 22-Mar-18 | Well damaged and no longer serviceable. | | | | | | | | |
| | | 6-Sep-17 | 1078.72 | 1078.91 | 13.26 | - | 6.32 | 0.00 | 6.51 | 1072.40 | 30/0 |
| | | 2-May-17 | 1078.72 | 1078.91 | 13.29 | - | 6.04 | 0.00 | 6.23 | 1072.68 | 20/32 |
| | | 23-Feb-17 | 1078.72 | 1078.91 | 13.28 | - | 6.21 | 0.00 | 6.40 | 1072.52 | 30/2 |
| | | 31-Oct-16 | 1078.72 | 1078.91 | 13.28 | - | 6.13 | 0.00 | 6.32 | 1072.59 | 0/1 |
| | | 19-Aug-16 | 1078.72 | 1078.91 | 13.28 | - | 6.07 | 0.00 | 6.26 | 1072.65 | 0/0 |
| | | 3-May-16 | 1078.72 | 1078.91 | 13.30 | - | 6.27 | 0.00 | 6.46 | 1072.46 | 10/3 |
| | | 17-Feb-16 | 1078.72 | 1078.91 | 13.30 | - | 6.22 | 0.00 | 6.41 | 1072.51 | 270/1 |
| | | 13-Nov-15 | 1078.72 | 1078.91 | 13.36 | - | 6.20 | 0.00 | 6.39 | 1072.53 | 0/1 |
| | | 2-Sep-15 | 1078.72 | 1078.91 | 13.37 | - | 6.21 | 0.00 | 6.40 | 1072.51 | 0/1 |
| | | 9-Jun-15 | 1078.72 | 1078.91 | 13.46 | - | 6.31 | 0.00 | 6.50 | 1072.42 | 0/2 |
| | | 9-Jun-15 | 1078.72 | 1078.91 | 13.46 | - | 6.31 | 0.00 | 6.50 | 1072.42 | 0/2 |
| | | 13-Apr-15 | 1078.72 | 1078.91 | 13.06 | - | 6.22 | 0.00 | 6.41 | 1072.51 | 70/1 |
| BH1944 | 3 | 6-May-20 | 1077.12 | 1077.33 | 7.23 | - | 5.32 | 0.00 | 5.53 | 1071.80 | 0/1 |
| | | 12-Nov-19 | 1077.12 | 1077.33 | 7.31 | - | 5.62 | 0.00 | 5.83 | 1071.50 | 0/1 |
| | | 25-Apr-19 | 1077.12 | 1077.33 | 7.34 | - | 5.71 | 0.00 | 5.92 | 1071.42 | 0/1 |
| | | 3-Oct-18 | 1077.12 | 1077.33 | 7.34 | - | 5.78 | 0.00 | 5.99 | 1071.35 | 0/1 |
| | | 22-Mar-18 | 1077.12 | 1077.33 | 7.35 | - | 5.71 | 0.00 | 5.92 | 1071.42 | 0/2 |
| | | 6-Sep-17 | 1077.12 | 1077.33 | 7.33 | - | 5.80 | 0.00 | 6.02 | 1071.32 | 60/0 |
| | | 2-May-17 | 1077.12 | 1077.33 | 7.34 | - | 5.51 | 0.00 | 5.72 | 1071.61 | 0/1 |
| | | 23-Feb-17 | 1077.12 | 1077.33 | 7.34 | - | 5.82 | 0.00 | 6.04 | 1071.30 | 0/4 |
| | | 31-Oct-16 | 1077.12 | 1077.33 | 7.35 | - | 5.54 | 0.00 | 5.75 | 1071.59 | 0/1 |
| | | 18-Aug-16 | 1077.12 | 1077.33 | 7.35 | - | 5.47 | 0.00 | 5.68 | 1071.65 | 0/0 |
| | | 3-May-16 | 1077.12 | 1077.33 | 7.43 | - | 6.02 | 0.00 | 6.23 | 1071.10 | 0/0 |
| | | 17-Feb-16 | 1077.12 | 1077.33 | 7.35 | - | 6.25 | 0.00 | 6.46 | 1070.88 | 0/0 |
| | | 10-Nov-15 | 1077.12 | 1077.33 | 7.38 | - | 5.69 | 0.00 | 5.90 | 1071.43 | 10/1 |
| | | 2-Sep-15 | 1077.12 | 1077.33 | 7.40 | - | 5.99 | 0.00 | 6.20 | 1071.13 | 0/2 |
| | | 9-Jun-15 | 1077.12 | 1077.33 | 7.56 | - | 6.23 | 0.00 | 6.44 | 1070.89 | 0/2 |
| | | 10-Apr-15 | 1077.12 | 1077.33 | 7.47 | - | 5.92 | 0.00 | 6.13 | 1071.21 | 10/0 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1945 | 5 | 5-May-20 | 1069.27 | 1069.36 | 5.40 | - | 2.46 | 0.00 | 2.55 | 1066.81 | 0/0 |
| | | 12-Nov-19 | 1069.27 | 1069.36 | 5.60 | - | 2.74 | 0.00 | 2.83 | 1066.52 | 0/0 |
| | | 24-Apr-19 | 1069.27 | 1069.36 | 5.95 | - | 2.84 | 0.00 | 2.93 | 1066.43 | 0/0 |
| | | 3-Oct-18 | 1069.27 | 1069.36 | 5.95 | - | 3.18 | 0.00 | 3.27 | 1066.09 | 0/0 |
| | | 21-Mar-18 | 1069.27 | 1069.36 | 5.99 | - | 3.00 | 0.00 | 3.09 | 1066.27 | 0/0 |
| | | 6-Sep-17 | 1069.27 | 1069.36 | 5.99 | - | 3.33 | 0.00 | 3.42 | 1065.94 | 40/0 |
| | | 3-May-17 | 1069.27 | 1069.36 | 6.09 | - | 2.63 | 0.00 | 2.72 | 1066.64 | 20/0 |
| | | 21-Feb-17 | 1069.27 | 1069.36 | 6.08 | - | 3.03 | 0.00 | 3.12 | 1066.24 | 0/2 |
| | | 28-Oct-16 | 1069.27 | 1069.36 | 6.12 | - | 2.91 | 0.00 | 3.00 | 1066.36 | 5/1 |
| | | 17-Aug-16 | 1069.27 | 1069.36 | 6.12 | - | 2.72 | 0.00 | 2.81 | 1066.55 | 0/1 |
| | | 3-May-16 | 1069.27 | 1069.36 | 6.21 | - | 3.02 | 0.00 | 3.11 | 1066.25 | 0/0 |
| | | 17-Feb-16 | 1069.27 | 1069.36 | 6.18 | - | 2.92 | 0.00 | 3.01 | 1066.35 | 0/1 |
| | | 9-Nov-15 | 1069.27 | 1069.36 | 6.22 | - | 2.95 | 0.00 | 3.04 | 1066.31 | 0/0 |
| | | 2-Sep-15 | 1069.27 | 1069.36 | 6.28 | - | 2.91 | 0.00 | 3.00 | 1066.36 | 0/0 |
| | | 9-Jun-15 | 1069.27 | 1069.36 | 6.28 | - | 3.11 | 0.00 | 3.20 | 1066.16 | 0/2 |
| | | 26-Mar-15 | 1069.27 | 1069.36 | 6.34 | - | 2.83 | 0.00 | 2.92 | 1066.44 | 160 Hex |
| BH1946 | 5 | 5-May-20 | 1064.57 | 1064.66 | 6.07 | - | 2.05 | 0.00 | 2.14 | 1062.52 | 0/0 |
| | | 12-Nov-19 | 1064.57 | 1064.66 | 6.11 | - | 2.50 | 0.00 | 2.59 | 1062.07 | 0/1 |
| | | 24-Apr-19 | 1064.57 | 1064.66 | 6.16 | - | 2.29 | 0.00 | 2.38 | 1062.28 | 0/1 |
| | | 3-Oct-18 | 1064.57 | 1064.66 | 6.16 | - | 3.28 | 0.00 | 3.37 | 1061.29 | 0/1 |
| | | 23-Mar-18 | 1064.57 | 1064.66 | 6.18 | - | 2.97 | 0.00 | 3.06 | 1061.60 | 0/1 |
| | | 7-Sep-17 | 1064.57 | 1064.66 | 6.16 | - | 3.26 | 0.00 | 3.35 | 1061.31 | 15/0 |
| | | 3-May-17 | 1064.57 | 1064.66 | 6.19 | - | 2.28 | 0.00 | 2.37 | 1062.29 | 0/0 |
| | | 22-Feb-17 | 1064.57 | 1064.66 | 6.18 | - | 3.19 | 0.00 | 3.28 | 1061.38 | 0/1 |
| | | 28-Oct-16 | 1064.57 | 1064.66 | 6.18 | - | 2.55 | 0.00 | 2.64 | 1062.02 | 0/0 |
| | | 18-Aug-16 | 1064.57 | 1064.66 | 6.19 | - | 2.58 | 0.00 | 2.67 | 1061.99 | 0/0 |
| | | 3-May-16 | 1064.57 | 1064.66 | 6.20 | - | 2.87 | 0.00 | 2.97 | 1061.69 | 0/1 |
| | | 17-Feb-16 | 1064.57 | 1064.66 | 6.19 | - | 3.02 | 0.00 | 3.11 | 1061.55 | 55/1 |
| | | 9-Nov-15 | 1064.57 | 1064.66 | 6.23 | - | 2.51 | 0.00 | 2.60 | 1062.06 | 10/1 |
| | | 2-Sep-15 | 1064.57 | 1064.66 | 6.23 | - | 2.28 | 0.00 | 2.37 | 1062.29 | 0/1 |
| | | 9-Jun-15 | 1064.57 | 1064.66 | 6.31 | - | 2.84 | 0.00 | 2.93 | 1061.73 | 0/1 |
| | | 30-Mar-15 | 1064.57 | 1064.66 | 6.33 | - | 2.66 | 0.00 | 2.75 | 1061.91 | 35 Hex |
| BH1947 | 5 | 7-May-20 | 1067.72 | 1067.83 | 5.83 | - | 1.31 | 0.00 | 1.79 | 1066.42 | 0/0 |
| | | 12-Nov-19 | 1067.72 | 1067.83 | 5.88 | - | 1.49 | 0.00 | 1.79 | 1066.24 | 0/1 |
| | | 24-Apr-19 | 1067.72 | 1067.83 | 5.91 | - | 1.41 | 0.00 | 1.79 | 1066.31 | 0/1 |
| | | 3-Oct-18 | 1067.72 | 1067.83 | 5.91 | - | 1.65 | 0.00 | 1.79 | 1066.07 | 0/1 |
| | | 22-Mar-18 | 1067.72 | 1067.83 | 5.92 | - | 1.69 | 0.00 | 1.79 | 1066.03 | 0/1 |
| | | 7-Sep-17 | 1067.72 | 1067.83 | 5.91 | - | 1.83 | 0.00 | 1.93 | 1065.89 | 25/2 |
| | | 2-May-17 | 1067.72 | 1067.83 | 5.92 | - | 1.36 | 0.00 | 1.46 | 1066.36 | 5,900/1 |
| | | 22-Feb-17 | 1067.72 | 1067.83 | 5.90 | - | 1.64 | 0.00 | 1.74 | 1066.08 | 66/0 |
| | | 28-Oct-16 | 1067.72 | 1067.83 | 5.89 | - | 1.72 | 0.00 | 1.82 | 1066.01 | 0/1 |
| | | 18-Aug-16 | 1067.72 | 1067.83 | 5.89 | - | 1.84 | 0.00 | 1.94 | 1065.89 | 170/1 |
| | | 3-May-16 | 1067.72 | 1067.83 | 5.92 | - | 1.58 | 0.00 | 1.68 | 1066.15 | 0/1 |
| | | 17-Feb-16 | 1067.72 | 1067.83 | 5.89 | - | 1.51 | 0.00 | 1.62 | 1066.21 | 0/0 |
| | | 9-Nov-15 | 1067.72 | 1067.83 | 5.92 | - | 1.39 | 0.00 | 1.50 | 1066.33 | 0/1 |
| | | 2-Sep-15 | 1067.72 | 1067.83 | 5.89 | - | 1.43 | 0.00 | 1.53 | 1066.29 | 0/1 |
| | | 9-Jun-15 | 1067.72 | 1067.83 | 5.93 | - | 1.44 | 0.00 | 1.54 | 1066.29 | 45/0 |
| | | 9-Apr-15 | 1067.72 | 1067.83 | 5.90 | - | 1.50 | 0.00 | 1.61 | 1066.22 | 0/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1948 | 5 | 12-Nov-19 | Well damaged and no longer serviceable. | | | | | | | | |
| | | 24-Apr-19 | 1072.45 | 1072.58 | 7.08 | - | 1.81 | 0.00 | 1.94 | 1070.64 | 5/0 |
| | | 3-Oct-18 | 1072.45 | 1072.58 | 7.08 | - | 1.72 | 0.00 | 1.84 | 1070.74 | 5/0 |
| | | 22-Mar-18 | 1072.45 | 1072.58 | 7.10 | - | 1.78 | 0.00 | 1.90 | 1070.68 | 85/0 |
| | | 7-Sep-17 | 1072.45 | 1072.58 | 7.09 | - | 2.01 | 0.00 | 2.13 | 1070.45 | 5/1 |
| | | 2-May-17 | 1072.45 | 1072.58 | 7.09 | - | 1.70 | 0.00 | 1.82 | 1070.76 | 0/1 |
| | | 22-Feb-17 | 1072.45 | 1072.58 | 7.07 | - | 1.87 | 0.00 | 1.99 | 1070.59 | 0/1 |
| | | 28-Oct-16 | 1072.45 | 1072.58 | 7.08 | - | 1.83 | 0.00 | 1.96 | 1070.62 | 0/0 |
| | | 18-Aug-16 | 1072.45 | 1072.58 | 7.06 | - | 1.67 | 0.00 | 1.80 | 1070.78 | 0/1 |
| | | 3-May-16 | 1072.45 | 1072.58 | 7.69 | - | 1.90 | 0.00 | 2.03 | 1070.55 | 0/1 |
| | | 17-Feb-16 | 1072.45 | 1072.58 | 7.70 | - | 1.77 | 0.00 | 1.90 | 1070.68 | 5/1 |
| | | 9-Nov-15 | 1072.45 | 1072.58 | 7.71 | - | 1.79 | 0.00 | 1.91 | 1070.67 | 0/0 |
| | | 2-Sep-15 | 1072.45 | 1072.58 | 7.71 | - | 1.77 | 0.00 | 1.90 | 1070.68 | 0/2 |
| | | 9-Jun-15 | 1072.45 | 1072.58 | 7.80 | - | 1.89 | 0.00 | 2.02 | 1070.56 | 0/1 |
| | | 9-Apr-15 | 1072.45 | 1072.58 | 7.81 | - | 1.68 | 0.00 | 1.81 | 1070.77 | 0/1 |
| BH1949 | 2 | As this monitoring well has been dry over the last four sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 13-Nov-19 | 1091.06 | 1091.10 | 7.43 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 3-May-19 | 1091.06 | 1091.10 | 7.43 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-Oct-18 | 1091.06 | 1091.10 | 7.43 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 20-Mar-18 | 1091.06 | 1091.10 | 7.43 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 6-Sep-17 | 1091.06 | 1091.10 | 7.43 | - | 7.43 | 0.00 | 7.46 | 1083.64 | 25/19 |
| | | 26-Apr-17 | 1091.06 | 1091.10 | 7.41 | - | 7.37 | 0.00 | 7.41 | 1083.69 | 5/7 |
| | | 21-Feb-17 | 1091.06 | 1091.10 | 7.44 | - | - | 0.00 | - | - | 0/8 (DRY) |
| | | 27-Oct-16 | 1091.06 | 1091.10 | 7.30 | - | - | 0.00 | - | - | 0/9 (DRY) |
| | | 17-Aug-16 | 1091.06 | 1091.10 | 7.41 | - | - | 0.00 | - | - | 15/46 (DRY) |
| | | 10-Jun-16 | 1091.06 | 1091.10 | - | - | - | 0.00 | - | - | (DRY) |
| | | 4-May-16 | 1091.06 | 1091.10 | 7.43 | - | 7.42 | 0.00 | 7.46 | 1083.65 | 30/71 |
| | | 17-Feb-16 | 1091.06 | 1091.10 | 7.41 | - | 7.05 | 0.00 | 7.09 | 1084.01 | 0/21 |
| | | 9-Nov-15 | 1091.06 | 1091.10 | 7.44 | - | 6.98 | 0.00 | 7.01 | 1084.09 | 45/49 |
| | | 1-Sep-15 | 1091.06 | 1091.10 | 7.40 | - | - | 0.00 | - | - | 190/255 (DRY) |
| | | 9-Jun-15 | 1091.06 | 1091.10 | 7.41 | - | - | 0.00 | - | - | 600/450 (DRY) |
| | | 31-Mar-15 | 1091.06 | 1091.10 | 7.41 | - | 7.00 | 0.00 | 7.04 | 1084.06 | 810/537 |
| BH1950A | 2 | 6-May-20 | 1091.04 | 1091.15 | 11.04 | - | 10.03 | 0.00 | 10.41 | 1081.02 | 110/0 |
| | | 14-Nov-19 | 1091.04 | 1091.15 | 11.07 | - | 10.15 | 0.00 | 10.41 | 1080.90 | 0/1 |
| | | 25-Apr-19 | 1091.04 | 1091.15 | 11.07 | - | 10.74 | 0.00 | 10.41 | 1080.31 | 0/1 |
| | | 5-Oct-18 | 1091.04 | 1091.15 | 11.07 | - | 10.78 | 0.00 | 10.41 | 1080.26 | 0/1 |
| | | 22-Mar-18 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 5-Sep-17 | 1091.04 | 1091.15 | 11.06 | - | 10.30 | 0.00 | 10.41 | 1080.74 | 10/1 |
| | | 2-May-17 | 1091.04 | 1091.15 | 11.07 | - | 10.18 | 0.00 | 10.28 | 1080.87 | 0/2 |
| | | 27-Feb-17 | 1091.04 | 1091.15 | 11.03 | - | 10.19 | 0.00 | 10.29 | 1080.86 | 35/2 |
| | | 31-Oct-16 | 1091.04 | 1091.15 | 11.06 | - | 10.23 | 0.00 | 10.33 | 1080.81 | 0/1 |
| | | 16-Aug-16 | 1091.04 | 1091.15 | 11.05 | - | 10.49 | 0.00 | 10.59 | 1080.56 | 40/0 |
| | | 4-May-16 | 1091.04 | 1091.15 | 11.45 | - | 10.22 | 0.00 | 10.32 | 1080.82 | 5/0 |
| | | 18-Feb-16 | 1091.04 | 1091.15 | 11.06 | - | 10.00 | 0.00 | 10.10 | 1081.04 | 60/1 |
| | | 10-Nov-15 | 1091.04 | 1091.15 | 11.11 | - | 10.14 | 0.00 | 10.24 | 1080.90 | 0/1 |
| | | 2-Sep-15 | 1091.04 | 1091.15 | 11.02 | - | 10.22 | 0.00 | 10.32 | 1080.82 | 0/1 |
| | | 9-Jun-15 | 1091.04 | 1091.15 | 11.08 | - | 10.31 | 0.00 | 10.42 | 1080.73 | 15/0 |
| | | 5-May-15 | 1091.04 | 1091.15 | 11.05 | - | 10.30 | 0.00 | 10.40 | 1080.75 | 35/0 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1951 | 5 | 5-May-20 | 1068.02 | 1068.12 | 3.66 | - | 2.24 | 0.00 | 2.34 | 1065.78 | 0/0 |
| | | 12-Nov-19 | 1068.02 | 1068.12 | 3.71 | - | 2.59 | 0.00 | 2.69 | 1065.43 | 0/0 |
| | | 24-Apr-19 | 1068.02 | 1068.12 | 3.71 | - | 2.36 | 0.00 | 2.45 | 1065.66 | 0/0 |
| | | 3-Oct-18 | 1068.02 | 1068.12 | 3.71 | - | 2.96 | 0.00 | 3.06 | 1065.06 | 0/0 |
| | | 21-Mar-18 | 1068.02 | 1068.12 | 3.82 | - | 2.92 | 0.00 | 3.01 | 1065.11 | 0/1 |
| | | 6-Sep-17 | 1068.02 | 1068.12 | 3.80 | - | 3.12 | 0.00 | 3.22 | 1064.90 | 0/1 |
| | | 3-May-17 | 1068.02 | 1068.12 | 3.85 | - | 2.08 | 0.00 | 2.18 | 1065.94 | 0/1 |
| | | 22-Feb-17 | 1068.02 | 1068.12 | 3.86 | - | 1.93 | 0.00 | 2.03 | 1066.09 | 0/1 |
| | | 28-Oct-16 | 1068.02 | 1068.12 | 3.84 | - | 2.58 | 0.00 | 2.67 | 1065.44 | 0/1 |
| | | 18-Aug-16 | 1068.02 | 1068.12 | 3.83 | - | 1.87 | 0.00 | 1.97 | 1066.15 | 0/0 |
| | | 3-May-16 | 1068.02 | 1068.12 | 3.55 | - | 2.78 | 0.00 | 2.88 | 1065.24 | 0/0 |
| | | 17-Feb-16 | 1068.02 | 1068.12 | 3.53 | - | 2.72 | 0.00 | 2.82 | 1065.30 | 0/1 |
| | | 9-Nov-15 | 1068.02 | 1068.12 | 3.58 | - | 2.64 | 0.00 | 2.74 | 1065.38 | 20/0 |
| | | 2-Sep-15 | 1068.02 | 1068.12 | 3.48 | - | 2.12 | 0.00 | 2.22 | 1065.90 | 0/2 |
| | | 9-Jun-15 | 1068.02 | 1068.12 | 4.08 | - | 2.86 | 0.00 | 2.96 | 1065.16 | 0/1 |
| | | 30-Mar-15 | 1068.02 | 1068.12 | 4.10 | - | 2.52 | 0.00 | 2.62 | 1065.50 | 0/0 |
| BH1952 | 2,3 | 6-May-20 | 1090.81 | 1090.99 | 18.31 | - | 11.84 | 0.00 | 12.01 | 1078.98 | 0/1 |
| | | 13-Nov-19 | 1090.81 | 1090.99 | 18.45 | - | 11.76 | 0.00 | 11.94 | 1079.05 | 10/1 |
| | | 3-May-19 | 1090.81 | 1090.99 | 18.67 | - | 11.86 | 0.00 | 12.03 | 1078.96 | 10/1 |
| | | 4-Oct-18 | 1090.81 | 1090.99 | 18.67 | - | 12.09 | 0.00 | 12.27 | 1078.72 | 10/1 |
| | | 19-Mar-18 | 1090.81 | 1090.99 | 18.67 | - | 11.93 | 0.00 | 12.10 | 1078.89 | 420/0 |
| | | 6-Sep-17 | 1090.81 | 1090.99 | 18.48 | - | 11.95 | 0.00 | 12.13 | 1078.86 | 0/1 |
| | | 1-May-17 | 1090.81 | 1090.99 | 18.48 | - | 11.79 | 0.00 | 11.97 | 1079.02 | 0/1 |
| | | 17-Feb-17 | 1090.81 | 1090.99 | 18.50 | - | 11.73 | 0.00 | 11.91 | 1079.08 | 0/4 |
| | | 27-Oct-16 | 1090.81 | 1090.99 | 18.49 | - | 11.88 | 0.00 | 12.05 | 1078.94 | 0/2 |
| | | 17-Aug-16 | 1090.81 | 1090.99 | 18.53 | - | 11.78 | 0.00 | 11.96 | 1079.03 | 0/2 |
| | | 4-May-16 | 1090.81 | 1090.99 | 18.58 | - | 11.83 | 0.00 | 12.01 | 1078.98 | 0/0 |
| | | 17-Feb-16 | 1090.81 | 1090.99 | 18.58 | - | 11.88 | 0.00 | 12.05 | 1078.93 | 0/2 |
| | | 9-Nov-15 | 1090.81 | 1090.99 | 18.74 | - | 11.85 | 0.00 | 12.03 | 1078.96 | 25/1 |
| | | 1-Sep-15 | 1090.81 | 1090.99 | 18.89 | - | 11.77 | 0.00 | 11.95 | 1079.04 | 0/1 |
| | | 9-Jun-15 | 1090.81 | 1090.99 | 16.52 | - | 11.83 | 0.00 | 12.01 | 1078.98 | 0/1 |
| | | 4-May-15 | 1090.81 | 1090.99 | 16.86 | - | 11.79 | 0.00 | 11.96 | 1079.03 | 35/2 |
| BH1953 | 3 | 6-May-20 | 1091.28 | 1091.34 | 18.64 | - | 14.79 | 0.00 | 15.02 | 1076.49 | 500/0 |
| | | 13-Nov-19 | 1091.28 | 1091.34 | 18.18 | - | 14.81 | 0.00 | 15.02 | 1076.47 | 0/1 |
| | | 8-May-19 | 1091.28 | 1091.34 | 18.68 | - | 14.99 | 0.00 | 15.02 | 1076.29 | 0/1 |
| | | 5-Oct-18 | 1091.28 | 1091.34 | 18.68 | - | 14.94 | 0.00 | 15.02 | 1076.35 | 0/1 |
| | | 23-Mar-18 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 7-Sep-17 | 1091.28 | 1091.34 | 18.67 | - | 14.96 | 0.00 | 15.02 | 1076.32 | 0/1 |
| | | 2-May-17 | 1091.28 | 1091.34 | 18.68 | - | 15.01 | 0.00 | 15.07 | 1076.28 | 20/0 |
| | | 23-Feb-17 | 1091.28 | 1091.34 | 18.68 | - | 15.07 | 0.00 | 15.13 | 1076.21 | 0/1 |
| | | 27-Oct-16 | 1091.28 | 1091.34 | 18.68 | - | 14.96 | 0.00 | 15.02 | 1076.32 | 20/0 |
| | | 16-Aug-16 | 1091.28 | 1091.34 | 18.65 | - | 15.01 | 0.00 | 15.07 | 1076.27 | 0/1 |
| | | 5-May-16 | 1091.28 | 1091.34 | 18.78 | - | 15.05 | 0.00 | 15.11 | 1076.24 | 0/0 |
| | | 18-Feb-16 | 1091.28 | 1091.34 | 18.69 | - | 14.90 | 0.00 | 14.96 | 1076.39 | 0/1 |
| | | 10-Nov-15 | 1091.28 | 1091.34 | 18.77 | - | 14.94 | 0.00 | 15.00 | 1076.34 | 0/1 |
| | | 2-Sep-15 | 1091.28 | 1091.34 | 19.02 | - | 14.94 | 0.00 | 15.00 | 1076.34 | 0/1 |
| | | 9-Jun-15 | 1091.28 | 1091.34 | 18.87 | - | 14.97 | 0.00 | 15.03 | 1076.32 | 0/1 |
| | | 26-Mar-15 | 1091.28 | 1091.34 | 18.90 | - | 14.95 | 0.00 | 15.01 | 1076.34 | 0/2 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1954 | 3,4,5 | 4-May-20 | 1076.76 | 1076.90 | 10.68 | - | 3.23 | 0.00 | 3.36 | 1073.53 | 0/0 |
| | | 13-Nov-19 | 1076.76 | 1076.90 | 10.94 | - | 3.23 | 0.00 | 3.37 | 1073.53 | 0/0 |
| | | 24-Apr-19 | 1076.76 | 1076.90 | 11.78 | - | 3.52 | 0.00 | 3.65 | 1073.25 | 0/0 |
| | | 4-Oct-18 | 1076.76 | 1076.90 | 11.78 | - | 3.52 | 0.00 | 3.65 | 1073.25 | 0/0 |
| | | 21-Mar-18 | 1076.76 | 1076.90 | 12.07 | - | 3.46 | 0.00 | 3.59 | 1073.30 | 0/0 |
| | | 6-Sep-17 | 1076.76 | 1076.90 | 12.07 | - | 3.58 | 0.00 | 3.72 | 1073.18 | 0/0 |
| | | 3-May-17 | 1076.76 | 1076.90 | 12.16 | - | 3.33 | 0.00 | 3.46 | 1073.43 | 0/0 |
| | | 22-Feb-17 | 1076.76 | 1076.90 | 12.19 | - | 3.46 | 0.00 | 3.59 | 1073.31 | 230/3 |
| | | 28-Oct-16 | 1076.76 | 1076.90 | 12.24 | - | 3.36 | 0.00 | 3.49 | 1073.40 | 0/0 |
| | | 17-Aug-16 | 1076.76 | 1076.90 | 12.24 | - | 3.31 | 0.00 | 3.45 | 1073.45 | 0/0 |
| | | 3-May-16 | 1076.76 | 1076.90 | 9.36 | - | 3.25 | 0.00 | 3.38 | 1073.51 | 5/1 |
| | | 17-Feb-16 | 1076.76 | 1076.90 | 9.36 | - | 3.27 | 0.00 | 3.40 | 1073.50 | 0/1 |
| | | 9-Nov-15 | 1076.76 | 1076.90 | 9.30 | - | 3.29 | 0.00 | 3.42 | 1073.47 | 0/0 |
| | | 1-Sep-15 | 1076.76 | 1076.90 | 9.40 | - | 3.23 | 0.00 | 3.37 | 1073.53 | 0/1 |
| | | 9-Jun-15 | 1076.76 | 1076.90 | 9.43 | - | 3.25 | 0.00 | 3.39 | 1073.51 | 0/1 |
| | | 19-Mar-15 | 1076.76 | 1076.90 | 13.42 | - | 3.48 | 0.00 | 3.62 | 1073.28 | 0/0 |
| BH1955 | 5 | 31-Mar-16 | Well decommissioned on 31 March 2016. | | | | | | | | |
| | | 17-Feb-16 | 1074.04 | 1074.15 | 5.94 | - | 2.53 | 0.00 | 2.63 | 1071.51 | 0/1 |
| | | 9-Nov-15 | 1074.04 | 1074.15 | - | - | 2.62 | 0.00 | 2.73 | 1071.42 | 0/1 |
| | | 1-Sep-15 | 1074.04 | 1074.15 | - | - | 2.77 | 0.00 | 2.88 | 1071.27 | 0/1 |
| | | 9-Jun-15 | 1074.04 | 1074.15 | 7.39 | - | 4.44 | 0.00 | 4.55 | 1069.60 | 0/1 |
| | | 19-Mar-15 | 1074.04 | 1074.15 | 8.89 | - | 2.39 | 0.00 | 2.49 | 1071.66 | 20 Hex |
| BH1955A | 5 | 6-May-20 | 1073.95 | 1074.13 | 8.08 | - | 2.04 | 0.00 | 2.22 | 1071.91 | 0/0 |
| | | 13-Nov-19 | 1073.95 | 1074.13 | 8.38 | - | 2.08 | 0.00 | 2.27 | 1071.86 | 0/1 |
| | | 24-Apr-19 | 1073.95 | 1074.13 | 8.68 | - | 2.13 | 0.00 | 2.31 | 1071.82 | 0/1 |
| | | 4-Oct-18 | 1073.95 | 1074.13 | 8.68 | - | 2.28 | 0.00 | 2.46 | 1071.67 | 0/1 |
| | | 21-Mar-18 | 1073.95 | 1074.13 | 9.24 | - | 2.28 | 0.00 | 2.47 | 1071.66 | 10/1 |
| | | 6-Sep-17 | 1073.95 | 1074.13 | 9.23 | - | 2.43 | 0.00 | 2.62 | 1071.52 | 15/0 |
| | | 3-May-17 | 1073.95 | 1074.13 | 9.69 | - | 2.03 | 0.00 | 2.21 | 1071.92 | 0/1 |
| | | 22-Feb-17 | 1073.95 | 1074.13 | 9.73 | - | 2.18 | 0.00 | 2.36 | 1071.77 | 0/2 |
| | | 27-Oct-16 | 1073.95 | 1074.13 | 10.54 | - | 2.10 | 0.00 | 2.28 | 1071.85 | 0/1 |
| | | 17-Aug-16 | 1073.95 | 1074.13 | 10.51 | - | 2.06 | 0.00 | 2.24 | 1071.89 | 0/1 |
| | | 3-May-16 | 1073.95 | 1074.13 | 9.41 | - | 2.54 | 0.00 | 2.72 | 1071.41 | 15/1 |
| | | 1-Apr-16 | Installed to replace BH1955 on 1 April 2016. | | | | | | | | |
| BH1956 | 3 | 6-May-20 | 1084.76 | 1084.92 | 13.47 | - | 9.02 | 0.00 | 9.18 | 1075.74 | 0/0 |
| | | 12-Dec-19 | 1084.76 | 1084.92 | 13.64 | - | 8.89 | 0.00 | 9.04 | 1075.88 | 10/1 |
| | | 25-Apr-19 | 1084.76 | 1084.92 | 14.32 | - | 9.18 | 0.00 | 9.33 | 1075.59 | 10/1 |
| | | 5-Oct-18 | 1084.76 | 1084.92 | 14.31 | - | 9.15 | 0.00 | 9.31 | 1075.61 | 10/1 |
| | | 22-Mar-18 | 1084.76 | 1084.92 | 14.31 | - | 9.20 | 0.00 | 9.36 | 1075.56 | 10/0 |
| | | 6-Sep-17 | 1084.76 | 1084.92 | 14.06 | - | 9.12 | 0.00 | 9.28 | 1075.64 | 10/0 |
| | | 2-May-17 | 1084.76 | 1084.92 | 14.12 | - | 9.21 | 0.00 | 9.37 | 1075.55 | 0/0 |
| | | 27-Feb-17 | 1084.76 | 1084.92 | 14.13 | - | 9.29 | 0.00 | 9.45 | 1075.47 | 0/1 |
| | | 31-Oct-16 | 1084.76 | 1084.92 | 14.14 | - | 9.24 | 0.00 | 9.40 | 1075.52 | 80/0 |
| | | 16-Aug-16 | 1084.76 | 1084.92 | 14.10 | - | 9.33 | 0.00 | 9.49 | 1075.43 | 6/0 |
| | | 3-May-16 | 1084.76 | 1084.92 | 14.18 | - | 9.38 | 0.00 | 9.54 | 1075.38 | 10/1 |
| | | 18-Feb-16 | 1084.76 | 1084.92 | 14.21 | - | 9.30 | 0.00 | 9.46 | 1075.46 | 0/1 |
| | | 10-Nov-15 | 1084.76 | 1084.92 | 14.33 | - | 9.29 | 0.00 | 9.44 | 1075.48 | 0/1 |
| | | 2-Sep-15 | 1084.76 | 1084.92 | 14.37 | - | 9.33 | 0.00 | 9.49 | 1075.43 | 0/1 |
| | | 9-Jun-15 | 1084.76 | 1084.92 | 13.55 | - | 9.38 | 0.00 | 9.54 | 1075.38 | 5/0 |
| | | 5-May-15 | 1084.76 | 1084.92 | 13.58 | - | 9.32 | 0.00 | 9.48 | 1075.44 | 20/0 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1957 | 3 | 29-May-20 | 1089.87 | 1089.98 | 13.96 | - | 10.10 | 0.00 | 10.20 | 1079.78 | 0/0 |
| | | 3-Jan-20 | 1089.87 | 1089.98 | 13.96 | - | 10.05 | 0.00 | 10.16 | 1079.82 | 0/0 |
| | | 2-May-19 | 1089.87 | 1089.98 | 13.96 | - | 10.25 | 0.00 | 10.35 | 1079.63 | 0/0 |
| | | 7-Nov-18 | 1089.87 | 1089.98 | 13.96 | - | 10.25 | 0.00 | 10.35 | 1079.63 | 0/0 |
| | | 19-Mar-18 | 1089.87 | 1089.98 | 14.01 | - | 10.24 | 0.00 | 10.35 | 1079.63 | 0/0 |
| | | 7-Sep-17 | 1089.87 | 1089.98 | 13.97 | - | 10.18 | 0.00 | 10.29 | 1079.69 | 0/1 |
| | | 26-Apr-17 | 1089.87 | 1089.98 | 14.00 | - | 10.12 | 0.00 | 10.23 | 1079.75 | 0/1 |
| | | 24-Feb-17 | 1089.87 | 1089.98 | 13.99 | - | 10.18 | 0.00 | 10.29 | 1079.69 | 0/3 |
| | | 31-Oct-16 | 1089.87 | 1089.98 | 13.97 | - | 10.08 | 0.00 | 10.19 | 1079.79 | 0/2 |
| | | 17-Aug-16 | 1089.87 | 1089.98 | 14.00 | - | 10.17 | 0.00 | 10.28 | 1079.70 | 10/0 |
| | | 4-May-16 | 1089.87 | 1089.98 | 14.02 | - | 10.13 | 0.00 | 10.23 | 1079.75 | 15/1 |
| | | 16-Feb-16 | 1089.87 | 1089.98 | 14.00 | - | 10.05 | 0.00 | 10.16 | 1079.82 | 0/1 |
| | | 9-Nov-15 | 1089.87 | 1089.98 | 13.99 | - | 10.09 | 0.00 | 10.20 | 1079.78 | 0/0 |
| | | 1-Sep-15 | 1089.87 | 1089.98 | 14.05 | - | 10.06 | 0.00 | 10.17 | 1079.81 | 15/2 |
| | | 9-Jun-15 | 1089.87 | 1089.98 | 14.22 | - | 10.15 | 0.00 | 10.25 | 1079.73 | 0/1 |
| | | 17-Mar-15 | 1089.87 | 1089.98 | 13.26 | - | 10.04 | 0.00 | 10.15 | 1079.83 | 0/1 |
| BH1958 | 3 | 26-May-20 | 1090.26 | 1090.41 | 14.73 | - | 9.80 | 0.00 | 10.14 | 1080.46 | 0/0 |
| | | 3-Jan-20 | 1090.26 | 1090.41 | 14.73 | - | 9.80 | 0.00 | 10.14 | 1080.45 | 0/0 |
| | | 2-May-19 | 1090.26 | 1090.41 | 14.73 | - | 9.99 | 0.00 | 10.14 | 1080.27 | 0/0 |
| | | 7-Nov-18 | 1090.26 | 1090.41 | 14.73 | - | 9.99 | 0.00 | 10.14 | 1080.27 | 0/0 |
| | | 19-Mar-18 | 1090.26 | 1090.41 | 15.26 | - | 9.99 | 0.00 | 10.14 | 1080.27 | 50/1 |
| | | 7-Sep-17 | 1090.26 | 1090.41 | 14.74 | - | 9.92 | 0.00 | 10.07 | 1080.34 | 0/0 |
| | | 26-Apr-17 | 1090.26 | 1090.41 | 15.26 | - | 9.87 | 0.00 | 10.02 | 1080.39 | 0/0 |
| | | 24-Feb-17 | 1090.26 | 1090.41 | 14.77 | - | 9.96 | 0.00 | 10.12 | 1080.29 | 0/3 |
| | | 31-Oct-16 | 1090.26 | 1090.41 | 14.79 | - | 9.83 | 0.00 | 9.98 | 1080.42 | 0/1 |
| | | 17-Aug-16 | 1090.26 | 1090.41 | 14.77 | - | 9.93 | 0.00 | 10.08 | 1080.33 | 10/0 |
| | | 4-May-16 | 1090.26 | 1090.41 | 12.61 | - | 9.84 | 0.00 | 10.00 | 1080.41 | 10/1 |
| | | 16-Feb-16 | 1090.26 | 1090.41 | 12.54 | - | 9.75 | 0.00 | 9.90 | 1080.50 | 0/2 |
| | | 9-Nov-15 | 1090.26 | 1090.41 | 12.57 | - | 9.80 | 0.00 | 9.95 | 1080.45 | 0/0 |
| | | 1-Sep-15 | 1090.26 | 1090.41 | 12.56 | - | 9.77 | 0.00 | 9.92 | 1080.49 | 0/2 |
| | | 9-Jun-15 | 1090.26 | 1090.41 | 12.70 | - | 9.89 | 0.00 | 10.05 | 1080.36 | 5/0 |
| | | 14-Mar-15 | 1090.26 | 1090.41 | 14.90 | - | 9.93 | 0.00 | 10.09 | 1080.33 | 0/0 |
| | | 23-Feb-15 | 1090.26 | 1090.41 | 14.05 | - | 9.90 | 0.00 | 10.05 | 1080.36 | 0/2 |
| BH1959 | 3 | 29-May-20 | 1090.27 | 1090.42 | 15.22 | - | 9.40 | 0.00 | 9.63 | 1080.87 | 0/0 |
| | | 3-Jan-20 | 1090.27 | 1090.42 | 15.21 | - | 9.38 | 0.00 | 9.63 | 1080.89 | 0/0 |
| | | 2-May-19 | 1090.27 | 1090.42 | 15.21 | - | 9.51 | 0.00 | 9.63 | 1080.76 | 0/0 |
| | | 7-Nov-18 | 1090.27 | 1090.42 | 15.24 | - | 9.51 | 0.00 | 9.63 | 1080.76 | 0/0 |
| | | 19-Mar-18 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 7-Sep-17 | 1090.27 | 1090.42 | 15.25 | - | 9.49 | 0.00 | 9.63 | 1080.78 | 25/0 |
| | | 26-Apr-17 | 1090.27 | 1090.42 | 14.77 | - | 9.41 | 0.00 | 9.56 | 1080.86 | 45/1 |
| | | 24-Feb-17 | 1090.27 | 1090.42 | 15.24 | - | 9.48 | 0.00 | 9.62 | 1080.79 | 0/2 |
| | | 31-Oct-16 | 1090.27 | 1090.42 | 15.26 | - | 9.40 | 0.00 | 9.55 | 1080.87 | 90/2 |
| | | 17-Aug-16 | 1090.27 | 1090.42 | 15.23 | - | 9.47 | 0.00 | 9.62 | 1080.80 | 10/0 |
| | | 4-May-16 | 1090.27 | 1090.42 | 15.29 | - | 9.48 | 0.00 | 9.63 | 1080.79 | 15/1 |
| | | 16-Feb-16 | 1090.27 | 1090.42 | 15.30 | - | 9.41 | 0.00 | 9.55 | 1080.86 | 0/0 |
| | | 12-Nov-15 | 1090.27 | 1090.42 | 15.46 | - | 9.44 | 0.00 | 9.59 | 1080.83 | 0/0 |
| | | 1-Sep-15 | 1090.27 | 1090.42 | 15.43 | - | 9.41 | 0.00 | 9.56 | 1080.86 | 25/2 |
| | | 9-Jun-15 | 1090.27 | 1090.42 | 15.62 | - | 9.50 | 0.00 | 9.65 | 1080.76 | 15/0 |
| | | 19-Mar-15 | 1090.27 | 1090.42 | 15.40 | - | 9.48 | 0.00 | 9.62 | 1080.79 | 105/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1960 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 3-Jan-20 | 1090.26 | 1090.42 | 3.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 2-May-19 | 1090.26 | 1090.42 | 3.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 7-Nov-18 | 1090.26 | 1090.42 | 3.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 19-Mar-18 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 7-Sep-17 | 1090.26 | 1090.42 | 3.31 | - | - | 0.00 | - | - | 25/0 (DRY) |
| | | 26-Apr-17 | 1090.26 | 1090.42 | 3.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 24-Feb-17 | 1090.26 | 1090.42 | 3.30 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 31-Oct-16 | 1090.26 | 1090.42 | 3.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 17-Aug-16 | 1090.26 | 1090.42 | 3.27 | - | - | 0.00 | - | - | 20/0 (DRY) |
| | | 4-May-16 | 1090.26 | 1090.42 | 3.29 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 16-Feb-16 | 1090.26 | 1090.42 | 3.27 | - | - | 0.00 | - | - | 20/0 (DRY) |
| | | 12-Nov-15 | 1090.26 | 1090.42 | 3.28 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-Sep-15 | 1090.26 | 1090.42 | 3.27 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1090.26 | 1090.42 | 3.29 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 19-Mar-15 | 1090.26 | 1090.42 | 3.40 | - | - | 0.00 | - | - | 0/0 (DRY) |
| BH1961 | 3,4 | 6-May-20 | 1076.67 | 1076.79 | 11.33 | - | 4.09 | 0.00 | 4.21 | 1072.58 | 0/0 |
| | | 13-Nov-19 | 1076.67 | 1076.79 | 11.33 | - | 4.27 | 0.00 | 4.39 | 1072.40 | 0/0 |
| | | 25-Apr-19 | 1076.67 | 1076.79 | 11.44 | - | 4.16 | 0.00 | 4.28 | 1072.51 | 0/0 |
| | | 19-Oct-18 | 1076.67 | 1076.79 | 11.44 | - | 4.43 | 0.00 | 4.55 | 1072.24 | 0/0 |
| | | 21-Mar-18 | 1076.67 | 1076.79 | 11.52 | - | 4.48 | 0.00 | 4.60 | 1072.19 | 0/0 |
| | | 6-Sep-17 | 1076.67 | 1076.79 | 11.44 | - | 4.76 | 0.00 | 4.88 | 1071.91 | 25/0 |
| | | 1-May-17 | 1076.67 | 1076.79 | 11.51 | - | 4.10 | 0.00 | 4.21 | 1072.58 | 0/1 |
| | | 23-Feb-17 | 1076.67 | 1076.79 | 11.53 | - | 4.28 | 0.00 | 4.39 | 1072.40 | 0/4 |
| | | 27-Oct-16 | 1076.67 | 1076.79 | 11.59 | - | 4.55 | 0.00 | 4.67 | 1072.12 | 10/1 |
| | | 18-Aug-16 | 1076.67 | 1076.79 | 11.61 | - | 4.83 | 0.00 | 4.94 | 1071.85 | 0/2 |
| | | 3-May-16 | 1076.67 | 1076.79 | 10.71 | - | 4.22 | 0.00 | 4.33 | 1072.46 | 0/0 |
| | | 18-Feb-16 | 1076.67 | 1076.79 | 10.73 | - | 4.23 | 0.00 | 4.35 | 1072.44 | 0/1 |
| | | 9-Nov-15 | 1076.67 | 1076.79 | 10.76 | - | 4.30 | 0.00 | 4.42 | 1072.37 | 0/1 |
| | | 1-Sep-15 | 1076.67 | 1076.79 | 10.94 | - | 4.40 | 0.00 | 4.52 | 1072.27 | 0/1 |
| | | 9-Jun-15 | 1076.67 | 1076.79 | 10.94 | - | 4.37 | 0.00 | 4.49 | 1072.30 | 0/1 |
| | | 21-Apr-15 | 1076.67 | 1076.79 | 11.82 | - | 4.24 | 0.00 | 4.35 | 1072.44 | 20/1 |
| BH1962 | 3 | 6-May-20 | 1078.36 | 1078.48 | 9.55 | - | 3.00 | 0.00 | 3.12 | 1075.36 | 0/0 |
| | | 13-Nov-19 | 1078.36 | 1078.48 | 9.38 | - | 3.11 | 0.00 | 3.22 | 1075.26 | 0/1 |
| | | 25-Apr-19 | 1078.36 | 1078.48 | 9.96 | - | 3.07 | 0.00 | 3.19 | 1075.29 | 0/1 |
| | | 5-Oct-18 | 1078.36 | 1078.48 | 9.95 | - | 3.26 | 0.00 | 3.37 | 1075.11 | 0/1 |
| | | 21-Mar-18 | 1078.36 | 1078.48 | 9.85 | - | 3.17 | 0.00 | 3.29 | 1075.19 | 0/0 |
| | | 6-Sep-17 | 1078.36 | 1078.48 | 9.82 | - | 3.34 | 0.00 | 3.46 | 1075.02 | 20/0 |
| | | 1-May-17 | 1078.36 | 1078.48 | 10.66 | - | 3.01 | 0.00 | 3.13 | 1075.35 | 0/0 |
| | | 23-Feb-17 | 1078.36 | 1078.48 | 10.68 | - | 3.14 | 0.00 | 3.26 | 1075.22 | 0/4 |
| | | 27-Oct-16 | 1078.36 | 1078.48 | 11.25 | - | 3.10 | 0.00 | 3.22 | 1075.26 | 10/1 |
| | | 18-Aug-16 | 1078.36 | 1078.48 | 11.23 | - | 3.03 | 0.00 | 3.14 | 1075.34 | 0/2 |
| | | 3-May-16 | 1078.36 | 1078.48 | 9.81 | - | 3.18 | 0.00 | 3.30 | 1075.18 | 5/0 |
| | | 18-Feb-16 | 1078.36 | 1078.48 | 9.91 | - | 3.02 | 0.00 | 3.14 | 1075.34 | 0/0 |
| | | 9-Nov-15 | 1078.36 | 1078.48 | 9.93 | - | 3.08 | 0.00 | 3.20 | 1075.28 | 0/1 |
| | | 1-Sep-15 | 1078.36 | 1078.48 | 10.42 | - | 3.12 | 0.00 | 3.24 | 1075.24 | 0/1 |
| | | 9-Jun-15 | 1078.36 | 1078.48 | 12.32 | - | 3.19 | 0.00 | 3.31 | 1075.17 | 0/1 |
| | | 9-Apr-15 | 1078.36 | 1078.48 | 12.41 | - | 3.11 | 0.00 | 3.23 | 1075.25 | 20/0 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1963 | 3 | 6-May-20 | 1080.84 | 1080.96 | 10.82 | - | 3.76 | 0.00 | 3.88 | 1077.08 | 0/0 |
| | | 13-Nov-19 | 1080.84 | 1080.96 | 10.83 | - | 3.85 | 0.00 | 3.98 | 1076.98 | 5/1 |
| | | 25-Apr-19 | 1080.84 | 1080.96 | 10.92 | - | 3.88 | 0.00 | 4.00 | 1076.96 | 5/1 |
| | | 5-Oct-18 | 1080.84 | 1080.96 | 10.92 | - | 4.00 | 0.00 | 4.12 | 1076.84 | 10/0 |
| | | 21-Mar-18 | 1080.84 | 1080.96 | 10.98 | - | 3.95 | 0.00 | 4.08 | 1076.88 | 0/0 |
| | | 6-Sep-17 | 1080.84 | 1080.96 | 10.92 | - | 4.04 | 0.00 | 4.16 | 1076.80 | 35/0 |
| | | 1-May-17 | 1080.84 | 1080.96 | 10.94 | - | 3.74 | 0.00 | 3.86 | 1077.10 | 0/0 |
| | | 23-Feb-17 | 1080.84 | 1080.96 | 10.96 | - | 3.87 | 0.00 | 3.99 | 1076.97 | 60/4 |
| | | 27-Oct-16 | 1080.84 | 1080.96 | 10.95 | - | 3.81 | 0.00 | 3.94 | 1077.02 | 10/0 |
| | | 18-Aug-16 | 1080.84 | 1080.96 | 10.92 | - | 3.30 | 0.00 | 3.42 | 1077.54 | 0/1 |
| | | 3-May-16 | 1080.84 | 1080.96 | 10.21 | - | 3.88 | 0.00 | 4.01 | 1076.95 | 0/0 |
| | | 18-Feb-16 | 1080.84 | 1080.96 | 10.21 | - | 3.82 | 0.00 | 3.94 | 1077.02 | 0/1 |
| | | 9-Nov-15 | 1080.84 | 1080.96 | 10.24 | - | 3.86 | 0.00 | 3.98 | 1076.98 | 0/5 |
| | | 1-Sep-15 | 1080.84 | 1080.96 | 10.29 | - | 3.79 | 0.00 | 3.91 | 1077.05 | 0/1 |
| | | 9-Jun-15 | 1080.84 | 1080.96 | 10.10 | - | 3.89 | 0.00 | 4.01 | 1076.95 | 0/1 |
| | | 9-Apr-15 | 1080.84 | 1080.96 | 10.90 | - | 3.83 | 0.00 | 3.95 | 1077.01 | 0/0 |
| BH1964 | 4 | 6-May-20 | 1076.77 | 1076.90 | 8.26 | - | 3.85 | 0.00 | 3.98 | 1072.92 | 0/0 |
| | | 13-Nov-19 | 1076.77 | 1076.90 | 8.41 | - | 4.04 | 0.00 | 4.17 | 1072.73 | 0/0 |
| | | 25-Apr-19 | 1076.77 | 1076.90 | 8.44 | - | 4.01 | 0.00 | 4.14 | 1072.76 | 0/0 |
| | | 19-Oct-18 | 1076.77 | 1076.90 | 8.44 | - | 4.21 | 0.00 | 4.34 | 1072.56 | 0/0 |
| | | 21-Mar-18 | 1076.77 | 1076.90 | 8.46 | - | 4.06 | 0.00 | 4.19 | 1072.71 | 0/0 |
| | | 6-Sep-17 | 1076.77 | 1076.90 | 8.47 | - | 4.64 | 0.00 | 4.77 | 1072.13 | 25/0 |
| | | 1-May-17 | 1076.77 | 1076.90 | 8.46 | - | 3.92 | 0.00 | 4.05 | 1072.85 | 0/0 |
| | | 23-Feb-17 | 1076.77 | 1076.90 | 8.48 | - | 4.06 | 0.00 | 4.19 | 1072.71 | 0/3 |
| | | 27-Oct-16 | 1076.77 | 1076.90 | 8.44 | - | 4.15 | 0.00 | 4.28 | 1072.62 | 15/0 |
| | | 18-Aug-16 | 1076.77 | 1076.90 | 8.42 | - | 4.14 | 0.00 | 4.27 | 1072.63 | 0/0 |
| | | 3-May-16 | 1076.77 | 1076.90 | 8.46 | - | 4.03 | 0.00 | 4.16 | 1072.74 | 0/0 |
| | | 18-Feb-16 | 1076.77 | 1076.90 | 8.42 | - | 4.04 | 0.00 | 4.17 | 1072.73 | 0/0 |
| | | 9-Nov-15 | 1076.77 | 1076.90 | 8.44 | - | 4.20 | 0.00 | 4.33 | 1072.57 | 0/1 |
| | | 1-Sep-15 | 1076.77 | 1076.90 | 8.45 | - | 4.16 | 0.00 | 4.29 | 1072.61 | 0/0 |
| | | 9-Jun-15 | 1076.77 | 1076.90 | 8.46 | - | 4.23 | 0.00 | 4.36 | 1072.54 | 0/1 |
| | | 22-Apr-15 | 1076.77 | 1076.90 | 8.46 | - | 4.03 | 0.00 | 4.15 | 1072.75 | 1,350/1 |
| BH1965 | 2 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 13-Nov-19 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 8-May-19 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Oct-18 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 23-Mar-18 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 7-Sep-17 | 1091.27 | 1091.37 | 10.94 | - | - | 0.00 | - | - | 10/1 (DRY) |
| | | 2-May-17 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 23-Feb-17 | 1091.27 | 1091.37 | 10.92 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 27-Oct-16 | 1091.27 | 1091.37 | 10.91 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 16-Aug-16 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 5-May-16 | 1091.27 | 1091.37 | 10.96 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 18-Feb-16 | 1091.27 | 1091.37 | 10.91 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 10-Nov-15 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 2-Sep-15 | 1091.27 | 1091.37 | 10.99 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Jun-15 | 1091.27 | 1091.37 | 10.88 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 25-Mar-15 | 1091.27 | 1091.37 | 10.90 | - | - | 0.00 | - | - | 0/0 (DRY) |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1966 | 3 | 6-May-20 | 1089.42 | 1089.52 | 16.50 | - | 10.65 | 0.00 | 10.75 | 1078.77 | 0/1 |
| | | 14-Nov-19 | 1089.42 | 1089.52 | 16.53 | - | 10.68 | 0.00 | 10.78 | 1078.74 | 0/0 |
| | | 8-May-19 | 1089.42 | 1089.52 | 16.57 | - | 10.89 | 0.00 | 10.99 | 1078.53 | 0/0 |
| | | 9-Oct-18 | 1089.42 | 1089.52 | 16.57 | - | 10.88 | 0.00 | 10.98 | 1078.54 | 0/0 |
| | | 20-Mar-18 | 1089.42 | 1089.52 | 16.52 | - | 10.81 | 0.00 | 10.91 | 1078.61 | 0/0 |
| | | 5-Sep-17 | 1089.42 | 1089.52 | 16.54 | - | 10.81 | 0.00 | 10.91 | 1078.61 | 5/0 |
| | | 1-May-17 | 1089.42 | 1089.52 | 16.55 | - | 10.78 | 0.00 | 10.88 | 1078.64 | 0/0 |
| | | 19-Feb-17 | 1089.42 | 1089.52 | 16.57 | - | 10.75 | 0.00 | 10.85 | 1078.67 | 0/1 |
| | | 27-Oct-16 | 1089.42 | 1089.52 | 16.57 | - | 10.69 | 0.00 | 10.79 | 1078.73 | 25/0 |
| | | 16-Aug-16 | 1089.42 | 1089.52 | 16.63 | - | 10.77 | 0.00 | 10.87 | 1078.65 | 0/0 |
| | | 4-May-16 | 1089.42 | 1089.52 | 16.57 | - | 10.73 | 0.00 | 10.83 | 1078.69 | 0/0 |
| | | 17-Feb-16 | 1089.42 | 1089.52 | 16.57 | - | 10.66 | 0.00 | 10.76 | 1078.76 | 0/0 |
| | | 9-Nov-15 | 1089.42 | 1089.52 | 16.79 | - | 10.70 | 0.00 | 10.80 | 1078.72 | 0/0 |
| | | 1-Sep-15 | 1089.42 | 1089.52 | 10.57 | - | 10.70 | 0.00 | 10.80 | 1078.72 | 0/0 |
| | | 9-Jun-15 | 1089.42 | 1089.52 | 16.61 | - | 10.74 | 0.00 | 10.84 | 1078.68 | 5/0 |
| | | 27-Apr-15 | 1089.42 | 1089.52 | 16.69 | - | 10.72 | 0.00 | 10.82 | 1078.70 | 0/0 |
| | | 24-Feb-15 | 1089.42 | 1089.52 | 16.20 | - | 10.62 | 0.00 | 10.72 | 1078.80 | 0/1 |
| BH1967 | 2 | 6-May-20 | 1090.10 | 1090.21 | 8.61 | - | 6.88 | 0.00 | 6.98 | 1083.22 | 0/3 |
| | | 14-Nov-19 | 1090.10 | 1090.21 | 8.60 | - | 6.89 | 0.00 | 7.00 | 1083.21 | 0/0 |
| | | 8-May-19 | 1090.10 | 1090.21 | 8.62 | - | 7.70 | 0.00 | 7.80 | 1082.41 | 0/0 |
| | | 9-Oct-18 | 1090.10 | 1090.21 | 8.62 | - | 7.67 | 0.00 | 7.78 | 1082.43 | 0/0 |
| | | 20-Mar-18 | 1090.10 | 1090.21 | 8.62 | - | 7.68 | 0.00 | 7.78 | 1082.43 | 0/0 |
| | | 5-Sep-17 | 1090.10 | 1090.21 | 8.64 | - | 7.70 | 0.00 | 7.80 | 1082.41 | 0/0 |
| | | 1-May-17 | 1090.10 | 1090.21 | 8.62 | - | 7.43 | 0.00 | 7.54 | 1082.67 | 0/0 |
| | | 16-Feb-17 | 1090.10 | 1090.21 | 8.62 | - | 7.33 | 0.00 | 7.44 | 1082.77 | 0/3 |
| | | 27-Oct-16 | 1090.10 | 1090.21 | 8.60 | - | 7.05 | 0.00 | 7.16 | 1083.05 | 20/0 |
| | | 16-Aug-16 | 1090.10 | 1090.21 | 8.60 | - | 7.50 | 0.00 | 7.61 | 1082.60 | 0/0 |
| | | 4-May-16 | 1090.10 | 1090.21 | 8.59 | - | 7.53 | 0.00 | 7.63 | 1082.58 | 0/1 |
| | | 17-Feb-16 | 1090.10 | 1090.21 | 8.58 | - | 7.23 | 0.00 | 7.34 | 1082.87 | 20/0 |
| | | 9-Nov-15 | 1090.10 | 1090.21 | 8.62 | - | 7.07 | 0.00 | 7.18 | 1083.03 | 0/0 |
| | | 1-Sep-15 | 1090.10 | 1090.21 | 8.60 | - | 7.46 | 0.00 | 7.57 | 1082.64 | 0/2 |
| | | 9-Jun-15 | 1090.10 | 1090.21 | 8.59 | - | 7.44 | 0.00 | 7.54 | 1082.67 | 5/1 |
| | | 25-Feb-15 | 1090.10 | 1090.21 | 8.60 | - | 7.83 | 0.00 | 7.93 | 1082.28 | 350/185 |
| BH1968 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 8-May-19 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Oct-18 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 20-Mar-18 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Sep-17 | 1090.08 | 1090.20 | 5.16 | - | - | 0.00 | - | - | 40/0 (DRY) |
| | | 1-May-17 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 16-Feb-17 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/8 (DRY) |
| | | 27-Oct-16 | 1090.08 | 1090.20 | 5.14 | - | - | 0.00 | - | - | 30/0 (DRY) |
| | | 16-Aug-16 | 1090.08 | 1090.20 | 5.12 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-May-16 | 1090.08 | 1090.20 | 5.16 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 17-Feb-16 | 1090.08 | 1090.20 | 5.12 | - | - | 0.00 | - | - | 100/3 (DRY) |
| | | 9-Nov-15 | 1090.08 | 1090.20 | 5.12 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-Sep-15 | 1090.08 | 1090.20 | 5.12 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Jun-15 | 1090.08 | 1090.20 | 5.15 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 25-Feb-15 | 1090.08 | 1090.20 | 5.12 | - | - | 0.00 | - | - | 5/1 (DRY) |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1969 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 8-May-19 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 9-Oct-18 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 20-Mar-18 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 15/1 (DRY) |
| | | 5-Sep-17 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-May-17 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 40/0 (DRY) |
| | | 16-Feb-17 | 1089.39 | 1089.47 | 7.56 | - | - | 0.00 | - | - | 60/0 (DRY) |
| | | 27-Oct-16 | 1089.39 | 1089.47 | 7.54 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 16-Aug-16 | 1089.39 | 1089.47 | 7.53 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-May-16 | 1089.39 | 1089.47 | 7.55 | - | - | 0.00 | - | - | 0/4 (DRY) |
| | | 17-Feb-16 | 1089.39 | 1089.47 | 7.25 | - | - | 0.00 | - | - | 0/6 (DRY) |
| | | 9-Nov-15 | 1089.39 | 1089.47 | 7.52 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 1-Sep-15 | 1089.39 | 1089.47 | 7.46 | - | - | 0.00 | - | - | 20/15 (DRY) |
| | | 9-Jun-15 | 1089.39 | 1089.47 | 7.56 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 24-Feb-15 | 1089.39 | 1089.47 | 7.53 | - | - | 0.00 | - | - | 1,200/450 (DRY) |
| BH1970 | 2 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 8-May-19 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 9-Oct-18 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 20-Mar-18 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 5-Sep-17 | 1089.22 | 1089.30 | 8.60 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 1-May-17 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 16-Feb-17 | 1089.22 | 1089.30 | 8.59 | - | - | 0.00 | - | - | 500/250 (DRY) |
| | | 27-Oct-16 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 16-Aug-16 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | 1,100/430 (DRY) |
| | | 4-May-16 | 1089.22 | 1089.30 | 8.59 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 17-Feb-16 | 1089.22 | 1089.30 | 8.56 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 9-Nov-15 | 1089.22 | 1089.30 | 8.56 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 1-Sep-15 | 1089.22 | 1089.30 | 8.56 | - | - | 0.00 | - | - | >11,100/>2,000 (DRY) |
| | | 9-Jun-15 | 1089.22 | 1089.30 | 8.59 | - | - | 0.00 | - | - | 920/280 (DRY) |
| | | 24-Feb-15 | 1089.22 | 1089.30 | 8.57 | - | - | 0.00 | - | - | 1,500/1,850 (DRY) |
| BH1971 | 2 | 5-May-20 | 1090.76 | 1090.94 | 10.94 | - | 7.23 | 0.00 | 7.36 | 1083.53 | 148/1 |
| | | 14-Nov-19 | 1090.76 | 1090.94 | 10.97 | - | 7.36 | 0.00 | 7.36 | 1083.40 | 125/63 |
| | | 8-May-19 | 1090.76 | 1090.94 | 11.00 | - | 7.88 | 0.00 | 8.07 | 1082.88 | 125/63 |
| | | 9-Oct-18 | 1090.76 | 1090.94 | 11.00 | - | 8.10 | 0.00 | 8.28 | 1082.66 | 1,000/379 |
| | | 20-Mar-18 | 1090.76 | 1090.94 | 11.02 | - | 7.84 | 0.00 | 8.03 | 1082.92 | 3,500/2,000 |
| | | 5-Sep-17 | 1090.76 | 1090.94 | 10.99 | - | 8.05 | 0.00 | 8.24 | 1082.70 | 1,400/741 |
| | | 1-May-17 | 1090.76 | 1090.94 | 10.97 | - | 7.55 | 0.00 | 7.73 | 1083.21 | 300/500 |
| | | 16-Feb-17 | 1090.76 | 1090.94 | 11.00 | - | 7.61 | 0.00 | 7.80 | 1083.14 | 0/1 |
| | | 27-Oct-16 | 1090.76 | 1090.94 | 10.97 | - | 7.97 | 0.00 | 8.15 | 1082.79 | 4,150/1,000 |
| | | 16-Aug-16 | 1090.76 | 1090.94 | 10.98 | - | 8.04 | 0.00 | 8.23 | 1082.72 | 7,000/1,000 |
| | | 4-May-16 | 1090.76 | 1090.94 | 10.96 | - | 7.71 | 0.00 | 7.90 | 1083.05 | 1,200/698 |
| | | 16-Feb-16 | 1090.76 | 1090.94 | 10.95 | - | 7.61 | 0.00 | 7.80 | 1083.15 | 4,500/1,313 |
| | | 9-Nov-15 | 1090.76 | 1090.94 | 11.00 | - | 7.73 | 0.00 | 7.92 | 1083.03 | 8,400/>2,000 |
| | | 1-Sep-15 | 1090.76 | 1090.94 | 10.97 | - | 7.95 | 0.00 | 8.14 | 1082.81 | 1,350/651 |
| | | 9-Jun-15 | 1090.76 | 1090.94 | 10.97 | - | 7.80 | 0.00 | 7.99 | 1082.95 | 200/115 |
| | | 27-Feb-15 | 1090.76 | 1090.94 | 10.97 | - | 7.96 | 0.00 | 8.15 | 1082.80 | 5,000/1,500 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1972 | 2 | 6-May-20 | 1088.79 | 1088.92 | 10.79 | - | 8.32 | 0.00 | 8.45 | 1080.47 | 0/1 |
| | | 13-Nov-19 | 1088.79 | 1088.92 | 10.91 | - | 8.22 | 0.00 | 8.35 | 1080.57 | 0/1 |
| | | 3-May-19 | 1088.79 | 1088.92 | 10.85 | - | 8.66 | 0.00 | 8.79 | 1080.13 | 0/1 |
| | | 5-Oct-18 | 1088.79 | 1088.92 | 10.85 | - | 9.98 | 0.00 | 10.11 | 1078.81 | 0/1 |
| | | 19-Mar-18 | 1088.79 | 1088.92 | 10.86 | - | 8.81 | 0.00 | 8.94 | 1079.98 | 65/0 |
| | | 6-Sep-17 | 1088.79 | 1088.92 | 10.87 | - | 8.56 | 0.00 | 8.69 | 1080.23 | 0/2 |
| | | 1-May-17 | 1088.79 | 1088.92 | 10.89 | - | 8.58 | 0.00 | 8.71 | 1080.21 | 0/1 |
| | | 17-Feb-17 | 1088.79 | 1088.92 | 10.91 | - | 8.36 | 0.00 | 8.49 | 1080.43 | 105/2 |
| | | 27-Oct-16 | 1088.79 | 1088.92 | 10.90 | - | 9.07 | 0.00 | 9.20 | 1079.72 | 60/2 |
| | | 17-Aug-16 | 1088.79 | 1088.92 | 10.88 | - | 8.73 | 0.00 | 8.86 | 1080.06 | 25/1 |
| | | 4-May-16 | 1088.79 | 1088.92 | 10.90 | - | 9.69 | 0.00 | 9.82 | 1079.10 | 0/1 |
| | | 17-Feb-16 | 1088.79 | 1088.92 | 10.92 | - | 9.50 | 0.00 | 9.63 | 1079.29 | 0/1 |
| | | 9-Nov-15 | 1088.79 | 1088.92 | 10.97 | - | 8.14 | 0.00 | 8.27 | 1080.65 | 0/2 |
| | | 1-Sep-15 | 1088.79 | 1088.92 | 10.98 | - | 8.14 | 0.00 | 8.27 | 1080.65 | 0/1 |
| | | 9-Jun-15 | 1088.79 | 1088.92 | 10.90 | - | 8.79 | 0.00 | 8.92 | 1080.00 | 0/2 |
| | | 6-Apr-15 | 1088.79 | 1088.92 | 10.98 | - | 9.61 | 0.00 | 9.74 | 1079.18 | 0/3 |
| BH1973 | 1 | As this monitoring well has been dry throughout the last five sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1090.81 | 1090.93 | 6.45 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 8-May-19 | 1090.81 | 1090.93 | 6.45 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Oct-18 | 1090.81 | 1090.93 | 6.45 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 20-Mar-18 | 1090.81 | 1090.93 | 6.45 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Sep-17 | 1090.81 | 1090.93 | 6.45 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-May-17 | 1090.81 | 1090.93 | 6.45 | - | 6.31 | 0.00 | 6.43 | 1084.50 | 0/0 |
| | | 16-Feb-17 | 1090.81 | 1090.93 | 6.26 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 27-Oct-16 | 1090.81 | 1090.93 | 6.42 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 16-Aug-16 | 1090.81 | 1090.93 | 6.42 | - | - | 0.00 | - | - | 5/0 (DRY) |
| | | 4-May-16 | 1090.81 | 1090.93 | 6.45 | - | 6.41 | 0.00 | 6.53 | 1084.40 | 0/0 |
| | | 16-Feb-16 | 1090.81 | 1090.93 | 6.42 | - | 6.22 | 0.00 | 6.34 | 1084.59 | 0/0 |
| | | 9-Nov-15 | 1090.81 | 1090.93 | 6.44 | - | 6.17 | 0.00 | 6.29 | 1084.64 | 5/0 |
| | | 1-Sep-15 | 1090.81 | 1090.93 | 6.42 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Jun-15 | 1090.81 | 1090.93 | 6.42 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 27-Feb-15 | 1090.81 | 1090.93 | 6.41 | - | 6.21 | 0.00 | 6.33 | 1084.60 | 0/0 |
| BH1974 | 2 | 5-May-20 | 1090.07 | 1090.24 | 9.93 | - | 6.90 | 0.00 | 7.07 | 1083.17 | 0/0 |
| | | 14-Nov-19 | 1090.07 | 1090.24 | 9.99 | - | 7.13 | 0.00 | 7.31 | 1082.94 | 0/1 |
| | | 8-May-19 | 1090.07 | 1090.24 | 10.00 | - | 7.63 | 0.00 | 7.80 | 1082.44 | 0/1 |
| | | 9-Oct-18 | 1090.07 | 1090.24 | 10.00 | - | 8.18 | 0.00 | 8.35 | 1081.90 | 50/1 |
| | | 20-Mar-18 | 1090.07 | 1090.24 | 10.00 | - | 7.53 | 0.00 | 7.70 | 1082.54 | 560/314 |
| | | 5-Sep-17 | 1090.07 | 1090.24 | 9.98 | - | 8.50 | 0.00 | 8.67 | 1081.57 | 100/42 |
| | | 1-May-17 | 1090.07 | 1090.24 | 9.99 | - | 7.15 | 0.00 | 7.33 | 1082.92 | 180/24 |
| | | 16-Feb-17 | 1090.07 | 1090.24 | 10.02 | - | 7.12 | 0.00 | 7.29 | 1082.96 | 360/44 |
| | | 27-Oct-16 | 1090.07 | 1090.24 | 9.98 | - | 7.25 | 0.00 | 7.42 | 1082.82 | 440/180 |
| | | 16-Aug-16 | 1090.07 | 1090.24 | 9.98 | - | 7.66 | 0.00 | 7.83 | 1082.42 | 1,750/400 |
| | | 4-May-16 | 1090.07 | 1090.24 | 9.99 | - | 7.28 | 0.00 | 7.45 | 1082.79 | 400/174 |
| | | 16-Feb-16 | 1090.07 | 1090.24 | 9.99 | - | 7.13 | 0.00 | 7.30 | 1082.95 | 500/222 |
| | | 9-Nov-15 | 1090.07 | 1090.24 | 9.99 | - | 7.26 | 0.00 | 7.44 | 1082.81 | 2,150/790 |
| | | 1-Sep-15 | 1090.07 | 1090.24 | 9.99 | - | 7.58 | 0.00 | 7.75 | 1082.49 | 7,800/1,099 |
| | | 9-Jun-15 | 1090.07 | 1090.24 | 10.00 | - | 7.31 | 0.00 | 7.48 | 1082.76 | 920/280 |
| | | 26-Feb-15 | 1090.07 | 1090.24 | 10.00 | - | 7.19 | 0.00 | 7.37 | 1082.88 | 3,400/925 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1975 | 1 | As this monitoring well has been dry throughout the last five sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 14-Nov-19 | 1090.23 | 1090.39 | 7.04 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 8-May-19 | 1090.23 | 1090.39 | 7.04 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Oct-18 | 1090.23 | 1090.39 | 7.04 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 20-Mar-18 | 1090.23 | 1090.39 | 7.05 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 5-Sep-17 | 1090.23 | 1090.39 | 7.05 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-May-17 | 1090.23 | 1090.39 | 7.05 | - | 6.79 | 0.00 | 6.95 | 1083.44 | 0/1 |
| | | 16-Feb-17 | 1090.23 | 1090.39 | 7.06 | - | 6.76 | 0.00 | 6.93 | 1083.46 | 0/7 |
| | | 27-Oct-16 | 1090.23 | 1090.39 | 7.03 | - | 6.98 | 0.00 | 7.14 | 1083.25 | 0/0 |
| | | 16-Aug-16 | 1090.23 | 1090.39 | 7.03 | - | - | 0.00 | - | - | 35/0 (DRY) |
| | | 4-May-16 | 1090.23 | 1090.39 | 7.02 | - | 6.88 | 0.00 | 7.04 | 1083.35 | 0/0 |
| | | 16-Feb-16 | 1090.23 | 1090.39 | 7.03 | - | 6.74 | 0.00 | 6.90 | 1083.49 | 0/0 |
| | | 9-Nov-15 | 1090.23 | 1090.39 | 7.08 | - | 6.93 | 0.00 | 7.10 | 1083.29 | 0/0 |
| | | 1-Sep-15 | 1090.23 | 1090.39 | 7.02 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1090.23 | 1090.39 | 7.03 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 26-Feb-15 | 1090.23 | 1090.39 | 7.03 | - | 6.66 | 0.00 | 6.82 | 1083.57 | 450/0 |
| BH1976 | 2 | 5-May-20 | 1092.63 | 1092.79 | 13.46 | - | 9.33 | 0.00 | 9.48 | 1083.31 | 85/0 |
| | | 14-Nov-19 | 1092.63 | 1092.79 | 13.46 | - | 9.43 | 0.00 | 9.59 | 1083.20 | 0/0 |
| | | 8-May-19 | 1092.63 | 1092.79 | 13.55 | - | 9.92 | 0.00 | 10.07 | 1082.72 | 0/0 |
| | | 9-Oct-18 | 1092.63 | 1092.79 | 13.55 | - | 10.18 | 0.00 | 10.34 | 1082.45 | 0/0 |
| | | 20-Mar-18 | 1092.63 | 1092.79 | 13.56 | - | 9.72 | 0.00 | 9.88 | 1082.91 | 0/0 |
| | | 1-May-17 | 1092.63 | 1092.79 | 13.58 | - | 9.56 | 0.00 | 9.72 | 1083.07 | 15/0 |
| | | 16-Feb-17 | 1092.63 | 1092.79 | 13.58 | - | 9.41 | 0.00 | 9.57 | 1083.22 | 0/0 |
| | | 27-Oct-16 | 1092.63 | 1092.79 | 13.64 | - | 9.52 | 0.00 | 9.68 | 1083.11 | 0/1 |
| | | 16-Aug-16 | 1092.63 | 1092.79 | 13.66 | - | 9.76 | 0.00 | 9.91 | 1082.88 | 0/0 |
| | | 4-May-16 | 1092.63 | 1092.79 | 13.67 | - | 9.61 | 0.00 | 9.76 | 1083.02 | 0/1 |
| | | 17-Feb-16 | 1092.63 | 1092.79 | 13.75 | - | 9.51 | 0.00 | 9.67 | 1083.12 | 25/0 |
| | | 9-Nov-15 | 1092.63 | 1092.79 | 13.87 | - | 9.62 | 0.00 | 9.77 | 1083.02 | 0/1 |
| | | 1-Sep-15 | 1092.63 | 1092.79 | 13.83 | - | 9.72 | 0.00 | 9.88 | 1082.91 | 0/1 |
| | | 9-Jun-15 | 1092.63 | 1092.79 | 13.86 | - | 9.71 | 0.00 | 9.86 | 1082.93 | 0/1 |
| BH1977 | 3,4,5 | 6-May-20 | 1074.04 | 1074.16 | 7.04 | - | 1.01 | 0.00 | 1.13 | 1073.03 | 10/1 |
| | | 13-Nov-19 | 1074.04 | 1074.16 | 7.05 | - | 1.01 | 0.00 | 1.12 | 1073.04 | 10/1 |
| | | 24-Apr-19 | 1074.04 | 1074.16 | 7.09 | - | 1.08 | 0.00 | 1.19 | 1072.96 | 10/1 |
| | | 4-Oct-18 | 1074.04 | 1074.16 | 7.09 | - | 1.19 | 0.00 | 1.31 | 1072.85 | 10/1 |
| | | 21-Mar-18 | 1074.04 | 1074.16 | 7.13 | - | 1.19 | 0.00 | 1.30 | 1072.86 | 30/1 |
| | | 6-Sep-17 | 1074.04 | 1074.16 | 7.07 | - | 1.31 | 0.00 | 1.42 | 1072.73 | 0/1 |
| | | 3-May-17 | 1074.04 | 1074.16 | 7.11 | - | 1.04 | 0.00 | 1.16 | 1073.00 | 0/1 |
| | | 22-Feb-17 | 1074.04 | 1074.16 | 7.10 | - | 1.16 | 0.00 | 1.27 | 1072.88 | 0/1 |
| | | 27-Oct-16 | 1074.04 | 1074.16 | 7.11 | - | 0.98 | 0.00 | 1.09 | 1073.07 | 5/1 |
| | | 17-Aug-16 | 1074.04 | 1074.16 | 7.11 | - | 0.91 | 0.00 | 1.03 | 1073.13 | 0/1 |
| | | 3-May-16 | 1074.04 | 1074.16 | 6.30 | - | 1.18 | 0.00 | 1.29 | 1072.87 | 0/1 |
| | | 17-Feb-16 | 1074.04 | 1074.16 | 6.27 | - | 1.17 | 0.00 | 1.28 | 1072.88 | 0/1 |
| | | 9-Nov-15 | 1074.04 | 1074.16 | 6.28 | - | 1.08 | 0.00 | 1.20 | 1072.96 | 0/1 |
| | | 1-Sep-15 | 1074.04 | 1074.16 | 6.30 | - | 1.05 | 0.00 | 1.16 | 1072.99 | 0/1 |
| | | 9-Jun-15 | 1074.04 | 1074.16 | 6.29 | - | 1.15 | 0.00 | 1.27 | 1072.89 | 0/1 |
| | | 18-Mar-15 | 1074.04 | 1074.16 | 7.93 | - | 1.14 | 0.00 | 1.25 | 1072.91 | 2,800 Hex |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1978 | 4,5 | 5-May-20 | 1069.24 | 1069.42 | 2.87 | - | 1.39 | 0.00 | 1.57 | 1067.85 | 0/0 |
| | | 12-Nov-19 | 1069.24 | 1069.42 | 2.88 | - | 1.69 | 0.00 | 1.87 | 1067.55 | 0/0 |
| | | 23-Apr-19 | 1069.24 | 1069.42 | 2.90 | - | 1.34 | 0.00 | 1.52 | 1067.90 | 0/0 |
| | | 3-Oct-18 | 1069.24 | 1069.42 | 2.90 | - | 2.57 | 0.00 | 2.75 | 1066.67 | 0/0 |
| | | 21-Mar-18 | 1069.24 | 1069.42 | 2.91 | - | 0.75 | 0.00 | 0.93 | 1068.49 | 0/0 |
| | | 6-Sep-17 | 1069.24 | 1069.42 | 2.90 | - | 2.68 | 0.00 | 2.86 | 1066.56 | 25/0 |
| | | 3-May-17 | 1069.24 | 1069.42 | 2.91 | - | 1.33 | 0.00 | 1.51 | 1067.91 | 0/0 |
| | | 21-Feb-17 | 1069.24 | 1069.42 | 2.90 | - | 1.70 | 0.00 | 1.87 | 1067.55 | 0/2 |
| | | 28-Oct-16 | 1069.24 | 1069.42 | 2.88 | - | 2.08 | 0.00 | 2.25 | 1067.17 | 0/1 |
| | | 17-Aug-16 | 1069.24 | 1069.42 | 2.88 | - | 1.53 | 0.00 | 1.70 | 1067.72 | 0/1 |
| | | 3-May-16 | 1069.24 | 1069.42 | 2.90 | - | 2.07 | 0.00 | 2.25 | 1067.17 | 0/0 |
| | | 17-Feb-16 | 1069.24 | 1069.42 | 2.89 | - | 1.44 | 0.00 | 1.62 | 1067.80 | 0/0 |
| | | 9-Nov-15 | 1069.24 | 1069.42 | 2.91 | - | 2.15 | 0.00 | 2.33 | 1067.09 | 0/0 |
| | | 2-Sep-15 | 1069.24 | 1069.42 | 2.88 | - | 1.90 | 0.00 | 2.08 | 1067.34 | 0/0 |
| | | 9-Jun-15 | 1069.24 | 1069.42 | 2.91 | - | 2.09 | 0.00 | 2.27 | 1067.15 | 0/1 |
| | | 26-Mar-15 | 1069.24 | | 3.05 | - | 1.37 | 0.00 | 1.55 | 1067.87 | 0/0 |
| BH1979 | 3 | 17-Aug-16 | Well damaged and no longer serviceable. | | | | | | | | |
| | | 3-May-16 | 1078.71 | 1078.78 | 6.74 | - | 5.74 | 0.00 | 5.81 | 1072.98 | 0/0 |
| | | 17-Feb-16 | 1078.71 | 1078.78 | 6.75 | - | 5.70 | 0.00 | 5.77 | 1073.02 | 0/1 |
| | | 12-Nov-15 | 1078.71 | 1078.78 | 6.79 | - | 5.68 | 0.00 | 5.75 | 1073.03 | 0/1 |
| | | 2-Sep-15 | 1078.71 | 1078.78 | 6.76 | - | 5.73 | 0.00 | 5.80 | 1072.98 | 0/1 |
| | | 9-Jun-15 | 1078.71 | 1078.78 | 6.82 | - | 5.76 | 0.00 | 5.83 | 1072.95 | 0/1 |
| | | 8-Apr-15 | 1078.71 | 1078.78 | 6.76 | - | 5.71 | 0.00 | 5.78 | 1073.00 | 15/0 |
| BH1980 | 4 | 6-May-20 | 1074.24 | 1074.31 | 5.45 | - | 2.71 | 0.00 | 2.77 | 1071.54 | 110/0 |
| | | 12-Nov-19 | 1074.24 | 1074.31 | 5.72 | - | 2.63 | 0.00 | 2.69 | 1071.62 | 305/0 |
| | | 24-Apr-19 | 1074.24 | 1074.31 | 5.89 | - | 2.62 | 0.00 | 2.68 | 1071.63 | 305/0 |
| | | 3-Oct-18 | 1074.24 | 1074.31 | 5.89 | - | 2.64 | 0.00 | 2.71 | 1071.60 | 510/1 |
| | | 21-Mar-18 | 1074.24 | 1074.31 | 6.01 | - | 2.71 | 0.00 | 2.77 | 1071.54 | 25/0 |
| | | 7-Sep-17 | 1074.24 | 1074.31 | 6.01 | - | 2.77 | 0.00 | 2.84 | 1071.47 | 10/2 |
| | | 3-May-17 | 1074.24 | 1074.31 | 5.99 | - | 2.79 | 0.00 | 2.86 | 1071.45 | 25/0 |
| | | 21-Feb-17 | 1074.24 | 1074.31 | 6.00 | - | 2.78 | 0.00 | 2.84 | 1071.46 | 340/3 |
| | | 28-Oct-16 | 1074.24 | 1074.31 | 5.99 | - | 2.19 | 0.00 | 2.25 | 1072.06 | 5/1 |
| | | 18-Aug-16 | 1074.24 | 1074.31 | 5.96 | - | 2.83 | 0.00 | 2.89 | 1071.41 | 15/0 |
| | | 3-May-16 | 1074.24 | 1074.31 | 5.64 | - | 2.89 | 0.00 | 2.95 | 1071.36 | 25/0 |
| | | 17-Feb-16 | 1074.24 | 1074.31 | 5.65 | - | 2.94 | 0.00 | 3.00 | 1071.31 | 0/2 |
| | | 10-Nov-15 | 1074.24 | 1074.31 | 5.62 | - | 2.83 | 0.00 | 2.89 | 1071.41 | 15/0 |
| | | 2-Sep-15 | 1074.24 | 1074.31 | 5.84 | - | 2.82 | 0.00 | 2.88 | 1071.42 | 0/2 |
| | | 9-Jun-15 | 1074.24 | 1074.31 | 5.97 | - | 2.92 | 0.00 | 2.98 | 1071.33 | 0/1 |
| | | 8-Apr-15 | 1074.24 | 1074.31 | 6.01 | - | 2.95 | 0.00 | 2.01 | 1072.30 | 0/1 |
| BH1981 | 3 | 6-May-20 | 1076.99 | 1077.06 | 7.76 | - | 3.35 | 0.00 | 3.42 | 1073.64 | 0/0 |
| | | 13-Nov-19 | 1076.99 | 1077.06 | 8.45 | - | 3.44 | 0.00 | 3.52 | 1073.54 | 0/0 |
| | | 24-Apr-19 | 1076.99 | 1077.06 | 8.85 | - | 3.57 | 0.00 | 3.64 | 1073.42 | 0/0 |
| | | 4-Oct-18 | 1076.99 | 1077.06 | 8.85 | - | 3.66 | 0.00 | 3.74 | 1073.32 | 0/0 |
| | | 21-Mar-18 | 1076.99 | 1077.06 | 8.90 | - | 3.64 | 0.00 | 3.72 | 1073.34 | 0/0 |
| | | 6-Sep-17 | 1076.99 | 1077.06 | 8.87 | - | 3.71 | 0.00 | 3.79 | 1073.27 | 0/1 |
| | | 3-May-17 | 1076.99 | 1077.06 | 8.92 | - | 3.52 | 0.00 | 3.59 | 1073.47 | 0/1 |
| | | 22-Feb-17 | 1076.99 | 1077.06 | 8.92 | - | 3.62 | 0.00 | 3.69 | 1073.37 | 0/3 |
| | | 28-Oct-16 | 1076.99 | 1077.06 | 8.94 | - | 3.53 | 0.00 | 3.60 | 1073.46 | 0/1 |
| | | 17-Aug-16 | 1076.99 | 1077.06 | 8.90 | - | 3.46 | 0.00 | 3.54 | 1073.53 | 0/1 |
| | | 3-May-16 | 1076.99 | 1077.06 | 7.79 | - | 3.63 | 0.00 | 3.70 | 1073.36 | 0/0 |
| | | 17-Feb-16 | 1076.99 | 1077.06 | 7.75 | - | 3.64 | 0.00 | 3.71 | 1073.35 | 0/1 |
| | | 9-Nov-15 | 1076.99 | 1077.06 | 7.76 | - | 3.69 | 0.00 | 3.77 | 1073.29 | 0/1 |
| | | 1-Sep-15 | 1076.99 | 1077.06 | 7.86 | - | 3.68 | 0.00 | 3.76 | 1073.31 | 0/1 |
| | | 9-Jun-15 | 1076.99 | 1077.06 | 7.83 | - | 3.66 | 0.00 | 3.74 | 1073.32 | 0/1 |
| | | 27-Mar-15 | 1076.99 | 1077.06 | 9.15 | - | 3.64 | 0.00 | 3.72 | 1073.34 | 0/0 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1982 | 3 | 4-May-20 | 1080.85 | 1080.96 | 7.21 | - | 6.18 | 0.00 | 6.29 | 1074.67 | 0/0 |
| | | 12-Nov-19 | 1080.85 | 1080.96 | 7.45 | - | 6.03 | 0.00 | 6.15 | 1074.82 | 0/0 |
| | | 25-Apr-19 | 1080.85 | 1080.96 | 7.50 | - | 6.36 | 0.00 | 6.47 | 1074.49 | 0/0 |
| | | 4-Oct-18 | 1080.85 | 1080.96 | 7.54 | - | 6.36 | 0.00 | 6.48 | 1074.49 | 0/0 |
| | | 21-Mar-18 | 1080.85 | 1080.96 | 7.59 | - | 6.39 | 0.00 | 6.50 | 1074.47 | 0/0 |
| | | 6-Sep-17 | 1080.85 | 1080.96 | 7.56 | - | 6.40 | 0.00 | 6.51 | 1074.46 | Not Measured |
| | | 3-May-17 | 1080.85 | 1080.96 | 7.61 | - | 6.40 | 0.00 | 6.51 | 1074.46 | 0/0 |
| | | 22-Feb-17 | 1080.85 | 1080.96 | 7.64 | - | 6.45 | 0.00 | 6.56 | 1074.40 | 0/1 |
| | | 27-Oct-16 | 1080.85 | 1080.96 | 7.81 | - | 6.36 | 0.00 | 6.47 | 1074.49 | 40/0 |
| | | 18-Aug-16 | 1080.85 | 1080.96 | 7.50 | - | 6.42 | 0.00 | 6.54 | 1074.43 | 55/0 |
| | | 3-May-16 | 1080.85 | 1080.96 | 7.78 | - | 6.52 | 0.00 | 6.63 | 1074.34 | 0/0 |
| | | 17-Feb-16 | 1080.85 | 1080.96 | 7.79 | - | 6.45 | 0.00 | 6.57 | 1074.40 | 0/1 |
| | | 10-Nov-15 | 1080.85 | 1080.96 | 7.81 | - | 6.41 | 0.00 | 6.52 | 1074.45 | 0/0 |
| | | 2-Sep-15 | 1080.85 | 1080.96 | 7.96 | - | 6.46 | 0.00 | 6.57 | 1074.39 | 0/1 |
| | | 9-Jun-15 | 1080.85 | 1080.96 | 7.73 | - | 6.48 | 0.00 | 6.60 | 1074.37 | 0/1 |
| | | 31-Mar-15 | 1080.85 | 1080.96 | 7.46 | - | 5.43 | 0.00 | 5.54 | 1075.42 | 0/0 |
| BH1983 | 3 | 12-Apr-16 | Well decommissioned on 12 April 2016. | | | | | | | | |
| | | 17-Feb-16 | 1090.53 | 1090.64 | 15.04 | - | 9.64 | 0.00 | 9.74 | 1080.90 | 40/2 |
| | | 12-Nov-15 | 1090.53 | 1090.64 | - | - | 9.65 | 0.00 | 9.75 | 1080.89 | 0/5 |
| | | 15-Sep-15 | 1090.53 | 1090.64 | 14.93 | - | 9.67 | 0.00 | 9.77 | 1080.86 | 15/14 |
| | | 9-Jun-15 | 1090.53 | 1090.64 | 14.48 | - | 9.02 | 0.00 | 9.12 | 1081.52 | 20/3 |
| | | 8-May-15 | 1090.53 | 1090.64 | 17.86 | - | 9.82 | 0.00 | 9.92 | 1080.71 | 1,050/60 |
| BH1983A | 3 | 29-May-20 | 1090.59 | 1090.71 | 17.80 | - | 9.72 | 0.00 | 9.84 | 1080.87 | 0/0 |
| | | 6-Jan-20 | - | - | - | - | - | 0.00 | - | - | Could Not Locate |
| | | 1-May-19 | 1090.59 | 1090.71 | 17.87 | - | 9.84 | 0.00 | 9.96 | 1080.75 | 0/0 |
| | | 7-Nov-18 | 1090.59 | 1090.71 | 17.87 | - | 9.87 | 0.00 | 9.98 | 1080.72 | 0/0 |
| | | 23-Mar-18 | 1090.59 | 1090.71 | 17.93 | - | 9.78 | 0.00 | 9.90 | 1080.81 | 3,500/1 |
| | | 24-Feb-17 | 1090.59 | 1090.71 | 17.90 | - | 9.75 | 0.00 | 9.87 | 1080.84 | 105/0 |
| | | 31-Oct-16 | 1090.59 | 1090.71 | 17.95 | - | 9.62 | 0.00 | 9.74 | 1080.97 | 0/1 |
| | | 17-Aug-16 | 1090.59 | 1090.71 | 17.97 | - | 9.68 | 0.00 | 9.80 | 1080.90 | 0/0 |
| | | 3-May-16 | 1090.59 | 1090.71 | 16.22 | - | 9.73 | 0.00 | 9.85 | 1080.86 | 45/21 |
| | | 12-Apr-16 | Well installed to replace BH1983 on 12 April 2016. | | | | | | | | |
| BH1984 | 3 | 26-May-20 | 1090.37 | 1090.46 | 15.35 | - | 9.06 | 0.00 | 9.15 | 1081.31 | >11,100/>2,000 |
| | | 6-Jan-20 | 1090.37 | 1090.46 | 15.33 | - | 9.05 | 0.00 | 9.14 | 1081.32 | >11,100/>2,000 |
| | | 1-May-19 | 1090.37 | 1090.46 | 15.33 | - | 9.17 | 0.00 | 9.26 | 1081.20 | >11,100/>2,000 |
| | | 7-Nov-18 | 1090.37 | 1090.46 | 15.33 | - | 9.19 | 0.00 | 9.28 | 1081.18 | >11,100/>2,000 |
| | | 23-Mar-18 | 1090.37 | 1090.46 | 15.55 | - | 9.12 | 0.00 | 9.21 | 1081.25 | >11,100/>2,000 |
| | | 24-Feb-17 | 1090.37 | 1090.46 | 15.35 | - | 9.10 | 0.00 | 9.19 | 1081.27 | 220/160 |
| | | 31-Oct-16 | 1090.37 | 1090.46 | 15.33 | - | 8.99 | 0.00 | 9.08 | 1081.38 | >11,100/>2,000 |
| | | 18-Aug-16 | 1090.37 | 1090.46 | 15.29 | - | 9.10 | 0.00 | 9.19 | 1081.27 | 0/17 |
| | | 4-May-16 | 1090.37 | 1090.46 | 15.38 | - | 9.12 | 0.00 | 9.21 | 1081.25 | >11,100/>2,000 |
| | | 16-Feb-16 | 1090.37 | 1090.46 | 15.41 | - | 9.04 | 0.00 | 9.13 | 1081.33 | 5,300/1,990 |
| | | 12-Nov-15 | 1090.37 | 1090.46 | 15.58 | - | 9.06 | 0.00 | 9.15 | 1081.31 | 1,600/937 |
| | | 15-Sep-15 | 1090.37 | 1090.46 | 15.36 | - | 9.05 | 0.00 | 9.14 | 1081.32 | >11,100/>2,000 |
| | | 9-Jun-15 | 1090.37 | 1090.46 | 15.47 | - | 9.12 | 0.00 | 9.21 | 1081.25 | 35/23 |
| | | 7-May-15 | 1090.37 | 1090.46 | 15.50 | - | 9.08 | 0.00 | 9.17 | 1081.29 | >11,100/>2,500 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1985 | 3 | 27-May-20 | 1090.21 | 1090.31 | 17.14 | - | 8.82 | 0.00 | 8.92 | 1081.39 | 0/0 |
| | | 6-Jan-20 | 1090.21 | 1090.31 | 17.20 | - | 8.79 | 0.00 | 8.90 | 1081.42 | 45/1 |
| | | 1-May-19 | 1090.21 | 1090.31 | 17.20 | - | 8.92 | 0.00 | 9.02 | 1081.29 | 50/1 |
| | | 7-Nov-18 | 1090.21 | 1090.31 | 17.20 | - | 8.95 | 0.00 | 9.05 | 1081.27 | 50/1 |
| | | 23-Mar-18 | 1090.21 | 1090.31 | 17.44 | - | 8.88 | 0.00 | 8.99 | 1081.33 | 155/2 |
| | | 24-Feb-17 | 1090.21 | 1090.31 | 17.19 | - | 8.86 | 0.00 | 8.96 | 1081.35 | 70/0 |
| | | 31-Oct-16 | 1090.21 | 1090.31 | 17.17 | - | 8.67 | 0.00 | 8.78 | 1081.54 | 160/0 |
| | | 17-Aug-16 | 1090.21 | 1090.31 | 17.20 | - | 8.84 | 0.00 | 8.94 | 1081.37 | 0/1 |
| | | 4-May-16 | 1090.21 | 1090.31 | 17.23 | - | 8.87 | 0.00 | 8.97 | 1081.35 | 5/0 |
| | | 16-Feb-16 | 1090.21 | 1090.31 | 17.25 | - | 8.78 | 0.00 | 8.88 | 1081.43 | 0/0 |
| | | 12-Nov-15 | 1090.21 | 1090.31 | 17.37 | - | 8.81 | 0.00 | 8.91 | 1081.40 | 0/1 |
| | | 15-Sep-15 | 1090.21 | 1090.31 | 17.32 | - | 8.76 | 0.00 | 8.86 | 1081.45 | 0/0 |
| | | 9-Jun-15 | 1090.21 | 1090.31 | 17.47 | - | 8.86 | 0.00 | 8.96 | 1081.36 | 0/0 |
| | | 7-May-15 | 1090.21 | 1090.31 | 17.04 | - | 8.81 | 0.00 | 8.91 | 1081.40 | 15/0 |
| BH1986 | 2 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 6-Jan-20 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-May-19 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 7-Nov-18 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 23-Mar-18 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 60/14 (DRY) |
| | | 24-Feb-17 | 1090.31 | 1090.42 | 6.66 | - | - | 0.00 | - | - | 100/2 (DRY) |
| | | 31-Oct-16 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 115/17 (DRY) |
| | | 18-Aug-16 | 1090.31 | 1090.42 | 6.67 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-May-16 | 1090.31 | 1090.42 | 6.70 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 16-Feb-16 | 1090.31 | 1090.42 | 6.67 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 12-Nov-15 | 1090.31 | 1090.42 | 6.68 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 15-Sep-15 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 5/1 (DRY) |
| | | 9-Jun-15 | 1090.31 | 1090.42 | 6.71 | - | - | 0.00 | - | - | 10/1 (DRY) |
| | | 22-Apr-15 | 1090.31 | 1090.42 | 6.69 | - | - | 0.00 | - | - | 10/1 (DRY) |
| BH1987 | 2 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 6-Jan-20 | 1090.15 | 1090.27 | 6.03 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-May-19 | 1090.15 | 1090.27 | 6.03 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 7-Nov-18 | 1090.15 | 1090.27 | 6.03 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 23-Mar-18 | 1090.15 | 1090.27 | 6.03 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 24-Feb-17 | 1090.15 | 1090.27 | 5.98 | - | - | 0.00 | - | - | 110/2 (DRY) |
| | | 31-Oct-16 | 1090.15 | 1090.27 | 6.00 | - | - | 0.00 | - | - | 10/0 (DRY) |
| | | 17-Aug-16 | 1090.15 | 1090.27 | 6.01 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 4-May-16 | 1090.15 | 1090.27 | 6.03 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 16-Feb-16 | 1090.15 | 1090.27 | 6.01 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 12-Nov-15 | 1090.15 | 1090.27 | 6.01 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 15-Sep-15 | 1090.15 | 1090.27 | 6.01 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 9-Jun-15 | 1090.15 | 1090.27 | 6.04 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 22-Apr-15 | 1090.15 | 1090.27 | 6.00 | - | - | 0.00 | - | - | 0/1 (DRY) |
| BH1988 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 6-Jan-20 | 1090.16 | 1090.26 | 4.53 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 1-May-19 | 1090.16 | 1090.26 | 4.53 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 7-Nov-18 | 1090.16 | 1090.26 | 4.53 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 23-Mar-18 | 1090.16 | 1090.26 | 4.53 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 24-Feb-17 | 1090.16 | 1090.26 | 4.48 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 31-Oct-16 | 1090.16 | 1090.26 | 4.49 | - | - | 0.00 | - | - | 0/10 (DRY) |
| | | 17-Aug-16 | 1090.16 | 1090.26 | 4.50 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 4-May-16 | 1090.16 | 1090.26 | 4.53 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 16-Feb-16 | 1090.16 | 1090.26 | 4.50 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 12-Nov-15 | 1090.16 | 1090.26 | 4.50 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 15-Sep-15 | 1090.16 | 1090.26 | 4.49 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 9-Jun-15 | 1090.16 | 1090.26 | 4.54 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 22-Apr-15 | 1090.16 | 1090.26 | 4.50 | - | - | 0.00 | - | - | 0/0 (DRY) |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH2001 | 5 | 6-May-20 | 1069.85 | 1069.94 | 4.73 | - | 0.97 | 0.00 | 1.06 | 1068.88 | 0/0 |
| | | 13-Nov-19 | 1069.85 | 1069.94 | 4.74 | - | 0.95 | 0.00 | 1.04 | 1068.91 | 0/0 |
| | | 24-Apr-19 | 1069.85 | 1069.94 | 4.74 | - | 1.03 | 0.00 | 1.12 | 1068.82 | 0/0 |
| | | 4-Oct-18 | 1069.85 | 1069.94 | 4.73 | - | 1.09 | 0.00 | 1.18 | 1068.77 | 0/0 |
| | | 21-Mar-18 | 1069.85 | 1069.94 | 4.71 | - | 1.11 | 0.00 | 1.20 | 1068.74 | 0/2 |
| | | 6-Sep-17 | 1069.85 | 1069.94 | 4.70 | - | 1.11 | 0.00 | 1.21 | 1068.74 | 80/0 |
| | | 3-May-17 | 1069.85 | 1069.94 | 4.72 | - | 1.06 | 0.00 | 1.15 | 1068.79 | 0/1 |
| | | 22-Feb-17 | 1069.85 | 1069.94 | 4.71 | - | 1.10 | 0.00 | 1.19 | 1068.75 | 0/1 |
| | | 28-Oct-16 | 1069.85 | 1069.94 | 4.60 | - | 0.95 | 0.00 | 1.04 | 1068.90 | 25/4 |
| | | 17-Aug-16 | 1069.85 | 1069.94 | 4.60 | - | 0.97 | 0.00 | 1.06 | 1068.88 | 0/2 |
| | | 3-May-16 | 1069.85 | 1069.94 | 4.62 | - | 1.09 | 0.00 | 1.18 | 1068.76 | 0/1 |
| BH2002 | 4 | 6-May-20 | 1070.03 | 1070.14 | 3.79 | - | 2.31 | 0.00 | 2.42 | 1067.72 | 0/0 |
| | | 12-Nov-19 | 1070.03 | 1070.14 | 3.80 | - | 2.39 | 0.00 | 2.50 | 1067.64 | 0/1 |
| | | 24-Apr-19 | 1070.03 | 1070.14 | 3.83 | - | 2.32 | 0.00 | 2.43 | 1067.71 | 0/1 |
| | | 3-Oct-18 | 1070.03 | 1070.14 | 3.83 | - | 2.49 | 0.00 | 2.60 | 1067.54 | 0/1 |
| | | 21-Mar-18 | 1070.03 | 1070.14 | 3.83 | - | 2.43 | 0.00 | 2.55 | 1067.60 | 0/1 |
| | | 7-Sep-17 | 1070.03 | 1070.14 | 3.83 | - | 2.57 | 0.00 | 2.68 | 1067.46 | 0/1 |
| | | 3-May-17 | 1070.03 | 1070.14 | 3.83 | - | 2.33 | 0.00 | 2.45 | 1067.70 | 0/1 |
| | | 21-Feb-17 | 1070.03 | 1070.14 | 3.83 | - | 2.46 | 0.00 | 2.58 | 1067.57 | 0/1 |
| | | 28-Oct-16 | 1070.03 | 1070.14 | 3.81 | - | 2.49 | 0.00 | 2.60 | 1067.54 | 0/1 |
| | | 18-Aug-16 | 1070.03 | 1070.14 | 3.80 | - | 2.40 | 0.00 | 2.51 | 1067.63 | 0/1 |
| | | 3-May-16 | 1070.03 | 1070.14 | 3.84 | - | 2.43 | 0.00 | 2.55 | 1067.60 | 15/1 |
| BH2003 | 3 | 6-May-20 | 1073.31 | 1073.48 | 4.58 | - | 2.64 | 0.00 | 2.81 | 1070.67 | 0/0 |
| | | 12-Nov-19 | 1073.31 | 1073.48 | 4.62 | - | 2.56 | 0.00 | 2.73 | 1070.75 | 0/0 |
| | | 24-Apr-19 | 1073.31 | 1073.48 | 4.62 | - | 2.66 | 0.00 | 2.83 | 1070.64 | 0/0 |
| | | 3-Oct-18 | 1073.31 | 1073.48 | 4.62 | - | 2.67 | 0.00 | 2.84 | 1070.64 | 0/0 |
| | | 21-Mar-18 | 1073.31 | 1073.48 | 4.63 | - | 2.72 | 0.00 | 2.89 | 1070.59 | 0/0 |
| | | 7-Sep-17 | 1073.31 | 1073.48 | 4.60 | - | 2.76 | 0.00 | 2.93 | 1070.54 | 10/1 |
| | | 3-May-17 | 1073.31 | 1073.48 | 4.66 | - | 2.70 | 0.00 | 2.87 | 1070.61 | 55/1 |
| | | 21-Feb-17 | 1073.31 | 1073.48 | 4.66 | - | 2.75 | 0.00 | 2.91 | 1070.56 | 0/3 |
| | | 28-Oct-16 | 1073.31 | 1073.48 | 4.64 | - | 2.69 | 0.00 | 2.86 | 1070.62 | 55/1 |
| | | 18-Aug-16 | 1073.31 | 1073.48 | 4.64 | - | 2.64 | 0.00 | 2.80 | 1070.67 | 5/0 |
| | | 3-May-16 | 1073.31 | 1073.48 | 4.60 | - | 2.74 | 0.00 | 2.91 | 1070.57 | 5/1 |
| BH2004 | 4,5 | 6-May-20 | 1074.03 | 1074.18 | 6.26 | - | 4.31 | 0.00 | 4.46 | 1069.73 | 0/0 |
| | | 12-Nov-19 | 1074.03 | 1074.18 | 6.27 | - | 4.84 | 0.00 | 4.98 | 1069.20 | 0/0 |
| | | 25-Apr-19 | 1074.03 | 1074.18 | 6.29 | - | 4.42 | 0.00 | 4.56 | 1069.62 | 0/0 |
| | | 3-Oct-18 | 1074.03 | 1074.18 | 6.29 | - | 5.10 | 0.00 | 5.24 | 1068.94 | 5/0 |
| | | 21-Mar-18 | 1074.03 | 1074.18 | 6.28 | - | 5.03 | 0.00 | 5.18 | 1069.00 | 0/4 |
| | | 6-Sep-17 | 1074.03 | 1074.18 | 6.27 | - | 5.04 | 0.00 | 5.19 | 1069.00 | 25/1 |
| | | 2-May-17 | 1074.03 | 1074.18 | 6.28 | - | 4.86 | 0.00 | 5.01 | 1069.17 | 0/0 |
| | | 23-Feb-17 | 1074.03 | 1074.18 | 6.27 | - | 5.06 | 0.00 | 5.21 | 1068.97 | 0/3 |
| | | 31-Oct-16 | 1074.03 | 1074.18 | 6.26 | - | 5.21 | 0.00 | 5.35 | 1068.83 | 0/2 |
| | | 18-Aug-16 | 1074.03 | 1074.18 | 6.25 | - | 5.14 | 0.00 | 5.29 | 1068.90 | 0/1 |
| | | 3-May-16 | 1074.03 | 1074.18 | 6.28 | - | 4.70 | 0.00 | 4.85 | 1069.34 | 15/1 |
| BH2005 | 3 | 6-May-20 | 1076.70 | 1076.84 | 6.31 | - | 3.08 | 0.00 | 3.23 | 1073.61 | 0/0 |
| | | 13-Nov-19 | 1076.70 | 1076.84 | 6.32 | - | 3.17 | 0.00 | 3.32 | 1073.52 | 0/0 |
| | | 24-Apr-19 | 1076.70 | 1076.84 | 6.34 | - | 3.18 | 0.00 | 3.32 | 1073.52 | 0/0 |
| | | 4-Oct-18 | 1076.70 | 1076.84 | 6.34 | - | 3.33 | 0.00 | 3.47 | 1073.37 | 0/0 |
| | | 21-Mar-18 | 1076.70 | 1076.84 | 6.30 | - | 3.17 | 0.00 | 3.31 | 1073.53 | 25/0 |
| | | 6-Sep-17 | 1076.70 | 1076.84 | 6.36 | - | 3.42 | 0.00 | 3.56 | 1073.28 | 10/0 |
| | | 3-May-17 | 1076.70 | 1076.84 | 6.33 | - | 3.08 | 0.00 | 3.22 | 1073.62 | 0/0 |
| | | 22-Feb-17 | 1076.70 | 1076.84 | 6.33 | - | 3.17 | 0.00 | 3.31 | 1073.53 | 0/0 |
| | | 27-Oct-16 | 1076.70 | 1076.84 | 6.31 | - | 3.02 | 0.00 | 3.16 | 1073.68 | 0/1 |
| | | 17-Aug-16 | 1076.70 | 1076.84 | 6.31 | - | 2.66 | 0.00 | 2.80 | 1074.04 | 0/1 |
| | | 3-May-16 | 1076.70 | 1076.84 | 6.40 | - | 3.23 | 0.00 | 3.37 | 1073.47 | 0/0 |

## Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH2006 | 3,4,5 | 6-May-20 | 1074.10 | 1074.24 | 4.81 | - | 1.23 | 0.00 | 1.37 | 1072.87 | 0/0 |
| | | 13-Nov-19 | 1074.10 | 1074.24 | 4.82 | - | 1.19 | 0.00 | 1.33 | 1072.91 | 5/1 |
| | | 24-Apr-19 | 1074.10 | 1074.24 | 4.85 | - | 1.19 | 0.00 | 1.33 | 1072.91 | 5/1 |
| | | 4-Oct-18 | 1074.10 | 1074.24 | 4.84 | - | 1.31 | 0.00 | 1.45 | 1072.79 | 10/0 |
| | | 21-Mar-18 | 1074.10 | 1074.24 | 4.84 | - | 1.26 | 0.00 | 1.40 | 1072.84 | 15/1 |
| | | 6-Sep-17 | 1074.10 | 1074.24 | 4.83 | - | 1.46 | 0.00 | 1.60 | 1072.64 | 5/0 |
| | | 3-May-17 | 1074.10 | 1074.24 | 4.85 | - | 1.16 | 0.00 | 1.30 | 1072.94 | 0/1 |
| | | 22-Feb-17 | 1074.10 | 1074.24 | 4.84 | - | 1.27 | 0.00 | 1.41 | 1072.83 | 0/4 |
| | | 27-Oct-16 | 1074.10 | 1074.24 | 4.83 | - | 1.30 | 0.00 | 1.44 | 1072.80 | 35/1 |
| | | 17-Aug-16 | 1074.10 | 1074.24 | 4.81 | - | 1.07 | 0.00 | 1.21 | 1073.03 | 0/1 |
| | | 3-May-16 | 1074.10 | 1074.24 | 4.81 | - | 1.28 | 0.00 | 1.42 | 1072.82 | 10/1 |
| BH2007 | 3 | 5-May-20 | 1091.72 | 1091.86 | 17.10 | - | 11.36 | 0.00 | 11.50 | 1080.36 | 0/0 |
| | | 13-Nov-19 | 1091.72 | 1091.86 | 17.14 | - | 11.25 | 0.00 | 11.39 | 1080.47 | 0/0 |
| | | 3-May-19 | 1091.72 | 1091.86 | 17.26 | - | 11.40 | 0.00 | 11.55 | 1080.31 | 0/0 |
| | | 4-Oct-18 | 1091.72 | 1091.86 | 17.26 | - | 11.40 | 0.00 | 11.55 | 1080.31 | 0/0 |
| | | 20-Mar-18 | 1091.72 | 1091.86 | 17.38 | - | 11.37 | 0.00 | 11.52 | 1080.35 | 0/0 |
| | | 5-Sep-17 | 1091.72 | 1091.86 | 17.18 | - | 11.42 | 0.00 | 11.57 | 1080.30 | 20/1 |
| | | 26-Apr-17 | 1091.72 | 1091.86 | 17.21 | - | 11.15 | 0.00 | 11.30 | 1080.57 | 0/1 |
| | | 21-Feb-17 | 1091.72 | 1091.86 | 17.25 | - | 11.22 | 0.00 | 11.36 | 1080.50 | 0/4 |
| | | 31-Oct-16 | 1091.72 | 1091.86 | 17.27 | - | 9.38 | 0.00 | 9.52 | 1082.34 | 0/1 |
| | | 17-Aug-16 | 1091.72 | 1091.86 | 17.20 | - | 11.24 | 0.00 | 11.38 | 1080.48 | 0/1 |
| | | 3-May-16 | 1091.72 | 1091.86 | 14.83 | - | 11.27 | 0.00 | 11.41 | 1080.45 | 50/1 |
| BH2008 | 2 | 5-May-20 | 1091.80 | 1091.93 | 12.39 | - | 9.60 | 0.00 | 9.74 | 1082.19 | 0/0 |
| | | 13-Nov-19 | 1091.80 | 1091.93 | 12.54 | - | 9.40 | 0.00 | 9.54 | 1082.39 | 0/0 |
| | | 3-May-19 | 1091.80 | 1091.93 | 12.49 | - | 10.44 | 0.00 | 10.57 | 1081.36 | 0/0 |
| | | 4-Oct-18 | 1091.80 | 1091.93 | 12.49 | - | 10.44 | 0.00 | 10.57 | 1081.36 | 0/0 |
| | | 20-Mar-18 | 1091.80 | 1091.93 | 12.57 | - | 10.08 | 0.00 | 10.21 | 1081.72 | 0/0 |
| | | 5-Sep-17 | 1091.80 | 1091.93 | 12.59 | - | 10.30 | 0.00 | 10.43 | 1081.50 | 25/0 |
| | | 26-Apr-17 | 1091.80 | 1091.93 | 12.57 | - | 9.43 | 0.00 | 9.57 | 1082.36 | 25/0 |
| | | 21-Feb-17 | 1091.80 | 1091.93 | 12.60 | - | 9.55 | 0.00 | 9.68 | 1082.25 | 0/3 |
| | | 31-Oct-16 | 1091.80 | 1091.93 | 12.58 | - | 11.09 | 0.00 | 11.22 | 1080.71 | 0/1 |
| | | 17-Aug-16 | 1091.80 | 1091.93 | 12.58 | - | 9.80 | 0.00 | 9.93 | 1082.00 | 0/0 |
| | | 10-Jun-16 | 1091.80 | 1091.93 | - | - | 10.18 | 0.00 | 10.31 | 1081.62 | - |
| | | 3-May-16 | 1091.80 | 1091.93 | 12.62 | - | 10.16 | 0.00 | 10.30 | 1081.64 | 0/1 |
| BH2009 | 1 | As this monitoring well has been dry throughout every sampling event it has been removed from the monitoring and sampling program. | | | | | | | | | |
| | | 13-Nov-19 | 1091.95 | 1092.02 | 4.92 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 3-May-19 | 1091.95 | 1092.02 | 4.92 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 4-Oct-18 | 1091.95 | 1092.02 | 4.92 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 20-Mar-18 | 1091.95 | 1092.02 | 4.92 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 5-Sep-17 | 1091.95 | 1092.02 | 4.94 | - | - | 0.00 | - | - | 5/0 (DRY) |
| | | 26-Apr-17 | 1091.95 | 1092.02 | 4.92 | - | - | 0.00 | - | - | 5/0 (DRY) |
| | | 21-Feb-17 | 1091.95 | 1092.02 | 4.95 | - | - | 0.00 | - | - | 0/3 (DRY) |
| | | 31-Oct-16 | 1091.95 | 1092.02 | 4.92 | - | - | 0.00 | - | - | 15/0 (DRY) |
| | | 17-Aug-16 | 1091.95 | 1092.02 | 4.90 | - | - | 0.00 | - | - | 0/0 (DRY) |
| | | 3-May-16 | 1091.95 | 1092.02 | 4.94 | - | 4.92 | 0.00 | 5.00 | 1087.02 | 0/0 (Insufficient Water) |
| BH2010 | 3 | 5-May-20 | 1094.27 | 1094.38 | 18.69 | - | 13.93 | 0.00 | 14.04 | 1080.34 | 0/0 |
| | | 13-Nov-19 | 1094.27 | 1094.38 | 18.68 | - | 13.94 | 0.00 | 14.04 | 1080.34 | 0/0 |
| | | 3-May-19 | 1094.27 | 1094.38 | 18.65 | - | 13.98 | 0.00 | 14.08 | 1080.29 | 0/0 |
| | | 4-Oct-18 | 1094.27 | 1094.38 | 18.65 | - | 13.98 | 0.00 | 14.08 | 1080.29 | 0/0 |
| | | 20-Mar-18 | 1094.27 | 1094.38 | 18.65 | - | 13.97 | 0.00 | 14.07 | 1080.30 | 40/1 |
| | | 5-Sep-17 | 1094.27 | 1094.38 | 18.628 | - | 14.10 | 0.00 | 14.21 | 1080.17 | 50/1 |
| | | 26-Apr-17 | 1094.27 | 1094.38 | 18.645 | - | 13.74 | 0.00 | 13.85 | 1080.53 | 0/2 |
| | | 16-Feb-17 | 1094.27 | 1094.38 | 18.66 | - | 14.05 | 0.00 | 14.15 | 1080.23 | 0/3 |
| | | 31-Oct-16 | 1094.27 | 1094.38 | 18.64 | - | 13.99 | 0.00 | 14.10 | 1080.28 | 60/2 |
| | | 17-Aug-16 | 1094.27 | 1094.38 | 18.63 | - | 13.84 | 0.00 | 13.95 | 1080.43 | 0/0 |
| | | 3-May-16 | 1094.27 | 1094.38 | 16.78 | - | 13.87 | 0.00 | 13.98 | 1080.40 | 5/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH2011 | 2 | 5-May-20 | 1094.07 | 1094.26 | 14.04 | - | 11.67 | 0.00 | 11.60 | 1082.40 | 0/0 |
| | | 13-Nov-19 | 1094.07 | 1094.26 | 14.04 | - | 11.60 | 0.00 | 11.60 | 1082.48 | 0/0 |
| | | 3-May-19 | 1094.07 | 1094.26 | 13.96 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 4-Oct-18 | 1094.07 | 1094.26 | 13.96 | - | 13.66 | 0.00 | 13.85 | 1080.41 | 0/0 |
| | | 20-Mar-18 | 1094.07 | 1094.26 | 13.96 | - | - | 0.00 | - | - | 0/1 (DRY) |
| | | 5-Sep-17 | 1094.07 | 1094.26 | 13.96 | - | - | 0.00 | - | - | 0/2 (DRY) |
| | | 26-Apr-17 | 1094.07 | 1094.26 | 13.96 | - | 12.59 | 0.00 | 12.78 | 1081.48 | 0/1 |
| | | 17-Feb-17 | 1094.07 | 1094.26 | 13.97 | - | 13.95 | 0.00 | 14.14 | 1080.12 | 0/3 (Insufficient Water) |
| | | 31-Oct-16 | 1094.07 | 1094.26 | 13.93 | - | - | 0.00 | - | - | 20/1 (DRY) |
| | | 17-Aug-16 | 1094.07 | 1094.26 | 13.94 | - | 12.50 | 0.00 | 12.69 | 1081.57 | 0/1 |
| | | 10-Jun-16 | 1094.07 | 1094.26 | - | - | 13.32 | 0.00 | 13.51 | 1080.75 | - |
| | | 3-May-16 | 1094.07 | 1094.26 | 13.94 | - | 11.69 | 0.00 | 11.88 | 1082.38 | 0/2 |
| BH2012 | 3 | 5-May-20 | 1094.72 | 1094.90 | 17.94 | - | 13.59 | 0.00 | 13.77 | 1081.13 | 0/0 |
| | | 13-Nov-19 | 1094.72 | 1094.90 | 17.94 | - | 13.49 | 0.00 | 13.67 | 1081.23 | 0/1 |
| | | 3-May-19 | 1094.72 | 1094.90 | 18.07 | - | 13.62 | 0.00 | 13.80 | 1081.11 | 0/1 |
| | | 4-Oct-18 | 1094.72 | 1094.90 | 18.07 | - | 13.62 | 0.00 | 13.80 | 1081.11 | 0/1 |
| | | 20-Mar-18 | 1094.72 | 1094.90 | 17.82 | - | 13.60 | 0.00 | 13.78 | 1081.13 | 0/2 |
| | | 5-Sep-17 | 1094.72 | 1094.90 | 17.86 | - | 13.62 | 0.00 | 13.80 | 1081.10 | 5/0 |
| | | 26-Apr-17 | 1094.72 | 1094.90 | 17.80 | - | 13.42 | 0.00 | 13.60 | 1081.31 | 0/0 |
| | | 22-Feb-17 | 1094.72 | 1094.90 | 17.88 | - | 13.55 | 0.00 | 13.73 | 1081.18 | 0/0 |
| | | 31-Oct-16 | 1094.72 | 1094.90 | 18.00 | - | 13.36 | 0.00 | 13.54 | 1081.36 | 10/1 |
| | | 17-Aug-16 | 1094.72 | 1094.90 | 17.95 | - | 13.52 | 0.00 | 13.70 | 1081.21 | 0/1 |
| | | 3-May-16 | 1094.72 | 1094.90 | 16.08 | - | 13.54 | 0.00 | 13.72 | 1081.18 | 65/1 |
| BH3001A | 3 | 5-May-20 | 1070.46 | 1070.52 | 2.79 | - | 0.99 | 0.00 | 1.06 | 1069.46 | 0/0 |
| | | 12-Nov-19 | 1070.46 | 1070.52 | 2.79 | - | 1.22 | 0.00 | 1.29 | 1069.24 | 0/0 |
| | | 23-Apr-19 | 1070.46 | 1070.52 | 2.81 | - | 1.25 | 0.00 | 1.31 | 1069.21 | 0/0 |
| | | 3-Oct-18 | 1070.46 | 1070.52 | 2.80 | - | 1.31 | 0.00 | 1.38 | 1069.15 | 0/0 |
| | | 3-May-18 | 1070.46 | 1070.52 | 2.79 | - | 1.21 | 0.00 | 1.28 | 1069.25 | 5/0 |
| BH3001B | 3 | 5-May-20 | 1070.43 | 1070.50 | 4.29 | - | 1.47 | 0.00 | 1.54 | 1068.96 | 0/0 |
| | | 12-Nov-19 | 1070.43 | 1070.50 | 4.29 | - | 1.63 | 0.00 | 1.71 | 1068.79 | 0/0 |
| | | 23-Apr-19 | 1070.43 | 1070.50 | 4.31 | - | 1.80 | 0.00 | 1.88 | 1068.62 | 0/0 |
| | | 3-Oct-18 | 1070.43 | 1070.50 | 4.31 | - | 1.97 | 0.00 | 2.04 | 1068.46 | 0/0 |
| | | 3-May-18 | 1070.43 | 1070.50 | 4.28 | - | 1.57 | 0.00 | 1.65 | 1068.86 | 0/0 |
| BH3001C | 4 | 5-May-20 | 1070.35 | 1070.44 | 5.95 | - | 2.33 | 0.00 | 2.42 | 1068.02 | 0/0 |
| | | 12-Nov-19 | 1070.35 | 1070.44 | 5.96 | - | 2.58 | 0.00 | 2.67 | 1067.77 | 0/0 |
| | | 23-Apr-19 | 1070.35 | 1070.44 | 6.00 | - | 2.64 | 0.00 | 2.72 | 1067.72 | 0/0 |
| | | 3-Oct-18 | 1070.35 | 1070.44 | 5.99 | - | 3.21 | 0.00 | 3.29 | 1067.14 | 0/0 |
| | | 3-May-18 | 1070.35 | 1070.44 | 5.95 | - | 2.46 | 0.00 | 2.55 | 1067.89 | 0/0 |
| BH3002A | 3 | 5-May-20 | 1073.25 | 1073.37 | 3.67 | - | 0.96 | 0.00 | 1.07 | 1072.30 | 0/1 |
| | | 12-Nov-19 | 1073.25 | 1073.37 | 3.69 | - | 1.36 | 0.00 | 1.47 | 1071.89 | 0/0 |
| | | 23-Apr-19 | 1073.25 | 1073.37 | 3.72 | - | 1.17 | 0.00 | 1.28 | 1072.08 | 0/0 |
| | | 3-Oct-18 | 1073.25 | 1073.37 | 3.72 | - | 2.27 | 0.00 | 2.38 | 1070.98 | 0/0 |
| | | 3-May-18 | 1073.25 | 1073.37 | 3.69 | - | 1.14 | 0.00 | 1.26 | 1072.11 | 290/0 |
| BH3002B | 4 | 5-May-20 | 1073.22 | 1073.30 | 7.47 | - | 4.71 | 0.00 | 4.79 | 1068.51 | 0/0 |
| | | 12-Nov-19 | 1073.22 | 1073.30 | 7.47 | - | 5.17 | 0.00 | 5.24 | 1068.06 | 0/0 |
| | | 23-Apr-19 | 1073.22 | 1073.30 | 7.48 | - | 5.16 | 0.00 | 5.23 | 1068.07 | 0/0 |
| | | 3-Oct-18 | 1073.22 | 1073.30 | 7.48 | - | 5.79 | 0.00 | 5.87 | 1067.43 | 0/0 |
| | | 3-May-18 | 1073.22 | 1073.30 | 7.50 | - | 4.93 | 0.00 | 5.01 | 1068.29 | 1,600/1 |
| BH3003A | 3 | 5-May-20 | 1073.08 | 1073.15 | 2.88 | - | 0.81 | 0.00 | 0.88 | 1072.27 | 0/0 |
| | | 12-Nov-19 | 1073.08 | 1073.15 | 2.89 | - | 1.35 | 0.00 | 1.42 | 1071.73 | 0/0 |
| | | 23-Apr-19 | 1073.08 | 1073.15 | 2.91 | - | 1.06 | 0.00 | 1.13 | 1072.03 | 0/0 |
| | | 3-Oct-18 | 1073.08 | 1073.15 | 2.91 | - | 2.27 | 0.00 | 2.34 | 1070.81 | 0/0 |
| | | 3-May-18 | 1073.08 | 1073.15 | 2.89 | - | 1.11 | 0.00 | 1.18 | 1071.97 | - |

## Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH3003B | 4 | 5-May-20 | 1072.95 | 1073.07 | 7.73 | - | 4.58 | 0.00 | 4.70 | 1068.37 | 0/0 |
| | | 12-Nov-19 | 1072.95 | 1073.07 | 7.75 | - | 5.08 | 0.00 | 5.21 | 1067.86 | 0/0 |
| | | 23-Apr-19 | 1072.95 | 1073.07 | 7.77 | - | 4.85 | 0.00 | 4.97 | 1068.09 | 0/1 |
| | | 3-Oct-18 | 1072.95 | 1073.07 | 7.77 | - | 5.67 | 0.00 | 5.79 | 1067.28 | 5/1 |
| | | 3-May-18 | 1072.95 | 1073.07 | 7.74 | - | 4.77 | 0.00 | 4.89 | 1068.18 | 780/0 |
| BH4002 | 3 | 26-May-20 | 1091.10 | 1091.00 | 13.05 | - | 9.83 | 0.00 | 9.72 | 1081.28 | 850/130 |
| | | 8-Jan-20 | 1091.10 | 1091.00 | 13.07 | - | 9.76 | 0.00 | 9.66 | 1081.34 | 0/0 |
| | | 2-Jul-19 | 1091.10 | 1091.00 | 13.32 | - | 10.05 | 0.00 | 9.94 | 1081.05 | 6450/58 |
| BH4003A | 3 | 26-May-20 | 1090.97 | 1090.87 | 11.87 | - | 9.79 | 0.00 | 9.69 | 1081.17 | 9600/412 |
| | | 8-Jan-20 | 1090.97 | 1090.87 | 11.88 | - | 9.79 | 0.00 | 9.69 | 1081.17 | 0/0 |
| | | 6-Jul-19 | 1090.97 | 1090.87 | 12.51 | - | 10.01 | 0.00 | 9.91 | 1080.96 | 4300/12 |
| BH4003B | 3 | 26-May-20 | 1090.97 | 1090.92 | 16.28 | - | 9.53 | 0.00 | 9.48 | 1081.44 | 30/11 |
| | | 8-Jan-20 | 1090.97 | 1090.92 | 16.28 | - | 9.96 | 0.00 | 9.90 | 1081.01 | 0/1 |
| | | 2-Jul-19 | 1090.97 | 1090.92 | 16.16 | - | 10.06 | 0.00 | 10.01 | 1080.91 | 210/1 |
| BH4004A | 3 | 1-Jun-20 | 1090.69 | 1090.62 | 12.96 | - | 9.71 | 0.00 | 9.65 | 1080.97 | 0/1 |
| | | 7-Jan-20 | 1090.69 | 1090.62 | 12.98 | - | 9.79 | 0.00 | 9.73 | 1080.90 | 0/1 |
| | | 5-Jul-19 | 1090.69 | 1090.62 | 12.97 | - | 9.79 | 0.00 | 9.73 | 1080.89 | 730/1 |
| BH4004B | 3 | 1-Jun-20 | 1090.71 | 1090.64 | 15.93 | - | 9.90 | 0.00 | 9.83 | 1080.81 | 50/1 |
| | | 7-Jan-20 | 1090.71 | 1090.64 | 15.94 | - | 9.93 | 0.00 | 9.86 | 1080.78 | 0/0 |
| | | 2-Jul-19 | 1090.71 | 1090.64 | 16.10 | - | 10.07 | 0.00 | 10.00 | 1080.64 | 2000/3 |
| BH4005 | 3 | 1-Jun-20 | 1090.41 | 1090.36 | 12.31 | - | 9.24 | 0.00 | 9.18 | 1081.18 | 460/93 |
| | | 7-Jan-20 | 1090.41 | 1090.36 | 12.32 | - | 9.20 | 0.00 | 9.14 | 1081.21 | 0/0 |
| | | 2-Jul-19 | 1090.41 | 1090.36 | 12.34 | - | 9.33 | 0.00 | 9.28 | 1081.08 | 670/10 |
| BH4006 | 3 | 1-Jun-20 | 1090.62 | 1090.51 | 12.19 | - | 9.25 | 0.00 | 9.13 | 1081.38 | 50/54 |
| | | 8-Jan-20 | 1090.62 | 1090.51 | 12.21 | - | 9.25 | 0.00 | 9.13 | 1081.38 | 0/1 |
| | | 3-Jul-19 | 1090.62 | 1090.51 | 13.01 | - | 9.38 | 0.00 | 9.27 | 1081.24 | 710/18 |
| BH4007 | 3 | 1-Jun-20 | 1090.73 | 1090.65 | 11.42 | - | 9.51 | 0.00 | 9.44 | 1081.21 | 170/70 |
| | | 6-Jan-20 | 1090.73 | 1090.65 | 11.54 | - | 9.52 | 0.00 | 9.44 | 1081.21 | 0/0 |
| | | 3-Jul-19 | 1090.73 | 1090.65 | 11.78 | - | 9.59 | 0.00 | 9.52 | 1081.14 | 130/1 |
| BH4008A | 3 | 26-May-20 | 1090.83 | 1090.74 | 12.04 | - | 9.43 | 0.00 | 9.34 | 1081.40 | 0/9 |
| | | 9-Jan-20 | 1090.83 | 1090.74 | 12.04 | - | 9.35 | 0.00 | 9.26 | 1081.48 | 0/0 |
| | | 17-Oct-19 | 1090.83 | 1090.74 | 12.04 | - | 9.45 | 0.00 | 9.36 | 1081.38 | 0/0 |
| BH4008B | 3 | 26-May-20 | 1090.84 | 1090.76 | 16.74 | - | 9.71 | 0.00 | 9.63 | 1081.13 | 60/0 |
| | | 9-Jan-20 | 1090.84 | 1090.76 | 16.75 | - | 9.58 | 0.00 | 9.50 | 1081.26 | 0/0 |
| | | 17-Oct-19 | 1090.84 | 1090.76 | 15.89 | - | 9.61 | 0.00 | 9.53 | 1081.23 | 0/0 |
| BH4009A | 3 | 26-May-20 | 1091.52 | 1091.43 | 12.05 | - | 10.19 | 0.00 | 10.10 | 1081.33 | 0/1 |
| | | 9-Jan-20 | 1091.52 | 1091.43 | 12.06 | - | 10.11 | 0.00 | 10.02 | 1081.42 | 0/0 |
| | | 17-Oct-19 | 1091.52 | 1091.43 | 12.06 | - | 10.09 | 0.00 | 10.00 | 1081.43 | 0/0 |
| BH4009B | 3 | 26-May-20 | 1091.56 | 1091.44 | 15.88 | - | 10.29 | 0.00 | 10.17 | 1081.27 | 25/1 |
| | | 9-Jan-20 | 1091.56 | 1091.44 | 15.90 | - | 10.20 | 0.00 | 10.07 | 1081.36 | 0/0 |
| | | 17-Oct-19 | 1091.56 | 1091.44 | 16.74 | - | 10.19 | 0.00 | 10.06 | 1081.37 | 0/0 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH510A | 3 | 6-May-20 | 1091.04 | 1091.15 | 16.52 | - | 13.49 | 0.00 | 13.60 | 1077.54 | 5/14 |
| | | 14-Nov-19 | 1091.04 | 1091.15 | 16.59 | - | 13.59 | 0.00 | 13.70 | 1077.45 | 0/0 |
| | | 25-Apr-19 | 1091.04 | 1091.15 | 16.77 | - | 13.72 | 0.00 | 13.83 | 1077.32 | 0/0 |
| | | 5-Oct-18 | 1091.04 | 1091.15 | 16.77 | - | 13.71 | 0.00 | 13.82 | 1077.33 | 0/0 |
| | | 22-Mar-18 | 1091.04 | 1091.15 | 17.26 | - | 13.70 | 0.00 | 13.81 | 1077.34 | 0/0 |
| | | 5-Sep-17 | 1091.04 | 1091.15 | 16.58 | - | 13.68 | 0.00 | 13.79 | 1077.36 | 0/0 |
| | | 2-May-17 | 1091.04 | 1091.15 | 16.55 | - | 13.63 | 0.00 | 13.74 | 1077.40 | 10/0 |
| | | 27-Feb-17 | 1091.04 | 1091.15 | 16.54 | - | 13.62 | 0.00 | 13.73 | 1077.41 | 100/12 |
| | | 31-Oct-16 | 1091.04 | 1091.15 | 16.58 | - | 13.58 | 0.00 | 13.69 | 1077.46 | 0/13 |
| | | 16-Aug-16 | 1091.04 | 1091.15 | 16.54 | - | 13.64 | 0.00 | 13.75 | 1077.39 | 45/8 |
| | | 5-May-16 | 1091.04 | 1091.15 | 16.58 | - | 13.69 | 0.00 | 13.80 | 1077.35 | 0/1 |
| | | 18-Feb-16 | 1091.04 | 1091.15 | 16.65 | - | 13.51 | 0.00 | 13.62 | 1077.53 | 850/307 |
| | | 10-Nov-15 | 1091.04 | 1091.15 | 17.16 | - | 13.62 | 0.00 | 13.73 | 1077.42 | 5/3 |
| | | 2-Sep-15 | 1091.04 | 1091.15 | 16.50 | - | 13.60 | 0.00 | 13.71 | 1077.44 | 0/0 |
| | | 9-Jun-15 | 1091.04 | 1091.15 | 17.25 | - | 13.66 | 0.00 | 13.77 | 1077.38 | 10/0 |
| | | 7-Apr-15 | 1091.04 | 1091.15 | 17.01 | - | 13.61 | 0.00 | 13.72 | 1077.43 | - |
| BH732 | | 6-May-20 | 1080.54 | 1080.60 | 10.11* | - | 5.52 | 0.00 | 5.58 | 1075.03 | 0/0 |
| | | 12-Nov-19 | 1080.54 | 1080.60 | 11.17 | - | 5.55 | 0.00 | 5.61 | 1074.99 | 0/0 |
| | | 24-Apr-19 | 1080.54 | 1080.60 | 11.17 | - | 5.54 | 0.00 | 5.60 | 1075.00 | 0/0 |
| | | 3-Oct-18 | 1080.54 | 1080.60 | 11.20 | - | 6.17 | 0.00 | 6.23 | 1074.37 | 0/0 |
| | | 21-Mar-18 | 1080.54 | 1080.60 | 11.27 | - | 5.63 | 0.00 | 5.69 | 1074.91 | 0/0 |
| | | 7-Sep-17 | 1080.54 | 1080.60 | 11.24 | - | 5.54 | 0.00 | 5.60 | 1075.00 | 10/0 |
| | | 3-May-17 | 1080.54 | 1080.60 | 11.29 | - | 5.75 | 0.00 | 5.81 | 1074.79 | 90/0 |
| | | 21-Feb-17 | 1080.54 | 1080.60 | 11.33 | - | 5.89 | 0.00 | 5.95 | 1074.66 | 10/0 |
| | | 27-Oct-16 | 1080.54 | 1080.60 | 11.39 | - | 6.23 | 0.00 | 6.29 | 1074.31 | 5/0 |
| | | 18-Aug-16 | 1080.54 | 1080.60 | 11.41 | - | 6.25 | 0.00 | 6.32 | 1074.29 | 0/2 |
| | | 3-May-16 | 1080.54 | 1080.60 | 11.94 | - | 6.31 | 0.00 | 6.37 | 1074.23 | 65/0 |
| | | 17-Feb-16 | 1080.54 | 1080.60 | 11.93 | - | 6.26 | 0.00 | 6.32 | 1074.28 | 0/0 |
| | | 10-Nov-15 | 1080.54 | 1080.60 | 12.07 | - | 6.19 | 0.00 | 6.25 | 1074.35 | 0/0 |
| | | 2-Sep-15 | 1080.54 | 1080.60 | 11.99 | - | 6.20 | 0.00 | 6.26 | 1074.34 | 0/0 |
| | | 9-Jun-15 | 1080.54 | 1080.60 | 12.09 | - | 6.30 | 0.00 | 6.36 | 1074.24 | 0/0 |
| | | 10-Apr-15 | 1080.54 | 1080.60 | 12.50 | - | 6.33 | 0.00 | 6.39 | 1074.21 | - |
| BH912 | | 6-May-20 | 1075.14 | 1075.23 | 3.89 | - | 2.30 | 0.00 | 2.46 | 1072.84 | 0/0 |
| | | 13-Nov-19 | 1075.14 | 1075.23 | 4.57 | - | 2.37 | 0.00 | 2.46 | 1072.77 | 0/0 |
| | | 24-Apr-19 | 1075.14 | 1075.23 | 4.59 | - | 2.51 | 0.00 | 2.61 | 1072.63 | 0/0 |
| | | 4-Oct-18 | 1075.14 | 1075.23 | 4.59 | - | 2.58 | 0.00 | 2.67 | 1072.56 | 0/0 |
| | | 21-Mar-18 | 1075.14 | 1075.23 | 4.59 | - | 2.58 | 0.00 | 2.67 | 1072.56 | 0/1 |
| | | 6-Sep-17 | 1075.14 | 1075.23 | 4.59 | - | 2.65 | 0.00 | 2.75 | 1072.49 | 0/0 |
| | | 3-May-17 | 1075.14 | 1075.23 | 4.59 | - | 2.42 | 0.00 | 2.51 | 1072.72 | 15/1 |
| | | 22-Feb-17 | 1075.14 | 1075.23 | 4.60 | - | 2.55 | 0.00 | 2.65 | 1072.59 | 0/0 |
| | | 28-Oct-16 | 1075.14 | 1075.23 | 4.55 | - | 2.43 | 0.00 | 2.53 | 1072.71 | 40/0 |
| | | 18-Aug-16 | 1075.14 | 1075.23 | 4.55 | - | 2.30 | 0.00 | 2.40 | 1072.83 | 123/0 |
| | | 3-May-16 | 1075.14 | 1075.23 | 4.47 | - | 2.59 | 0.00 | 2.69 | 1072.55 | 5/0 |
| | | 9-Nov-15 | 1075.14 | 1075.23 | 4.48 | - | 2.62 | 0.00 | 2.71 | 1072.52 | 5/1 |
| | | 1-Sep-15 | 1075.14 | 1075.23 | 4.34 | - | 2.59 | 0.00 | 2.69 | 1072.55 | 0/1 |
| | | 9-Jun-15 | 1075.14 | 1075.23 | 4.45 | - | 2.64 | 0.00 | 2.73 | 1072.50 | 0/1 |
| | | 10-Apr-15 | 1075.14 | 1075.23 | 4.25 | - | 2.59 | 0.00 | 2.69 | 1072.55 | 0/3 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1102 | | 6-May-20 | 1089.18 | 1089.25 | 13.75 | - | 10.46 | 0.00 | 10.53 | 1078.72 | 0/0 |
| | | 14-Nov-19 | 1089.18 | 1089.25 | 13.78 | - | 10.45 | 0.00 | 10.52 | 1078.73 | 0/0 |
| | | 8-May-19 | 1089.18 | 1089.25 | 13.80 | - | 10.65 | 0.00 | 10.71 | 1078.54 | 0/0 |
| | | 9-Oct-18 | 1089.18 | 1089.25 | 13.80 | - | 10.65 | 0.00 | 10.71 | 1078.54 | 0/0 |
| | | 20-Mar-18 | 1089.18 | 1089.25 | 13.78 | - | 10.58 | 0.00 | 10.64 | 1078.61 | 0/1 |
| | | 5-Sep-17 | 1089.18 | 1089.25 | 13.79 | - | 10.58 | 0.00 | 10.65 | 1078.60 | 0/0 |
| | | 1-May-17 | 1089.18 | 1089.25 | 13.79 | - | 10.56 | 0.00 | 10.62 | 1078.63 | 15/0 |
| | | 16-Feb-17 | 1089.18 | 1089.25 | 13.81 | - | 10.55 | 0.00 | 10.61 | 1078.64 | 0/0 |
| | | 27-Oct-16 | 1089.18 | 1089.25 | 13.76 | - | 10.48 | 0.00 | 10.54 | 1078.71 | 0/1 |
| | | 16-Aug-16 | 1089.18 | 1089.25 | 13.78 | - | 10.55 | 0.00 | 10.62 | 1078.63 | 10/0 |
| | | 4-May-16 | 1089.18 | 1089.25 | 13.77 | - | 10.51 | 0.00 | 10.58 | 1078.67 | 0/0 |
| | | 17-Feb-16 | 1089.18 | 1089.25 | 13.77 | - | 10.45 | 0.00 | 10.51 | 1078.74 | 0/0 |
| | | 9-Nov-15 | 1089.18 | 1089.25 | 13.90 | - | 10.49 | 0.00 | 10.55 | 1078.70 | 0/0 |
| | | 1-Sep-15 | 1089.18 | 1089.25 | 13.77 | - | 10.49 | 0.00 | 10.56 | 1078.69 | 0/2 |
| | | 9-Jun-15 | 1089.18 | 1089.25 | 13.77 | - | 10.54 | 0.00 | 10.61 | 1078.64 | 0/0 |
| | | 31-Mar-15 | 1089.18 | 1089.25 | 13.77 | - | 10.40 | 0.00 | 10.47 | 1078.78 | 35/1 |
| BH1701 | | 6-May-20 | 1088.19 | 1088.27 | 11.83 | - | 9.54 | 0.00 | 9.62 | 1078.65 | 0/0 |
| | | 18-Nov-19 | 1088.19 | 1088.27 | 11.83 | - | 9.59 | 0.00 | 9.67 | 1078.60 | 0/0 |
| | | 8-May-19 | 1088.19 | 1088.27 | 11.85 | - | 9.73 | 0.00 | 9.81 | 1078.46 | 0/0 |
| | | 5-Oct-18 | 1088.19 | 1088.27 | 11.85 | - | 9.73 | 0.00 | 9.81 | 1078.46 | 15/0 |
| | | 22-Mar-18 | 1088.19 | 1088.27 | 11.84 | - | 9.71 | 0.00 | 9.79 | 1078.48 | 160/0 |
| | | 5-Sep-17 | 1088.19 | 1088.27 | 11.84 | - | 9.77 | 0.00 | 9.85 | 1078.42 | Not Measured |
| | | 2-May-17 | 1088.19 | 1088.27 | 11.82 | - | 9.63 | 0.00 | 9.71 | 1078.56 | 10/0 |
| | | 27-Feb-17 | 1088.19 | 1088.27 | 11.83 | - | 9.63 | 0.00 | 9.71 | 1078.56 | 50/0 |
| | | 31-Oct-16 | 1088.19 | 1088.27 | 11.81 | - | 9.58 | 0.00 | 9.66 | 1078.62 | 110/0 |
| | | 16-Aug-16 | 1088.19 | 1088.27 | 11.81 | - | 9.64 | 0.00 | 9.73 | 1078.55 | 0/0 |
| | | 5-May-16 | 1088.19 | 1088.27 | 11.80 | - | 9.63 | 0.00 | 9.71 | 1078.56 | 0/1 |
| | | 17-Feb-16 | 1088.19 | 1088.27 | 11.81 | - | 9.54 | 0.00 | 9.62 | 1078.66 | 0/0 |
| | | 10-Nov-15 | 1088.19 | 1088.27 | 11.88 | - | 9.53 | 0.00 | 9.62 | 1078.66 | 0/1 |
| | | 2-Sep-15 | 1088.19 | 1088.27 | 11.79 | - | 9.56 | 0.00 | 9.64 | 1078.63 | 0/0 |
| | | 9-Jun-15 | 1088.19 | 1088.27 | 11.97 | - | 9.60 | 0.00 | 9.69 | 1078.59 | 10/0 |
| | | 1-Apr-15 | 1088.19 | 1088.27 | 11.79 | - | 9.56 | 0.00 | 9.64 | 1078.63 | 0/0 |
| BH1704 | 3 | 6-May-20 | 1089.46 | 1089.58 | 13.19* | - | 10.46 | 0.00 | 10.58 | 1079.00 | >11,100/1,200 |
| | | 11-Dec-19 | 1089.46 | 1089.58 | 12.21 | - | 10.51 | 0.00 | 10.63 | 1078.95 | >11,100/>2,000 |
| | | 8-May-19 | 1089.46 | 1089.58 | 12.22 | 10.67 | 10.71 | 35 | 10.82 | 1078.76 | >11,100/>2,000 |
| | | 24-Oct-18 | 1089.46 | 1089.58 | 12.22 | 10.68 | 10.72 | 35 | 10.83 | 1078.75 | >11,100/>2,000 |
| | | 20-Mar-18 | 1089.46 | 1089.58 | 12.22 | 10.59 | 10.72 | 135 | 10.84 | 1078.74 | 1,000/305 |
| | | 5-Sep-17 | 1089.46 | 1089.58 | 12.23 | 10.47 | 10.61 | 140 | 10.73 | 1078.85 | >11,100/>2,000 |
| | | 5-May-17 | 1089.46 | 1089.58 | 12.22 | 10.47 | 10.61 | 140 | 10.73 | 1078.85 | 75/112 |
| | | 27-Feb-17 | 1089.46 | 1089.58 | 12.20 | Not Measured | 10.51 | - | 10.63 | 1078.96 | 6,505/300 |
| | | 31-Oct-16 | 1089.46 | 1089.58 | 12.20 | 10.49 | 10.55 | 59 | 10.67 | 1078.92 | 300/200 |
| | | 16-Aug-16 | 1089.46 | 1089.58 | 12.19 | Not Measured | 10.57 | - | 10.69 | 1078.89 | 260/166 |
| | | 5-May-16 | 1089.46 | 1089.58 | 12.08 | Not Measured | 10.55 | - | 10.67 | 1078.91 | >11,100/>2,000 |
| | | 18-Feb-16 | 1089.46 | 1089.58 | 12.08 | 10.34 | 10.46 | 120 | 10.57 | 1079.01 | >11,100/>2,000 |
| | | 10-Nov-15 | 1089.46 | 1089.58 | 12.11 | | 10.56 | | 10.68 | 1078.90 | >11,100/>2,000 |
| | | 2-Sep-15 | 1089.46 | 1089.58 | 11.94 | | 10.45 | | 10.57 | 1079.01 | 5,100/>2,000 |
| | | 9-Jun-15 | 1089.46 | 1089.58 | 12.13 | | 10.53 | | 10.65 | 1078.93 | 480/305 |
| | | 2-Apr-15 | 1089.46 | 1089.58 | 12.13 | | 10.33 | | 10.45 | 1079.13 | 240/100 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EX1 | 3 | 11-May-20 | 1088.62 | 1089.25 | 15.42 | - | 13.69 | 0.00 | 14.32 | 1074.94 | 5/0 |
| | | 25-Nov-19 | 1088.62 | 1089.25 | 15.40 | - | 13.61 | 0.00 | 14.24 | 1075.01 | 0/0 |
| | | 17-Jun-19 | 1088.62 | 1089.25 | 15.35 | - | 13.71 | 0.00 | 14.34 | 1074.91 | 0/0 |
| | | 18-Oct-18 | 1088.62 | 1089.25 | 15.35 | - | 13.71 | 0.00 | 14.34 | 1074.91 | 350/44 |
| | | 3-Apr-18 | 1088.62 | 1089.25 | 15.35 | - | 13.75 | 0.00 | 14.38 | 1074.87 | 155/63 |
| | | 5-May-17 | 1088.62 | 1089.25 | 15.37 | - | 13.68 | 0.00 | 14.31 | 1074.94 | 0/1 |
| | | 28-Feb-17 | 1088.62 | 1089.25 | 15.41 | - | 13.76 | 0.00 | 14.39 | 1074.86 | 15/0 |
| | | 1-Nov-16 | 1088.62 | 1089.25 | 15.44 | - | 13.74 | 0.00 | 14.37 | 1074.89 | 25/0 |
| | | 17-Aug-16 | 1088.62 | 1089.25 | 15.37 | - | 13.79 | 0.00 | 14.42 | 1074.83 | 25/1 |
| | | 6-May-16 | 1088.62 | 1089.25 | 15.40 | - | 13.80 | 0.00 | 14.43 | 1074.82 | 0/0 |
| | | 18-Feb-16 | 1088.62 | 1089.25 | 15.47 | - | 13.56 | 0.00 | 14.19 | 1075.06 | 280/123 |
| | | 10-Nov-15 | 1088.62 | 1089.25 | 16.05 | - | 13.74 | 0.00 | 14.37 | 1074.88 | 0/0 |
| | | 2-Sep-15 | 1088.62 | 1089.25 | 15.44 | - | 13.69 | 0.00 | 14.32 | 1074.93 | 0/0 |
| | | 9-Jun-15 | 1088.62 | 1089.25 | 15.85 | - | 13.72 | 0.00 | 14.35 | 1074.90 | 0/0 |
| | | 17-Apr-15 | 1088.62 | 1089.25 | 15.89 | - | 13.71 | 0.00 | 14.34 | 1074.91 | 10/0 |
| EX2 | 3 | 11-May-20 | 1087.85 | 1088.48 | 14.20 | - | 12.83 | 0.00 | 13.46 | 1075.02 | 0/1 |
| | | 10-Dec-19 | 1087.85 | 1088.48 | 14.10 | - | 12.78 | 0.00 | 13.41 | 1075.08 | 0/0 |
| | | 13-Jun-19 | 1087.85 | 1088.48 | 14.12 | - | 12.84 | 0.00 | 13.47 | 1075.02 | 0/0 |
| | | 18-Oct-18 | 1087.85 | 1088.48 | 14.12 | - | 12.89 | 0.00 | 13.52 | 1074.96 | 0/0 |
| | | 23-Mar-18 | 1087.85 | 1088.48 | 14.12 | - | 12.86 | 0.00 | 13.49 | 1075.00 | 0/1 |
| | | 5-May-17 | 1087.85 | 1088.48 | 14.13 | - | 12.79 | 0.00 | 13.42 | 1075.07 | 0/4 |
| | | 28-Feb-17 | 1087.85 | 1088.48 | 14.66 | - | 12.90 | 0.00 | 13.53 | 1074.95 | 80/2 |
| | | 1-Nov-16 | 1087.85 | 1088.48 | 14.07 | - | 12.35 | 0.00 | 12.98 | 1075.51 | 0/0 |
| | | 16-Aug-16 | 1087.85 | 1088.48 | 14.06 | - | 12.84 | 0.00 | 13.47 | 1075.02 | 0/0 |
| | | 5-May-16 | 1087.85 | 1088.48 | 14.00 | - | 12.88 | 0.00 | 13.51 | 1074.98 | 15/0 |
| | | 18-Feb-16 | 1087.85 | 1088.48 | 14.35 | - | 12.67 | 0.00 | 13.30 | 1075.18 | 330/129 |
| | | 10-Nov-15 | 1087.85 | 1088.48 | 14.48 | - | 12.82 | 0.00 | 13.45 | 1075.04 | 0/0 |
| | | 2-Sep-15 | 1087.85 | 1088.48 | 13.95 | - | 12.79 | 0.00 | 13.42 | 1075.06 | 0/0 |
| | | 9-Jun-15 | 1087.85 | 1088.48 | 14.36 | - | 12.79 | 0.00 | 13.42 | 1075.06 | 0/1 |
| | | 14-Apr-15 | 1087.85 | 1088.48 | 14.06 | - | 12.76 | 0.00 | 13.39 | 1075.09 | 0/5 |
| EX3 | 3 | 11-May-20 | 1088.46 | 1089.09 | 13.26 | - | 11.35 | 0.00 | 11.98 | 1077.11 | 0/0 |
| | | 25-Nov-19 | 1088.46 | 1089.09 | 13.26 | - | 11.35 | 0.00 | 11.98 | 1077.12 | 0/0 |
| | | 17-Jun-19 | 1088.46 | 1089.09 | 13.30 | - | 11.43 | 0.00 | 12.06 | 1077.03 | 0/0 |
| | | 18-Oct-18 | 1088.46 | 1089.09 | 13.30 | - | 11.42 | 0.00 | 12.05 | 1077.04 | 0/0 |
| | | 3-Apr-18 | 1088.46 | 1089.09 | 13.34 | - | 11.46 | 0.00 | 12.09 | 1077.00 | 0/0 |
| | | 5-May-17 | 1088.46 | 1089.09 | 13.29 | - | 10.30 | 0.00 | 10.93 | 1078.16 | 0/1 |
| | | 28-Feb-17 | 1088.46 | 1089.09 | 13.34 | - | 11.45 | 0.00 | 12.08 | 1077.01 | 100/4 |
| | | 1-Nov-16 | 1088.46 | 1089.09 | 15.44 | - | 13.74 | 0.00 | 14.37 | 1074.73 | 0/0 |
| | | 17-Aug-16 | 1088.46 | 1089.09 | 13.27 | - | 11.40 | 0.00 | 12.03 | 1077.06 | 25/0 |
| | | 6-May-16 | 1088.46 | 1089.09 | 12.29 | - | 11.39 | 0.00 | 12.02 | 1077.07 | 0/0 |
| | | 18-Feb-16 | 1088.46 | 1089.09 | 13.26 | - | 11.22 | 0.00 | 11.85 | 1077.24 | 0/1 |
| | | 10-Nov-15 | 1088.46 | 1089.09 | 13.42 | - | 11.34 | 0.00 | 11.97 | 1077.12 | 0/0 |
| | | 2-Sep-15 | 1088.46 | 1089.09 | 13.29 | - | 11.31 | 0.00 | 11.94 | 1077.15 | 0/1 |
| | | 9-Jun-15 | 1088.46 | 1089.09 | 12.50 | - | 11.28 | 0.00 | 11.91 | 1077.18 | 0/0 |
| | | 14-Apr-15 | 1088.46 | 1089.09 | 13.25 | - | 11.31 | 0.00 | 11.94 | 1077.15 | 0/1 |

# Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EX4 | 3 | 11-May-20 | 1089.44 | 1090.07 | 11.45 | - | 9.97 | 0.00 | 10.60 | 1079.47 | 0/4 |
| | | 10-Dec-19 | 1089.44 | 1090.07 | 11.38 | - | 9.93 | 0.00 | 10.56 | 1079.51 | 25/1 |
| | | 13-Jun-19 | 1089.44 | 1090.07 | 11.68 | - | 10.04 | 0.00 | 10.67 | 1079.40 | 25/1 |
| | | 24-Oct-18 | 1089.44 | 1090.07 | 11.68 | - | 10.09 | 0.00 | 10.72 | 1079.36 | 25/1 |
| | | 23-Mar-18 | 1089.44 | 1090.07 | 10.98 | - | 10.04 | 0.00 | 10.67 | 1079.40 | 105/101 |
| | | 8-May-17 | 1089.44 | 1090.07 | 11.10 | - | 9.97 | 0.00 | 10.60 | 1079.47 | 120/40 |
| | | 1-Mar-17 | 1089.44 | 1090.07 | 11.22 | - | 10.02 | 0.00 | 10.65 | 1079.43 | 200/50 |
| | | 1-Nov-16 | 1089.44 | 1090.07 | 11.13 | - | 9.93 | 0.00 | 10.56 | 1079.52 | 40/11 |
| | | 16-Aug-16 | 1089.44 | 1090.07 | 11.50 | - | 9.98 | 0.00 | 10.61 | 1079.46 | 200/155 |
| | | 5-May-16 | 1089.44 | 1090.07 | 12.25 | - | 10.07 | 0.00 | 10.70 | 1079.38 | 0/4 |
| | | 18-Feb-16 | 1089.44 | 1090.07 | 12.62 | - | 9.82 | 0.00 | 10.45 | 1079.63 | 2,200/591 |
| | | 10-Nov-15 | 1089.44 | 1090.07 | 12.44 | - | 9.97 | 0.00 | 10.60 | 1079.47 | 150/148 |
| | | 2-Sep-15 | 1089.44 | 1090.07 | 12.32 | - | 10.00 | 0.00 | 10.63 | 1079.44 | 460/225 |
| | | 9-Jun-15 | 1089.44 | 1090.07 | 12.64 | - | 9.96 | 0.00 | 10.59 | 1079.49 | 40/73 |
| | | 15-Apr-15 | 1089.44 | 1090.07 | 12.22 | - | 9.94 | 0.00 | 10.57 | 1079.50 | 60/20 |
| EX5 | 3 | 11-May-20 | 1090.31 | 1090.94 | 12.41 | - | 10.31 | 0.00 | 10.94 | 1080.01 | 0/0 |
| | | 11-Dec-19 | 1090.31 | 1090.94 | 12.75 | - | 10.48 | 0.00 | 11.11 | 1079.83 | 300/20 |
| | | 12-Jun-19 | 1090.31 | 1090.94 | 12.75 | - | 10.64 | 0.00 | 11.27 | 1079.68 | 300/20 |
| | | 18-Oct-18 | 1090.31 | 1090.94 | 12.75 | - | 10.71 | 0.00 | 11.34 | 1079.61 | 780/232 |
| | | 23-Mar-18 | 1090.31 | 1090.94 | 12.99 | - | 10.67 | 0.00 | 11.30 | 1079.65 | 780/232 |
| | | 5-May-17 | 1090.31 | 1090.94 | 13.12 | - | 10.53 | 0.00 | 11.16 | 1079.79 | 605/1,150 |
| | | 1-Mar-17 | 1090.31 | 1090.94 | 13.11 | - | 10.66 | 0.00 | 11.29 | 1079.66 | 320/120 |
| | | 1-Nov-16 | 1090.31 | 1090.94 | 13.19 | - | 10.65 | 0.00 | 11.28 | 1079.67 | 180/99 |
| | | 16-Aug-16 | 1090.31 | 1090.94 | 13.00 | - | 10.34 | 0.00 | 10.97 | 1079.97 | 1,050/478 |
| | | 5-May-16 | 1090.31 | 1090.94 | 13.29 | - | 10.43 | 0.00 | 11.06 | 1079.89 | 550/274 |
| | | 18-Feb-16 | 1090.31 | 1090.94 | 13.41 | - | 10.17 | 0.00 | 10.80 | 1080.15 | 1,250/513 |
| | | 10-Nov-15 | 1090.31 | 1090.94 | 13.51 | - | 10.31 | 0.00 | 10.94 | 1080.00 | 940/422 |
| | | 2-Sep-15 | 1090.31 | 1090.94 | 13.25 | - | 10.39 | 0.00 | 11.02 | 1079.92 | 330/138 |
| | | 9-Jun-15 | 1090.31 | 1090.94 | 13.57 | - | 10.29 | 0.00 | 10.92 | 1080.03 | 510/230 |
| | | 16-Apr-15 | 1090.31 | 1090.94 | 13.75 | - | 10.33 | 0.00 | 10.96 | 1079.98 | 290/198 |
| EX6 | 3 | 11-May-20 | 1090.45 | 1091.08 | 11.98 | - | 10.96 | 0.00 | 11.59 | 1079.50 | 0/0 |
| | | 11-Dec-19 | 1090.45 | 1091.08 | 11.98 | - | 10.89 | 0.00 | 11.52 | 1079.57 | 0/0 |
| | | 13-Jun-19 | 1090.45 | 1091.08 | 11.98 | - | 10.99 | 0.00 | 11.62 | 1079.47 | 0/0 |
| | | 24-Oct-18 | 1090.45 | 1091.08 | 11.98 | - | 11.06 | 0.00 | 11.69 | 1079.39 | 0/0 |
| | | 23-Mar-18 | 1090.45 | 1091.08 | 11.70 | - | 11.00 | 0.00 | 11.63 | 1079.45 | 0/2 |
| | | 5-May-17 | 1090.45 | 1091.08 | 11.30 | - | 10.85 | 0.00 | 11.48 | 1079.60 | 0/28 |
| | | 1-Mar-17 | 1090.45 | 1091.08 | 11.33 | - | 11.02 | 0.00 | 11.65 | 1079.43 | 60/12 |
| | | 1-Nov-16 | 1090.45 | 1091.08 | 11.18 | - | 10.91 | 0.00 | 11.54 | 1079.55 | 25/13 |
| | | 17-Aug-16 | 1090.45 | 1091.08 | 11.51 | - | 10.99 | 0.00 | 11.62 | 1079.47 | 0/6 |
| | | 5-May-16 | 1090.45 | 1091.08 | 12.85 | - | 10.98 | 0.00 | 11.61 | 1079.48 | 0/1 |
| | | 18-Feb-16 | 1090.45 | 1091.08 | 12.81 | - | 10.75 | 0.00 | 11.38 | 1079.71 | 165/59 |
| | | 10-Nov-15 | 1090.45 | 1091.08 | 12.74 | - | 10.86 | 0.00 | 11.49 | 1079.59 | 0/8 |
| | | 2-Sep-15 | 1090.45 | 1091.08 | 12.75 | - | 10.90 | 0.00 | 11.53 | 1079.55 | 290/61 |
| | | 9-Jun-15 | 1090.45 | 1091.08 | 12.82 | - | 10.88 | 0.00 | 11.51 | 1079.58 | 0/12 |
| | | 17-Apr-15 | 1090.45 | 1091.08 | 12.77 | - | 10.92 | 0.00 | 11.55 | 1079.53 | 5/2 |

## Table 1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to LPH bTOP (m) | Depth to Water bTOP (m) | Apparent Thickness of LPH (mm) | Depth to Water BGS[4] (m) | Water Elevation (masl) | Monitor Well Vapour Concentration[5] HEX/IBL (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EX7 | 3 | 11-May-20 | 1088.92 | 1089.55 | 12.65 | - | 11.20 | 0.00 | 11.83 | 1077.72 | 0/0 |
| | | 11-Dec-19 | 1088.92 | 1089.55 | 12.56 | - | 11.18 | 0.00 | 11.81 | 1077.73 | 0/0 |
| | | 13-Jun-19 | 1088.92 | 1089.55 | 12.56 | - | 11.31 | 0.00 | 11.94 | 1077.61 | 0/0 |
| | | 24-Oct-18 | 1088.92 | 1089.55 | 12.56 | - | 11.36 | 0.00 | 11.99 | 1077.56 | 0/0 |
| | | 23-Mar-18 | 1088.92 | 1089.55 | 12.58 | - | 11.34 | 0.00 | 11.97 | 1077.57 | 0/7 |
| | | 5-May-17 | 1088.92 | 1089.55 | 12.63 | - | 11.15 | 0.00 | 11.78 | 1077.77 | 0/7 |
| | | 1-Mar-17 | 1088.92 | 1089.55 | 12.66 | - | 11.30 | 0.00 | 11.93 | 1077.61 | 55/2 |
| | | 1-Nov-16 | 1088.92 | 1089.55 | 12.63 | - | 11.23 | 0.00 | 11.86 | 1077.69 | 155/102 |
| | | 17-Aug-16 | 1088.92 | 1089.55 | 12.73 | - | 11.16 | 0.00 | 11.79 | 1077.76 | 0/1 |
| | | 5-May-16 | 1088.92 | 1089.55 | 12.70 | - | 11.06 | 0.00 | 11.69 | 1077.86 | 0/0 |
| | | 18-Feb-16 | 1088.92 | 1089.55 | 13.00 | - | 10.91 | 0.00 | 11.54 | 1078.01 | 360/225 |
| | | 10-Nov-15 | 1088.92 | 1089.55 | 12.96 | - | 10.96 | 0.00 | 11.59 | 1077.96 | 0/12 |
| | | 2-Sep-15 | 1088.92 | 1089.55 | 12.69 | - | 10.99 | 0.00 | 11.62 | 1077.93 | 3,200/1,191 |
| | | 9-Jun-15 | 1088.92 | 1089.55 | 13.11 | - | 10.99 | 0.00 | 11.62 | 1077.93 | 0/35 |
| | | 18-Apr-15 | 1088.92 | 1089.55 | 13.24 | - | 10.97 | 0.00 | 11.60 | 1077.95 | 45/35 |

**Notes:**

1 Meters above sea level
2 Ground surface elevation based on survey completed in May 2015 by Clifton Associates Ltd.
3 Below top of pipe
4 Below ground surface
5 Vapour concentrations measured in monitoring wells with an RKI Eagle portable gas monitor with PID.
HEX/IBL Hexane/Isobutylene
- not measured
* Possible measurement error. Depth to be checked in Fall 2020.

# Table 2 - Summary of Well Monitoring
# Light Non-Aqueous Phase Liquid Removal

| Monitor Well | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth to LNAPL bTOP (m) | Depth to Water bTOP (m) | LNAPL Thickness (mm) | Volume Removed ($m^3$) | Cumulative Volume Removed ($m^3$) |
|---|---|---|---|---|---|---|---|---|
| BH1704 | 26-May-20 | 1089.46 | 1089.58 | N/A | 10.46 | N/A | 0.00E+00 | 4.69E-03 |
| | 11-Dec-19 | 1089.46 | 1089.58 | N/A | 10.51 | N/A | 0.00E+00 | 4.69E-03 |
| | 12-Jun-19 | 1089.46 | 1089.58 | 10.67 | 10.71 | 35 | 3.99E-05 | 4.69E-03 |
| | 24-Oct-18 | 1089.46 | 1089.58 | 10.68 | 10.72 | 35 | 3.99E-05 | 4.65E-03 |
| | 20-Mar-18 | 1089.46 | 1089.58 | 10.59 | 10.72 | 135 | 1.54E-04 | 4.61E-03 |
| | 5-Sep-18 | 1089.46 | 1089.58 | 10.60 | 10.67 | 67 | 7.64E-05 | 4.46E-03 |
| | 5-May-17 | 1089.46 | 1089.58 | 10.47 | 10.61 | 140 | 1.60E-04 | 4.38E-03 |
| | 27-Feb-17 | 1089.46 | 1089.58 | N/A | 10.51 | N/A | 0.00E+00 | 4.22E-03 |
| | 31-Oct-16 | 1089.46 | 1089.58 | 10.49 | 10.55 | 59 | 6.73E-05 | 4.22E-03 |
| | 16-Aug-16 | 1089.46 | 1089.58 | N/A | 10.57 | N/A | 0.00E+00 | 4.16E-03 |
| | 27-May-16 | 1089.46 | 1089.58 | 10.52 | 10.60 | 87 | 1.64E-04 | 4.16E-03 |
| | 16-May-16 | 1089.46 | 1089.58 | 10.51 | 10.53 | 21 | 1.76E-04 | 3.99E-03 |
| | 5-May-16 | nm | nm | nm | nm | 175 | 2.00E-04 | 3.82E-03 |
| | 21-Apr-16 | 1089.46 | 1089.58 | 10.56 | 10.61 | 55 | 6.84E-05 | 3.62E-03 |
| | 15-Apr-16 | 1089.46 | 1089.58 | 10.56 | 10.65 | 90 | 9.12E-05 | 3.55E-03 |
| | 7-Apr-16 | 1089.46 | 1089.58 | 10.52 | 10.60 | 81 | 8.44E-05 | 3.46E-03 |
| | 1-Apr-16 | 1089.46 | 1089.58 | 10.48 | 10.60 | 117 | 2.06E-04 | 3.37E-03 |
| | 24-Mar-16 | nm | nm | nm | nm | 200 | 2.28E-04 | 3.17E-03 |
| | 11-Mar-16 | 1089.46 | 1089.58 | 10.51 | 10.59 | 85 | 1.60E-04 | 2.94E-03 |
| | 4-Mar-16 | 1089.46 | 1089.58 | 10.44 | 10.58 | 148 | 2.41E-04 | 2.78E-03 |
| | 26-Feb-16 | 1089.46 | 1089.58 | 10.34 | 10.53 | 190 | 5.70E-04 | 2.54E-03 |
| | 18-Feb-16 | 1089.46 | 1089.58 | 10.34 | 10.46 | 120 | 2.85E-04 | 1.97E-03 |
| | 12-Feb-16 | 1089.46 | 1089.58 | 10.46 | 10.49 | 32 | 5.70E-05 | 1.68E-03 |
| | 5-Feb-16 | 1089.46 | 1089.58 | 10.46 | 10.49 | 33 | 2.51E-05 | 1.63E-03 |
| | 28-Jan-16 | 1089.46 | 1089.58 | 10.36 | 10.48 | 122 | 2.05E-04 | 1.60E-03 |
| | 22-Jan-16 | 1089.46 | 1089.58 | 10.42 | 10.49 | 71 | 6.84E-05 | 1.40E-03 |
| | 15-Jan-16 | 1089.46 | 1089.58 | 10.50 | 10.56 | 63 | 7.07E-05 | 1.33E-03 |
| | 8-Jan-16 | 1089.46 | 1089.58 | 10.46 | 10.64 | 184 | 3.41E-04 | 1.26E-03 |
| | 17-Dec-15 | 1089.46 | 1089.58 | 10.48 | 10.54 | 64 | 1.13E-04 | 9.16E-04 |
| | 11-Dec-15 | 1089.46 | 1089.58 | 10.51 | 10.54 | 39 | 6.73E-05 | 8.04E-04 |
| | 4-Dec-15 | 1089.46 | 1089.58 | 10.47 | 10.54 | 68 | 1.03E-04 | 7.36E-04 |
| | 27-Nov-15 | nm | nm | nm | nm | 2 | 2.28E-06 | 6.34E-04 |
| | 19-Nov-15 | nm | nm | nm | nm | 50 | 5.70E-05 | 6.31E-04 |
| | 13-Nov-15 | 1089.46 | 1089.58 | 10.44 | 10.56 | 126 | 1.33E-04 | 5.74E-04 |
| | 29-Oct-15 | 1089.46 | 1089.58 | 10.55 | 10.58 | 30 | 7.98E-06 | 4.41E-04 |
| | 19-Oct-15 | 1089.46 | 1089.58 | 10.54 | 10.58 | 32 | 5.70E-06 | 4.33E-04 |
| | 13-Oct-15 | 1089.46 | 1089.58 | 10.62 | 10.67 | 58 | 4.56E-05 | 4.27E-04 |
| | 6-Oct-15 | 1089.46 | 1089.58 | 10.55 | 10.60 | 54 | 3.42E-05 | 3.82E-04 |
| | 28-Sep-15 | 1089.46 | 1089.58 | 10.56 | 10.60 | 33 | 2.28E-05 | 3.47E-04 |
| | 22-Sep-15 | 1089.46 | 1089.58 | 10.53 | 10.53 | 0 | 7.64E-05 | 3.25E-04 |
| | 17-Sep-15 | 1089.46 | 1089.58 | 10.51 | 10.58 | 64 | 4.56E-05 | 2.48E-04 |
| | 8-Sep-15 | 1089.46 | 1089.58 | 10.49 | 10.59 | 101 | 2.03E-04 | 2.03E-04 |

**Notes:**

bTOP Below top of pipe
LNAPL Light non-aqueous phase liquid
nm Not measured
N/A Not applicable as LNAPL was not observed.

# Table 3 - Summary of Groundwater Laboratory Analyses
# QA/QC - Trip Blank - VOCs

| Sample ID | Reportable Detection Limits[1] | Trip Blank | Trip Blank 2 | Trip Blank 3 | Trip Blank 4 | Trip Blank 5 |
|---|---|---|---|---|---|---|
| Sample Date | | 8-May-20 | 20-May-20 | 21-May-20 | 22-May-20 | 25-May-20 |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dibromoethane | 0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Benzene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromoform | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chloroform | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chloromethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| Ethylbenzene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| m & p-Xylene | 0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 |
| Methyl methacrylate | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| o-Xylene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Styrene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Toluene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Total Trihalomethanes | 0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Xylenes (Total) | 0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 |

**Notes:**

1 Reportable detection limits in mg/L.

**Bold** Indicates that the concentration exceeded the reportable detection limits.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 3 - Summary of Groundwater Laboratory Analyses
# QA/QC - Trip Blank - VOCs

| Sample ID | Reportable Detection Limits[1] | Trip Blank 6 | Trip Blank 7 | Trip Blank 8 | Trip Blank 9 | Trip Blank 10 |
|---|---|---|---|---|---|---|
| Sample Date | | 26-May-20 | 27-May-20 | 29-May-20 | 1-Jun-20 | 2-Jun-20 |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dibromoethane | 0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Benzene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromoform | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chloroform | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chloromethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| Ethylbenzene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| m & p-Xylene | 0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 |
| Methyl methacrylate | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| o-Xylene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Styrene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Toluene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Total Trihalomethanes | 0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Xylenes (Total) | 0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 |

**Notes:**

1 Reportable detection limits in mg/L.

**Bold** Indicates that the concentration exceeded the reportable detection limits.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 3 - Summary of Groundwater Laboratory Analyses
# QA/QC - Trip Blank - VOCs

| Sample ID | Reportable Detection Limits[1] | Trip Blank 12 | Trip Blank 13 |
|---|---|---|---|
| Sample Date | | 4-Jun-20 | 5-Jun-20 |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethane | 0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 |
| 1,2-dibromoethane | 0.00020 | <0.00020 | <0.00020 |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloroethane | 0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 |
| Benzene | 0.00040 | <0.00040 | <0.00040 |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 |
| Bromoform | 0.00050 | <0.00050 | <0.00050 |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 |
| Chloroform | 0.00050 | <0.00050 | <0.00050 |
| Chloromethane | 0.0020 | <0.0020 | <0.0020 |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 |
| Ethylbenzene | 0.00040 | <0.00040 | <0.00040 |
| m & p-Xylene | 0.00080 | <0.00080 | <0.00080 |
| Methyl methacrylate | 0.00050 | <0.00050 | <0.00050 |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 |
| o-Xylene | 0.00040 | <0.00040 | <0.00040 |
| Styrene | 0.00050 | <0.00050 | <0.00050 |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 |
| Toluene | 0.00040 | <0.00040 | <0.00040 |
| Total Trihalomethanes | 0.0013 | <0.0013 | <0.0013 |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 |
| Xylenes (Total) | 0.00080 | <0.00080 | <0.00080 |

**Notes:**

1 Reportable detection limits in mg/L.

**Bold** Indicates that the concentration exceeded the reportable detection limits.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 4 - Summary of Groundwater Laboratory Analyses
# QA/QC - Equipment Blanks - BTEX, PHC fractions F1 and F2, and VOCs

| Sample ID | Reportable Detection Limits | HYDRA 1 | HYDRA 2 | Hydra 3 | Hydra 4 | Hydra 5 | Hydra 6 | Bailer 1 | Bailer 2 | Bailer 3 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Date** | | 4-May-20 | 11-May-20 | 15-May-20 | 25-May-20 | 1-Jun-20 | 4-Jun-20 | 4-May-20 | 1-Jun-20 | 15-May-20 |
| **BTEX and PHC fractions F1 - F2** | | | | | | | | | | |
| Benzene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Toluene | 0.00040 | <0.00040 | <0.00040 | **0.00065** | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Ethylbenzene | 0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 |
| Xylenes (Total) | 0.00080 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 |
| F1 minus BTEX (C6 - C10) | 0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| F2 (C10 - C16) | 0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| **VOCs** | | | | | | | | | | |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| 1,2,4-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dibromoethane | 0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloroethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3,5-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromoform | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Chloroform | 0.00050 | <0.00050 | <0.0006 | <0.0006 | <0.0006 | **0.00056** | <0.0006 | <0.00050 | <0.0006 | <0.0006 |
| Chloromethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 |
| Methyl methacrylate | 0.00076 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Styrene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Total Trihalomethanes | 0.0020 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | **0.0011** | <0.00050 | <0.00050 |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 |

**Notes:**

1 Reportable detection limits in mg/L.

**Bold** Indicates that the concentration exceeded the reportable detection limits.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 5 - Summary of Groundwater Laboratory Analyses
# QA/QC - Field and Laboratory Duplicate - BTEX and PHC fractions F1 - F2

| Sample ID | Reportable Detection Limit | BH1905 | BH9905 | RPD[1] (%) | BH1907 | BH9907 | RPD[1] (%) | BH1915 | BH9915 | RPD[1] (%) | BH1921 | BH9921 | RPD[1] (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 2-Jun-20 | | | 22-May-20 | | | 25-May-20 | | | 3-Jun-20 | | |
| **BTEX and PHC fractions F1 - F2** | | | | | | | | | | | | | |
| Benzene | 0.00040 | 0.018 | 0.018 | 0.0 | 0.52 | 0.52 | 0.0 | 0.013 | 0.013 | 0.0 | 0.024 | 0.025 | 4.1 |
| Toluene | 0.00040 | 0.0014 | 0.0013 | 7.4 | 2.0 | 2.0 | 0.0 | 0.00067 | 0.00066 | 1.5 | 0.0052 | 0.0054 | 3.8 |
| Ethylbenzene | 0.00040 | 0.14 | 0.13 | 7.4 | 0.29 | 0.29 | 0.0 | 0.0013 | 0.0013 | 0.0 | 0.027 | 0.028 | 3.6 |
| Xylenes (Total) | 0.00089 | 0.65 | 0.64 | 1.6 | 2.6 | 2.6 | 0.0 | 0.022 | 0.022 | 0.0 | 0.0031 | 0.0033 | 6.3 |
| F1 minus BTEX (C6 - C10) | 0.10 | 1.8 | 1.9 | 5.4 | 3.4 | 4.2 | 21 | 1.2 | 1.2 | 0.0 | 0.78 | 0.68 | 14 |
| F2 (C10 - C16) | 0.10 | 2.9 | 3.1 | 6.7 | 0.48 | 0.48 | 0.0 | 0.35 | 0.35 | 0.0 | 0.1 | 0.12 | 18 |

| Sample ID | Reportable Detection Limit | BH1967 | BH9967 | RPD[1] (%) | BH1971 | BH9971 | RPD[1] (%) | BH2005 | BH9005 | RPD[1] (%) | BH4003A | BH94003A | RPD[1] (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 20-May-20 | | | 21-May-20 | | | 1-Jun-20 | | | 27-May-20 | | |
| **BTEX and PHC fractions F1 - F2** | | | | | | | | | | | | | |
| Benzene | 0.00040 | 0.073 | 0.11 | 40.4 | 0.0099 | 0.0096 | 3.1 | 0.09 | 0.088 | 2.2 | 0.87 | 0.87 | 0.0 |
| Toluene | 0.00040 | 0.0061 | 0.011 | 57 | 0.00098 | 0.00094 | 4.2 | <0.00040 | <0.00040 | NC | 0.017 | 0.017 | 0.0 |
| Ethylbenzene | 0.00040 | 0.12 | 0.15 | 22 | 0.046 | 0.044 | 4.4 | <0.00040 | <0.00040 | NC | 0.0014 | 0.0015 | 0.0 |
| Xylenes (Total) | 0.00089 | 0.0016 | 0.0034 | 72 | <0.00089 | <0.00089 | NC | <0.00089 | <0.00089 | NC | 0.93 | 0.93 | 0.0 |
| F1 minus BTEX (C6 - C10) | 0.10 | 1.9 | 3.6 | 62 | 1.3 | 1.2 | 8.0 | <0.10 | <0.10 | NC | 0.79 | 1.1 | 33 |
| F2 (C10 - C16) | 0.10 | 0.36 | 0.36 | 0.0 | 0.17 | 0.17 | 0.0 | <0.10 | <0.10 | NC | 0.26 | 0.28 | 7.4 |

| Sample ID | Reportable Detection Limit | BH510A | BH9510A | RPD[1] (%) | EX1 | EX91 | RPD[1] (%) | EX5 | EX95 | RPD[1] (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 25-May-20 | | | 25-May-20 | | | 21-May-20 | | |
| **BTEX and PHC fractions F1 - F2** | | | | | | | | | | |
| Benzene | 0.00040 | 0.69 | 0.64 | 7.5 | 0.0022 | 0.0022 | 0.0 | 2.5 | 2.4 | 4.1 |
| Toluene | 0.00040 | 0.018 | 0.016 | 12 | <0.00040 | <0.00040 | NC | 5.2 | 5.0 | 3.9 |
| Ethylbenzene | 0.00040 | 0.65 | 0.61 | 6.3 | 0.00076 | 0.00075 | 1.3 | 1.2 | 1.2 | 0.0 |
| Xylenes (Total) | 0.00089 | 0.098 | 0.094 | 4.2 | <0.00089 | <0.00089 | NC | 3.1 | 3.0 | 3.3 |
| F1 minus BTEX (C6 - C10) | 0.10 | 1.7 | 1.7 | 0.0 | <0.10 | <0.10 | NC | 7.1 | 7.0 | 1.4 |
| F2 (C10 - C16) | 0.10 | 0.2 | 0.25 | 22 | <0.10 | <0.10 | NC | 0.63 | 0.61 | 3.2 |

**Notes:**

1 Relative percent difference.

**Bold** RPD exceeds 80% for organic constituents.

NC Not calculated.

N/A Not applicable.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 6 - Summary of Groundwater Laboratory Analyses
## QA/QC - Field and Laboratory Duplicate - VOCs

| Sample ID | Reportable Detection Limit | BH1905 | BH9905 | RPD[1] (%) | BH1907 | BH9907 | RPD[1] (%) | BH1915 | BH9915 | RPD[1] (%) | BH1921 | BH9921 | RPD[1] (%) | BH1967 | BH9967 | RPD[1] (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 2-Jun-20 | | | 22-May-20 | | | 25-May-20 | | | 3-Jun-20 | | | 20-May-20 | | |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,1-dichloroethane | 0.00050 | <0.00050 | <0.00050 | NC | 0.00079 | 0.00077 | 2.6 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | 0.00074 | 0.00073 | 1.4 | <0.0010 | <0.0010 | NC |
| 1,2,4-trimethylbenzene | 0.00050 | 0.33 | 0.32 | 3.1 | 0.21 | 0.20 | 4.9 | 0.018 | 0.019 | 5.4 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,2-dibromoethane | 0.00020 | <0.00020 | <0.00020 | NC | 0.00150 | 0.0015 | 0.0 | <0.00020 | <0.00020 | NC | <0.00020 | <0.00020 | NC | <0.00020 | <0.00020 | NC |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,2-dichloroethane | 0.00050 | 0.030 | 0.030 | 0.0 | 0.015 | 0.015 | 0.0 | 0.012 | 0.012 | 0.0 | 0.058 | 0.056 | 3.5 | 0.023 | 0.025 | 8.3 |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,3,5-trimethylbenzene | 0.00050 | 0.10 | 0.096 | 4.1 | 0.087 | 0.085 | 2.3 | 0.018 | 0.019 | 5.4 | <0.00050 | <0.00050 | NC | 0.0020 | 0.0028 | 33 |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Bromoform | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.0010 | <0.0010 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.00050 | <0.00050 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| Chloroform | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Chloromethane | 0.0020 | 0.0022 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC |
| Methyl methacrylate | 0.00076 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Styrene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Total Trihalomethanes | 0.0013 | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |

**Notes:**

1 Relative percent difference.

**Bold** RPD exceeds 80% for organic constituents.

NC Not calculated.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 6 - Summary of Groundwater Laboratory Analyses
## QA/QC - Field and Laboratory Duplicate - VOCs

| Sample ID | Reportable Detection Limit | BH1971 | BH9971 | RPD[1] (%) | BH2005 | BH9005 | RPD[1] (%) | BH4003A | BH94003A | RPD[1] (%) | BH510A | BH9510A | RPD[1] (%) | EX1 | EX91 | RPD[1] (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 21-May-20 | | | 1-Jun-20 | | | 27-May-20 | | | 25-May-20 | | | 25-May-20 | | |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,1-dichloroethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| 1,2,4-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | 0.024 | 0.023 | 4.3 | 0.016 | 0.014 | 13 | <0.00050 | <0.00050 | NC |
| 1,2-dibromoethane | 0.00020 | <0.00020 | <0.00020 | NC | <0.00020 | <0.00020 | NC | 0.00076 | 0.00076 | 0.0 | <0.00020 | <0.00020 | NC | <0.00020 | <0.00020 | NC |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,2-dichloroethane | 0.00050 | 0.068 | 0.064 | 6.1 | 0.0026 | 0.0026 | 0.0 | 0.090 | 0.093 | 3.3 | 0.034 | 0.031 | 9.2 | <0.00050 | <0.00050 | NC |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,3,5-trimethylbenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | 0.0042 | 0.0041 | 2.4 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Bromoform | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.0010 | <0.0010 | NC | <0.00050 | <0.00050 | NC |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.0010 | <0.0010 | NC | <0.00050 | <0.00050 | NC | <0.0010 | <0.0010 | NC |
| Chloroform | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC |
| Chloromethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | 0.0032 | 0.0030 | 6.5 | <0.0020 | <0.0020 | NC |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.0020 | <0.0020 | NC | <0.00050 | <0.00050 | NC | <0.0020 | <0.0020 | NC |
| Methyl methacrylate | 0.00076 | <0.00050 | <0.00050 | NC | <0.0022* | <0.0030* | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Styrene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Total Trihalomethanes | 0.0013 | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC | <0.0013 | <0.0013 | NC |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC | <0.00050 | <0.00050 | NC |

**Notes:**

1 Relative percent difference.

**Bold** RPD exceeds 80% for organic constituents.

NC Not calculated.

* Detection limits raised due to matrix interference.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 6 - Summary of Groundwater Laboratory Analyses
# QA/QC - Field and Laboratory Duplicate - VOCs

| Sample ID | Reportable Detection Limit | EX5 | EX95 | RPD[1] (%) |
|---|---|---|---|---|
| Sample Date | | 21-May-20 | | |
| 1,1,1,2-tetrachloroethane | 0.0010 | <0.0010 | <0.0010 | NC |
| 1,1,1-trichloroethane | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,1,2,2-tetrachloroethane | 0.0020 | <0.0020 | <0.0020 | NC |
| 1,1,2-trichloroethane | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,1-dichloroethane | 0.00050 | 0.0010 | 0.00099 | 1.0 |
| 1,1-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,2,3-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | NC |
| 1,2,4-trichlorobenzene | 0.0010 | <0.0010 | <0.0010 | NC |
| 1,2,4-trimethylbenzene | 0.00050 | 0.23 | 0.22 | 4.4 |
| 1,2-dibromoethane | 0.00020 | <0.00050 | <0.00020 | NC |
| 1,2-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,2-dichloroethane | 0.00050 | 0.069 | 0.068 | 1.5 |
| 1,2-dichloropropane | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,3,5-trichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,3,5-trimethylbenzene | 0.00050 | 0.14 | 0.14 | 0.0 |
| 1,3-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC |
| 1,4-dichlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC |
| Bromodichloromethane | 0.00050 | <0.00050 | <0.00050 | NC |
| Bromoform | 0.00050 | <0.00050 | <0.00050 | NC |
| Bromomethane | 0.0020 | <0.0020 | <0.0020 | NC |
| Carbon tetrachloride | 0.00050 | <0.00050 | <0.00050 | NC |
| Chlorobenzene | 0.00050 | <0.00050 | <0.00050 | NC |
| Chlorodibromomethane | 0.0010 | <0.0010 | <0.0010 | NC |
| Chloroethane | 0.0010 | <0.0010 | <0.0010 | NC |
| Chloroform | 0.00050 | <0.00050 | <0.00050 | NC |
| Chloromethane | 0.0020 | 0.010 | 0.010 | 0.0 |
| cis-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC |
| cis-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | NC |
| Dichloromethane | 0.0020 | <0.0020 | <0.0020 | NC |
| Methyl methacrylate | 0.00076 | <0.00050 | <0.00050 | NC |
| Methyl-tert-butylether (MTBE) | 0.00050 | <0.00050 | <0.00050 | NC |
| Styrene | 0.00050 | 0.00093 | 0.00093 | 0.0 |
| Tetrachloroethene | 0.00050 | <0.00050 | <0.00050 | NC |
| Total Trihalomethanes | 0.0013 | <0.00050 | <0.00050 | NC |
| trans-1,2-dichloroethene | 0.00050 | <0.00050 | <0.00050 | NC |
| trans-1,3-dichloropropene | 0.00050 | <0.00050 | <0.00050 | NC |
| Trichloroethene | 0.00050 | <0.00050 | <0.00050 | NC |
| Trichlorofluoromethane | 0.00050 | <0.00050 | <0.00050 | NC |
| Vinyl chloride | 0.00050 | <0.00050 | <0.00050 | NC |

**Notes:**

1 Relative percent difference.

**Bold** RPD exceeds 80% for organic constituents.

NC Not calculated.

All results in mg/L unless otherwise noted.

Testing was conducted by Bureau Veritas Laboratories, Calgary, Alberta

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1901** | C | 19.66-21.18 | 26-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1902** | C | 22.71-24.23 | 29-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1903** | C | 23.62-25.15 | 29-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1904** | C | 12.80-14.33 | 27-May-20 | 3 | **0.17** | 0.00061 | 0.0014 | 0.0022 | 0.15 | <0.10 |
| | C | 12.80-14.33 | 3-Jan-20 | 3 | **0.19** | 0.00066 | 0.0015 | 0.0018 | 0.26 | <0.10 |
| | C | 12.80-14.33 | 1-May-19 | 3 | **0.22** | 0.00062 | 0.0015 | 0.0018 | 0.31 | <0.10 |
| | C | 12.80-14.33 | 7-Nov-18 | 3 | **0.25** | 0.00085 | **0.0017** | 0.0018 | 0.26 | <0.10 |
| | C | 12.80-14.33 | 26-Mar-18 | 3 | **0.20** | 0.00061 | 0.00072 | 0.0013 | 0.17 | <0.1 |
| | C | 12.80-14.33 | 4-May-17 | 3 | **0.21** | 0.00053** | 0.00084 | 0.0014 | 0.19 | <0.10 |
| | C | 12.80-14.33 | 4-Nov-16 | 3 | **0.17** | 0.00047 | <0.00040 | <0.00080 | 0.13 | <0.10 |
| | C | 12.80-14.33 | 11-May-16 | 3 | **0.19** | <0.00040 | <0.00040 | <0.00080 | 0.16 | <0.10 |
| | C | 12.80-14.33 | 16-Nov-15 | 3 | **0.218** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | C | 12.80-14.33 | 15-Sep-15 | 3 | **0.246** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | C | 12.80-14.33 | 15-Jun-15 | 3 | **0.35** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | C | Bulk | 17-Mar-15 | 3 | **0.117** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1905** | C | Bulk | 3-Jun-20 | 1 | **0.018** | 0.0014 | **0.14** | **0.65** | **1.8** | **2.9** |
| | C | Bulk | 3-Jan-20 | 1 | **0.037** | 0.0019 | **0.20** | **0.97** | **2.8** | **2.9** |
| | C | Bulk | 1-May-19 | 1 | **0.018** | 0.00094 | **0.23** | **1.5** | **3.3** | **4.0** |
| | C | Bulk | 7-Nov-18 | 1 | **0.037** | 0.0018 | **0.35** | **2.7** | **4.6** | **2.8** |
| | C | Bulk | 6-Apr-18 | 1 | **0.028** | 0.0028 | **0.36** | **2.3** | **4.7** | **2.7** |
| | C | Bulk | 5-May-17 | 1 | **0.042** | 0.0018 | **0.29** | **1.9** | 2.1 | **2.4** |
| | C | Bulk | 8-Nov-16 | 1 | **0.058** | 0.0025 | **0.49** | **3.6*** | **2.5** | **2.4** |
| | C | Bulk | 12-May-16 | 1 | **0.055** | 0.0024 | **0.52** | **3.1** | **2.2** | **1.8** |
| | C | Bulk | 17-Nov-15 | 1 | **0.0938** | 0.0025 | **0.438** | **1.83** | 1.6 | **2.2** |
| | C | Bulk | 8-Sep-15 | 1 | **0.11** | 0.0038 | **0.243** | **1.56** | 1.4 | **2.7** |
| | C | Bulk | 11-Jun-15 | 1 | **0.0714** | 0.0028 | **0.787** | **10.4** | 0.2 | **3.9** |
| | C | Bulk | 25-Feb-15 | 1 | **0.086** | 0.0110 | **1.88** | **26.3** | - | **7.3** |
| **BH1906** | R | 14.63-16.15 | 26-May-20 | 3 | **2.0*** | 0.00041 | <0.00040 | <0.00089 | <1.0 | <0.10 |
| | R | 14.63-16.15 | 4-Dec-19 | 3 | **2.4*** | 0.0013 | <0.00040 | <0.00089 | <1.0 | <0.10 |
| | R | 14.63-16.15 | 13-May-19 | 3 | **2.3*** | <0.00040 | <0.00040 | <0.00089 | <0.50 | <0.10 |
| | R | 14.63-16.15 | 10-Oct-18 | 3 | **2.4*** | <0.00040 | <0.00040 | <0.00089 | <0.50 | <0.10 |
| | R | 14.63-16.15 | 27-Mar-18 | 3 | **1.9** | 0.00040 | <0.00040 | <0.00089 | <0.1 | <0.1 |
| | R | 14.63-16.15 | 10-May-17 | 3 | **2.0*** | <0.00040 | <0.00040 | 0.00089 | <0.50* | 0.12 |
| | R | 14.63-16.15 | 2-Nov-16 | 3 | **1.8*** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 14.63-16.15 | 9-May-16 | 3 | **2.1** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 14.63-16.15 | 17-Nov-15 | 3 | **1.81** | 0.0005 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 14.63-16.15 | 16-Sep-15 | 3 | **2.01** | 0.0004 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 11.58-13.10 | 15-Jun-15 | 3 | **1.92** | 0.0004 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 13.10-14.63 | 15-Jun-15 | 3 | **2.01** | 0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 14.63-16.15 | 15-Jun-15 | 3 | **2.19** | 0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 16.15-17.68 | 15-Jun-15 | 3 | **2.05** | 0.0004 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 8-Apr-15 | 3 | **1.73** | 0.0004 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1907** | R | 11.89- 13.41 | 22-May-20 | 3 | **0.52** | **2.0*** | **0.29** | **2.6** | **3.4** | 0.48 |
| | R | Bulk | 17-Dec-19 | 3 | **0.057** | **0.081** | **0.0061** | **0.12** | 0.64 | <0.10 |
| | R | 11.89-13.41 | 6-Dec-19 | 3 | **0.098** | **0.095** | **0.025** | **0.190** | **1.3** | <0.10 |
| | R | Bulk | 28-May-19 | 3 | **0.029** | **0.049** | **0.0060** | **0.063** | 0.49 | <0.10 |
| | R | 11.89-13.41 | 24-May-19 | 3 | **0.032** | 0.020 | **0.0057** | **0.035** | 0.47 | <0.10 |
| | R | Bulk | 17-Oct-18 | 3 | 0.0043 | 0.018 | <0.00040 | **0.024** | 0.24 | <0.10 |
| | R | 11.89-13.41 | 11-Oct-18 | 3 | 0.0037 | 0.018 | <0.00040 | 0.015 | <0.10 | <0.10 |
| | R | Bulk | 6-Apr-18 | 3 | **0.021** | **0.045** | **0.0027** | **0.062** | 0.58 | <0.10 |
| | R | 11.89-13.41 | 27-Mar-18 | 3 | **0.56** | **2.4** | **0.28** | **2.4** | **7.0** | 0.64 |
| | R | Bulk | 12-May-17 | 3 | **0.42** | **2.1*** | **0.055** | **1.800** | **5.8** | 0.35 |
| | R | 11.89-13.41 | 10-May-17 | 3 | **0.042** | 0.014 | **0.0079** | **0.040** | 0.36 | 0.13 |
| | R | 11.89-13.41 | 2-Nov-16 | 3 | **0.036** | 0.010 | **0.0059** | **0.025** | 0.43 | <0.10 |
| | R | Bulk | 2-Nov-16 | 3 | **0.022** | **0.037** | **0.0019** | **0.054** | 0.27 | <0.10 |
| | R | 11.89-13.41 | 9-May-16 | 3 | **0.047** | **0.044** | **0.027** | **0.11** | 0.57 | 0.10 |
| | R | 11.89-13.41 | 17-Nov-15 | 3 | **0.0909** | **0.293** | **0.0399** | **0.434** | **1.2** | 0.10 |
| | R | 11.89-13.41 | 16-Sep-15 | 3 | **0.0742** | **0.248** | **0.0105** | **0.157** | 0.4 | <0.1 |
| | R | 11.89-13.41 | 15-Jun-15 | 3 | **0.0572** | **0.248** | **0.024** | **0.31** | **0.9** | <0.1 |
| | R | 13.41-14.94 | 15-Jun-15 | 3 | **0.0486** | **0.188** | **0.0173** | **0.214** | 0.4 | <0.1 |
| | R | Bulk | 30-Apr-15 | 3 | **0.232** | 0.0197 | **0.341** | 0.0101 | **3.6** | 0.5 |
| **BH1908** | R | 12.19-13.72 | 22-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 6-Dec-19 | 3 | <0.00040 | 0.00050 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 13-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 11-Oct-18 | 3 | 0.00083 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 27-Mar-18 | 3 | 0.00083 | 0.010 | 0.00055 | 0.013 | 0.11 | <0.1 |
| | R | 12.19-13.72 | 10-May-17 | 3 | **0.0056** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 2-Nov-16 | 3 | **0.0097** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 9-May-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 12.19-13.72 | 17-Nov-15 | 3 | **0.0082** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 12.19-13.72 | 16-Sep-15 | 3 | **0.0107** | 0.0007 | <0.0005 | 0.0006 | <0.1 | <0.1 |
| | R | 12.19-13.72 | 12-Jun-15 | 3 | **0.0160** | 0.0011 | 0.0007 | 0.0026 | <0.1 | <0.1 |
| | R | 13.72-14.94 | 12-Jun-15 | 3 | **0.0165** | 0.0010 | 0.0007 | 0.0029 | <0.1 | <0.1 |
| | R | Bulk | 28-Apr-15 | 3 | 0.0016 | 0.0003 | 0.0009 | 0.0054 | <0.1 | <0.1 |
| **BH1909** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1910** | R | 10.97-12.50 | 26-May-20 | 3 | **0.41** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 10.97-12.50 | 4-Dec-19 | 3 | **0.54** | 0.00091 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Results are potentially biased high

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1910 con't** | R | 10.97-12.50 | 10-May-19 | 3 | **0.80** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 10.97-12.50 | 11-Oct-18 | 3 | **0.66** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 10.97-12.50 | 27-Mar-18 | 3 | **0.31** | <0.00040 | <0.00040 | <0.00089 | <0.1 | <0.1 |
| | R | 10.97-12.50 | 10-May-17 | 3 | **0.42** | <0.00040 | 0.00058 | <0.00080 | <0.10 | <0.10 |
| | R | 10.97-12.50 | 2-Nov-16 | 3 | **0.21** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 11.39-12.50 | 9-May-16 | 3 | **0.31** | <0.00040 | <0.00040 | 0.0011 | <0.10 | <0.10 |
| | R | 11.43-12.50 | 16-Nov-15 | 3 | **0.154** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 11.43-12.50 | 16-Sep-15 | 3 | **0.118** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 11.49-12.50 | 15-Jun-15 | 3 | **0.324** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 12.50-14.02 | 15-Jun-15 | 3 | **0.324** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 14.02-15.54 | 15-Jun-15 | 3 | **0.296** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 15.54-17.07 | 15-Jun-15 | 3 | **0.267** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 22-Apr-15 | 3 | **0.351** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1911** | R | 15.54-17.07 | 3-Jun-20 | 3 | **0.0057** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 4-Dec-19 | 3 | **0.15** | 0.0011 | <0.00040 | 0.0013 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 10-May-19 | 3 | **0.14** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 10-Oct-18 | 3 | **0.51** | <0.00040 | <0.00040 | 0.0016 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 27-Mar-18 | 3 | **0.43** | <0.00040 | <0.00040 | 0.0011 | <0.1 | <0.1 |
| | R | 15.54-17.07 | 10-May-17 | 3 | **0.80** | <0.00040 | <0.00040 | 0.0017 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 2-Nov-16 | 3 | **0.82** | <0.00040 | <0.00040 | 0.0016 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 9-May-16 | 3 | **1.0** | <0.00040 | <0.00040 | 0.0018 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 16-Nov-15 | 3 | **0.701** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 15.54-17.07 | 16-Sep-15 | 3 | **0.509** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 14.05-15.54 | 15-Jun-15 | 3 | **0.302** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 15.54-17.07 | 15-Jun-15 | 3 | **0.346** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 9-Apr-15 | 3 | **0.436** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1912** | R | 13.41-14.94 | 25-May-20 | 3 | **0.052** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 9-Dec-19 | 3 | **0.066** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 4-Jun-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 30-Apr-19 | 3 | **0.14** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 29-Oct-18 | 3 | **0.18** | 0.00067 | <0.00040 | 0.0016 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 5-Apr-18 | 3 | **0.25** | 0.00079 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 17-May-17 | 3 | **0.43** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 3-Nov-16 | 3 | **0.57** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 10-May-16 | 3 | **0.54** | <0.00040 | <0.00040 | 0.0013 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 12-Nov-15 | 3 | **0.688** | <0.0003 | <0.0005 | 0.0009 | <0.1 | <0.1 |
| | R | 13.41-14.94 | 8-Sep-15 | 3 | **0.727** | 0.0004 | <0.0005 | 0.0021 | <0.1 | <0.1 |
| | R | 13.41-14.94 | 17-Jun-15 | 3 | **0.799** | 0.0009 | <0.0005 | 0.0176 | <0.1 | <0.1 |
| | R | 14.94-16.46 | 17-Jun-15 | 3 | **0.795** | 0.001 | <0.0005 | 0.0184 | <0.1 | <0.1 |
| | R | 16.46-17.98 | 17-Jun-15 | 3 | **0.738** | 0.0009 | <0.0005 | 0.0172 | <0.1 | <0.1 |
| | R | 17.98-19.51 | 17-Jun-15 | 3 | **0.716** | 0.0008 | <0.0005 | 0.0196 | <0.1 | <0.1 |
| | R | Bulk | 10-Mar-15 | 3 | **0.942** | 0.0021 | <0.0005 | 0.0481 | <0.1 | <0.1 |
| **BH1913** | R | 6.40-7.92 | 25-May-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1914** | R | Bulk | 25-May-20 | 1 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1915** | R | Bulk | 25-May-20 | 3 | **0.013** | 0.00067 | 0.0013 | **0.022** | 1.2 | 0.35 |
| | R | Bulk | 9-Dec-19 | 3 | **0.023** | 0.0011 | 0.00080 | **0.032** | 0.79 | 0.33 |
| | R | 14.94-16.46 | 9-Dec-19 | 3 | **0.020** | 0.0014 | 0.00063 | **0.020** | **1.5** | 0.35 |
| | R | Bulk | 30-Apr-19 | 3 | **0.032** | 0.00047 | <0.00040 | **0.038** | **0.43** | 0.17 |
| | R | 14.94-16.46 | 30-Apr-19 | 3 | **0.041** | <0.00040 | <0.00040 | **0.047** | **0.26** | 0.11 |
| | R | Bulk | 29-Oct-18 | 3 | **0.043** | 0.0036 | 0.00086 | **0.096** | **0.99** | 0.3 |
| | R | 14.94-16.46 | 29-Oct-18 | 3 | **0.044** | 0.0011 | 0.00079 | **0.13** | **1.2** | 0.35 |
| | R | Bulk | 5-Apr-18 | 3 | **0.078** | 0.0022 | 0.00099 | **0.13** | **1.3** | 0.49 |
| | R | 14.94-16.46 | 5-Apr-18 | 3 | **0.053** | 0.0020 | <0.00040 | **0.12** | **1.8** | 0.33 |
| | R | 14.94-16.46 | 17-May-17 | 3 | **0.20** | 0.0046 | **0.0038** | **0.37** | **2.2** | 0.59 |
| | R | Bulk | 17-May-17 | 3 | **0.21** | 0.0028 | 0.0011 | **0.25** | **1.1** | 0.46 |
| | R | 14.94-16.46 | 3-Nov-16 | 3 | **0.47** | 0.0013 | <0.00040 | **0.16** | 0.59 | 0.27 |
| | R | Bulk | 3-Nov-16 | 3 | **0.57** | 0.011 | 0.0013 | **0.47** | **0.86** | 0.51 |
| | R | 14.94-16.46 | 10-May-16 | 3 | **0.35** | 0.0088 | **0.0065** | **0.59** | **2.2** | 0.46 |
| | R | 14.94-16.46 | 12-Nov-15 | 3 | **0.466** | **0.0257** | **0.0109** | **0.985** | **1.5** | 0.8 |
| | R | 14.94-16.46 | 8-Sep-15 | 3 | **0.510** | **0.0319** | **0.0087** | **1.02** | **1.8** | 0.6 |
| | R | 10.36-11.89 | 17-Jun-15 | 3 | **1.10** | **0.183** | **0.0427** | **2.33** | **2.6** | 0.6 |
| | R | 11.89-13.41 | 17-Jun-15 | 3 | **1.14** | **0.0727** | **0.0163** | **1.12** | **1.6** | 0.5 |
| | R | 13.41-14.94 | 17-Jun-15 | 3 | **1.15** | **0.0813** | **0.0214** | **1.26** | **1.9** | 0.6 |
| | R | 14.94-16.46 | 17-Jun-15 | 3 | **1.24** | **0.0817** | **0.020** | **1.22** | **1.5** | 0.4 |
| | R | Bulk | 26-Feb-15 | 3 | **1.01** | **0.0723** | **0.0411** | **1.96** | **3.2** | **1.1** |
| **BH1916** | R | Bulk | 25-May-20 | 1 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1917** | R | 13.41-14.94 | 4-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 13.41-14.94 | 27-Nov-19 | 3 | <0.00040 | 0.0013 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1918** | R | 10.36-11.89 | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1919** | R | 11.28-12.80 | 4-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 27-Nov-19 | 3 | <0.00040 | 0.0011 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1920** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1921** | R | 11.89-13.41 | 3-Jun-20 | 3 | **0.024** | 0.0052 | **0.027** | 0.0031 | 0.78 | 0.10 |
| | R | 11.89-13.41 | 27-Nov-19 | 3 | **0.010** | 0.0029 | **0.0022** | 0.0021 | 0.36 | <0.10 |
| | R | 11.89-13.41 | 16-Oct-18 | 3 | 0.0020 | <0.00040 | 0.00046 | <0.00089 | 0.21 | <0.10 |
| | R | 11.89-13.41 | 29-Mar-18 | 3 | **0.044** | 0.0067 | **0.028** | 0.0033 | 0.65 | <0.10 |
| | R | 11.89-13.41 | 11-May-17 | 3 | **0.10** | 0.021 | **0.14** | 0.0049 | **1.30** | 0.12 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Results are potentially biased high

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1921 con't** | R | 11.89-13.41 | 10-Nov-16 | 3 | **0.17** | 0.0099 | **0.18** | 0.0067 | **0.90** | <0.10 |
| | R | 11.89-13.41 | 13-May-16 | 3 | **0.12** | 0.0058 | **0.12** | 0.018 | **1.2** | 0.18 |
| | R | 11.89-13.41 | 20-Nov-15 | 3 | **0.187** | 0.0137 | **0.156** | 0.0120 | 0.8 | 0.2 |
| | R | 11.89-13.41 | 4-Sep-15 | 3 | **0.174** | 0.0175 | **0.137** | 0.0092 | **1.0** | 0.2 |
| | R | 14.94-16.46 | 22-Jun-15 | 3 | **0.330** | **0.0372** | **0.225** | 0.0094 | **1.1** | 0.2 |
| | R | 10.36-11.89 | 19-Jun-15 | 3 | **0.280** | **0.0377** | **0.179** | 0.0072 | **1.1** | 0.2 |
| | R | 11.89-13.41 | 19-Jun-15 | 3 | **0.417** | **0.0461** | **0.258** | 0.0104 | **0.9** | 0.2 |
| | R | 13.41-14.94 | 19-Jun-15 | 3 | **0.334** | **0.0382** | **0.184** | 0.0081 | 0.8 | 0.2 |
| | R | Bulk | 28-Apr-15 | 3 | **0.470** | **0.0869** | **0.352** | 0.0126 | **1.6** | 0.3 |
| **BH1922** | R | 14.02-15.54 | 2-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 28-Nov-19 | 3 | <0.00040 | 0.0012 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 28-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 16-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 29-Mar-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 11-May-17 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 10-Nov-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 13-May-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 15.54-17.07 | 20-Nov-15 | 3 | 0.0027 | 0.0005 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 14.02-15.54 | 23-Nov-15 | 3 | **0.0281** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 15.54-17.07 | 3-Sep-15 | 3 | **0.0056** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 10.97-12.50 | 19-Jun-15 | 3 | <0.0005 | 0.0039 | **0.0046** | <0.0005 | <0.1 | <0.1 |
| | R | 12.50-14.02 | 19-Jun-15 | 3 | **0.237** | 0.0055 | **0.0119** | 0.0020 | <0.1 | <0.1 |
| | R | 14.02-15.54 | 19-Jun-15 | 3 | **0.314** | <0.0003 | <0.0005 | 0.0031 | <0.1 | <0.1 |
| | R | Bulk | 5-May-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1923** | R | 10.67-12.19 | 21-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 10.67-12.19 | 15-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 10.67-12.19 | 27-Mar-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 10.67-12.19 | 15-May-17 | 3 | <0.00040 | <0.00040 | 0.0016** | 0.0025 | <0.10 | <0.10 |
| | R | 10.67-12.19 | 7-Nov-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 10.67-12.19 | 9-May-16 | 3 | 0.00059 | <0.00040 | <0.00040 | 0.012 | 0.11 | <0.10 |
| | R | 10.67-12.19 | 17-Nov-15 | 3 | <0.0005 | <0.0003 | <0.0005 | 0.0030 | <0.1 | <0.1 |
| | R | 10.67-12.19 | 3-Sep-15 | 3 | 0.0014 | 0.0010 | <0.0005 | 0.0129 | <0.1 | <0.1 |
| | R | 10.67-12.19 | 12-Jun-15 | 3 | 0.0028 | 0.0007 | <0.0005 | 0.0104 | 0.1 | <0.1 |
| | R | 12.19-13.72 | 12-Jun-15 | 3 | 0.0024 | 0.0006 | <0.0005 | 0.0098 | 0.1 | <0.1 |
| | R | Bulk | 2-Apr-15 | 3 | 0.0013 | <0.0003 | <0.0005 | 0.0075 | <0.1 | <0.1 |
| **BH1924** | R | 14.94-16.46 | 22-May-20 | 3 | **1.5*** | 0.0023 | <0.00040 | **0.17** | <0.10 | 0.14 |
| | R | Bulk | 17-Dec-19 | 3 | **1.0** | 0.0016 | <0.00040 | **0.11** | **0.48** | <0.10 |
| | R | 14.94-16.46 | 12-Dec-19 | 3 | **1.6 *** | 0.0035 | <0.00040 | **0.22** | **0.66** | <0.10 |
| | R | Bulk | 28-May-19 | 3 | **0.77** | 0.0013 | <0.00040 | **0.13** | **0.74** | <0.10 |
| | R | 14.94-16.46 | 13-May-19 | 3 | **0.77** | 0.0017 | <0.00040 | **0.13** | **0.68** | <0.10 |
| | R | 14.94-16.46 | 10-May-19 | 3 | **1.1*** | 0.0024 | <0.00040 | **0.17** | 0.21 | <0.10 |
| | R | Bulk | 12-Oct-18 | 3 | **0.69** | 0.0019 | <0.00040 | **0.14** | **1.1** | <0.10 |
| | R | 14.94-16.46 | 10-Oct-18 | 3 | **2.1*** | 0.0049 | <0.00040 | **0.22** | 0.55 | <0.10 |
| | R | Bulk | 6-Apr-18 | 3 | **1.5*** | 0.0042 | 0.00043 | **0.16** | 0.59 | <0.10 |
| | R | 14.94-16.46 | 27-Mar-18 | 3 | **1.6** | 0.006 | 0.0004 | **0.19** | <0.10 | 0.14 |
| | R | Bulk | 12-May-17 | 3 | **1.6*** | 0.0059 | <0.00040 | **0.16** | 0.63 | 0.15 |
| | R | 14.94-16.46 | 10-May-17 | 3 | **2.6*** | 0.014 | <0.00040 | **0.28** | 0.32 | 0.23 |
| | R | 14.94-16.46 | 2-Nov-16 | 3 | **2.8*** | 0.012 | <0.00040 | **0.27** | 0.57 | 0.15 |
| | R | Bulk | 2-Nov-16 | 3 | **3.1** | 0.0075 | <0.00040 | **0.19** | 0.16 | <0.10 |
| | R | 14.94-16.46 | 9-May-16 | 3 | **2.2** | 0.015 | **0.039** | **0.32** | **1.1** | 0.23 |
| | R | 14.94-16.46 | 17-Nov-15 | 3 | **2.45** | 0.0146 | 0.0007 | **0.270** | <0.1 | 0.2 |
| | R | 14.94-16.46 | 16-Sep-15 | 3 | **3.90** | **0.0243** | 0.0005 | **0.373** | <0.1 | 0.1 |
| | R | 14.94-16.46 | 19-Jun-15 | 3 | **6.32** | **0.0302** | 0.0008 | **0.402** | <0.1 | 0.3 |
| | R | Bulk | 7-May-15 | 3 | **3.04** | 0.010 | 0.001 | **0.153** | **1.8** | 0.2 |
| **BH1925** | R | 16.76-18.29 | 22-May-20 | 3 | **0.025** | 0.00081 | **0.24** | 0.0012 | 0.64 | <0.10 |
| | R | 16.76-18.29 | 10-Dec-19 | 3 | **0.023** | 0.00064 | 0.11 | <0.00089 | 0.34 | <0.10 |
| | R | 16.76-18.29 | 27-May-19 | 3 | **0.19** | 0.0016 | **0.24** | 0.0017 | 0.42 | 0.1 |
| | R | 16.76-18.29 | 15-Oct-18 | 3 | **0.47** | 0.0055 | **0.32** | 0.0043 | 0.77 | <0.10 |
| | R | 16.76-18.29 | 29-Mar-18 | 3 | **0.32** | 0.0037 | **0.15** | 0.002 | 0.4 | <0.10 |
| | R | 16.76-18.29 | 8-May-17 | 3 | **0.43** | 0.0097 | **0.19** | 0.0040 | 0.69 | <0.10 |
| | R | 16.76-18.29 | 7-Nov-16 | 3 | **1.8*** | **0.025** | **0.63** | 0.016 | **0.81** | 0.13 |
| | R | 16.76-18.29 | 9-May-16 | 3 | **2.1** | **0.036** | **0.85** | **0.030** | **1.0** | 0.22 |
| | R | 16.76-18.29 | 20-Nov-15 | 3 | **3.28** | **0.0460** | **0.540** | **0.0254** | **1.8** | 0.2 |
| | R | 16.76-18.29 | 4-Sep-15 | 3 | **2.54** | **0.137** | **0.515** | **0.072** | **2.0** | 0.1 |
| | R | 16.76-18.29 | 12-Jun-15 | 3 | **1.50** | **0.0247** | **0.0145** | 0.0104 | **2.2** | 0.2 |
| | R | Bulk | 7-May-15 | 3 | **1.82** | **0.037** | **0.542** | 0.017 | 0.5 | <0.1 |
| **BH1926** | R | N/A | N/A | 2,3,4 | Well decommissioned on 14 April 2016. | | | | | |
| **BH1927** | R | 15.24-16.76 | 9-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 15.24-16.76 | 15-Oct-18 | 3 | <0.00050** | <0.00040 | <0.00040 | 0.0057 | <0.10 | <0.10 |
| | R | 15.24-16.76 | 12-May-17 | 3 | <0.00040 | <0.00040 | <0.00040 | 0.0053 | <0.10 | <0.10 |
| | R | 15.24-16.76 | 8-Nov-16 | 3 | 0.00079 | <0.00040 | <0.00040 | 0.019 | 0.11 | 0.36 |
| | R | 15.24-16.76 | 13-May-16 | 3 | 0.0013 | <0.00040 | <0.00040 | **0.031** | 0.23 | <0.10 |
| | R | 15.24-16.76 | 20-Nov-15 | 3 | 0.0012 | <0.0003 | <0.0005 | 0.0178 | 0.2 | <0.1 |
| | R | 15.24-16.76 | 4-Sep-15 | 3 | 0.0009 | <0.0003 | <0.0005 | 0.0172 | <0.1 | <0.1 |
| | R | 13.72-15.24 | 16-Jun-15 | 3 | 0.0016 | <0.0003 | <0.0005 | 0.0152 | <0.1 | <0.1 |
| | R | 15.24-16.76 | 16-Jun-15 | 3 | 0.0018 | <0.0003 | <0.0005 | 0.0184 | <0.1 | <0.1 |
| | R | 16.76-18.29 | 16-Jun-15 | 3 | 0.0020 | <0.0003 | <0.0005 | 0.0181 | <0.1 | <0.1 |
| | R | 18.29-19.81 | 16-Jun-15 | 3 | 0.0020 | <0.0003 | <0.0005 | 0.0173 | <0.1 | <0.1 |
| | R | Bulk | 1-May-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interferent.

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1928** | R | Bulk | 2-Jun-20 | 3,4 | <0.0040*** | <0.0040*** | <0.0040*** | <0.0089*** | <1.0 | <0.10 |
| | R | Bulk | 22-Nov-19 | 3,4 | **2.7*** | 0.00093 | <0.00040 | **0.13** | 0.43 | <0.10 |
| | R | 9.45-10.97 | 21-Nov-19 | 3 | **3.1*** | 0.00063 | <0.00040 | **0.14** | <0.10 | <0.10 |
| | R | Bulk | 30-May-19 | 3,4 | **2.3*** | 0.00048 | <0.00040 | **0.07** | <0.10 | <0.10 |
| | R | 9.45-10.97 | 29-May-19 | 3 | **2.4*** | <0.00040 | <0.00040 | **0.012** | **1.0** | 0.13 |
| | R | Bulk | 16-Oct-18 | 3,4 | **2.5*** | <0.00040 | <0.00040 | **0.050** | <0.10 | <0.10 |
| | R | 9.45-10.97 | 15-Oct-18 | 3 | **2.7*** | <0.00040 | <0.00040 | **0.094** | <0.10 | <0.10 |
| | R | Bulk | 3-Apr-18 | 3,4 | **3.0*** | 0.00055 | 0.00051 | **0.098** | <0.10 | <0.10 |
| | R | 9.45-10.97 | 28-Mar-18 | 3 | **2.5** | <0.00040 | <0.00040 | **0.12** | <0.10 | <0.10 |
| | R | Bulk | 18-May-17 | 3,4 | **4.1*** | 0.00095 | 0.00059 | **0.16** | **<1.0*** | <0.10 |
| | R | 9.45-10.97 | 15-May-17 | 3 | **4.2** | 0.00090 | 0.00060 | **0.15** | **1.3*** | <0.10 |
| | R | 9.45-10.97 | 9-Nov-16 | 3 | **3.5*** | 0.00069 | <0.00040 | **0.10** | <0.10 | <0.10 |
| | R | Bulk | 9-Nov-16 | 3,4 | **4.0** | 0.0031 | 0.0012 | **0.12** | <0.10 | <0.10 |
| | R | 9.45-10.97 | 16-May-16 | 3 | **2.5** | 0.0014 | <0.00040 | **0.073** | **<1.0 *** | 0.11 |
| | R | 9.45-10.97 | 24-Nov-15 | 3 | **3.08** | 0.0018 | 0.0008 | **0.0700** | <0.1 | <0.1 |
| | R | 9.45-10.97 | 24-Sep-15 | 3 | **2.57** | 0.0029 | 0.0010 | **0.0518** | <0.1 | <0.1 |
| | R | 8.63-9.45 | 18-Sep-15 | 3 | **4.72** | 0.0032 | 0.0012 | **0.0783** | 0.2 | <0.1 |
| | R | 10.97-12.50 | 17-Jun-15 | 3 | **4.47** | 0.0041 | **0.0018** | **0.0837** | 0.1 | <0.1 |
| | R | 9.45-10.97 | 16-Jun-15 | 3 | **4.93** | 0.0030 | 0.0015 | **0.0576** | **3.0** | <0.1 |
| | R | Bulk | 5-May-15 | 3,4 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1929** | R | 8.53-10.06 | 5-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 22-Nov-19 | 3 | **0.0052** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 29-May-19 | 3 | **0.0073** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 12-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 28-Mar-18 | 3 | **0.10** | <0.00040 | <0.00040 | <0.00089 | 0.10 | <0.10 |
| | R | 8.53-10.06 | 15-May-17 | 3 | **0.22** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 9-Nov-16 | 3 | **0.31** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 13-May-16 | 3 | **0.47** | 0.00070 | <0.00040 | 0.0013 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 24-Nov-15 | 3 | **0.664** | 0.0015 | 0.0006 | 0.0011 | <0.1 | <0.1 |
| | R | 8.53-10.06 | 3-Sep-15 | 3 | **0.770** | 0.0018 | <0.0005 | 0.0008 | <0.1 | <0.1 |
| | R | 8.53-10.06 | 18-Jun-15 | 3 | **0.681** | 0.0021 | 0.0006 | 0.0018 | <0.1 | <0.1 |
| | R | 10.06-11.58 | 18-Jun-15 | 3 | **0.654** | 0.0020 | 0.0007 | 0.0017 | <0.1 | <0.1 |
| | R | 11.58-13.11 | 18-Jun-15 | 3 | **0.641** | 0.0020 | 0.0005 | 0.0016 | <0.1 | <0.1 |
| | R | Bulk | 4-May-15 | 3,4 | **0.920** | 0.0013 | 0.0013 | 0.0013 | 0.1 | <0.1 |
| **BH1930** | R | 14.02-15.54 | 4-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 3-Dec-19 | 3 | <0.00040 | 0.0010 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 28-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.02-15.54 | 12-Oct-18 | 3 | **0.039** | <0.00040 | <0.00040 | **0.077** | <0.10 | <0.10 |
| | R | 14.02-15.54 | 28-Mar-18 | 3 | **0.027** | <0.00040 | <0.00040 | **0.038** | <0.10 | <0.10 |
| | R | 14.02-15.54 | 12-May-17 | 3 | **0.028** | 0.00058 | <0.00040 | **0.030** | <0.10 | <0.10 |
| | R | 14.02-15.54 | 14-Nov-16 | 3 | **0.026** | 0.00048 | <0.00040 | **0.036** | <0.10 | <0.10 |
| | R | 14.02-15.54 | 13-May-16 | 3 | **0.076** | 0.0019 | <0.00040 | **0.088** | 0.18 | <0.10 |
| | R | 14.02-15.54 | 20-Nov-15 | 3 | **0.0699** | 0.0009 | <0.0005 | **0.0484** | <0.1 | <0.1 |
| | R | 14.02-15.54 | 22-Sep-15 | 3 | **0.0660** | 0.0018 | <0.0005 | **0.0958** | <0.1 | <0.1 |
| | R | 12.50-14.02 | 16-Jun-15 | 3 | **0.113** | 0.0024 | <0.0005 | **0.0867** | 0.2 | <0.1 |
| | R | 14.02-15.54 | 16-Jun-15 | 3 | **0.113** | 0.0025 | <0.0005 | **0.0895** | 0.2 | <0.1 |
| | R | Bulk | 1-May-15 | 2,3 | **0.063** | 0.0014 | <0.0005 | **0.0492** | <0.1 | <0.1 |
| **BH1931** | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1932** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1933** | R | 11.89-13.41 | 4-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 2-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 11-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 6-Apr-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 4-May-17 | 3 | **0.0096** | 0.00059 | <0.00040 | 0.0041 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 14-Nov-16 | 3 | **0.0073** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 11-May-16 | 3 | **0.0082** | 0.00062 | <0.00040 | 0.0063 | 0.26 | <0.10 |
| | R | 11.89-13.41 | 16-Nov-15 | 3 | **0.0056** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 11.89-13.41 | 15-Sep-15 | 3 | **0.0093** | 0.0026 | **0.0030** | 0.0189 | <0.1 | <0.1 |
| | R | 11.89-13.41 | 16-Jun-15 | 3 | 0.0044 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 13.41-14.94 | 16-Jun-15 | 3 | 0.0028 | <0.0003 | <0.0005 | 0.0012 | <0.1 | <0.1 |
| | R | Bulk | 12-Mar-15 | 3 | 0.0033 | 0.0005 | <0.0005 | 0.0115 | <0.1 | <0.1 |
| **BH1934** | R | Bulk | 5-Jun-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1935** | R | Bulk | 5-Jun-20 | 1 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1936** | R | 8.38-9.91 | 5-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.38-9.91 | 12-Dec-19 | 3 | **<0.020 **** | **<0.020 **** | **<0.020 **** | **<0.045 **** | **<5.0 **** | <0.10 |
| | R | 8.38-9.91 | 30-May-19 | 3 | **0.016** | <0.00040 | <0.00040 | 0.0018 | 0.29 | <0.10 |
| | R | 8.38-9.91 | 17-Oct-18 | 3 | **0.03** | 0.00098 | <0.00040 | 0.0028 | 0.32 | <0.10 |
| | R | 8.38-9.91 | 28-Mar-18 | 3 | **0.018** | 0.00051 | <0.00040 | 0.0014 | 0.16 | <0.10 |
| | R | 8.38-9.91 | 16-May-17 | 3 | **0.015** | <0.00040 | <0.00040 | 0.0012 | 0.13 | <0.10 |
| | R | 8.38-9.91 | 14-Nov-16 | 3 | **0.015** | 0.00045 | <0.00040 | 0.0013 | 0.17 | <0.10 |
| | R | 8.38-9.91 | 13-May-16 | 3 | **0.15** | 0.0027 | **0.042** | 0.0054 | 0.75 | 0.11 |
| | R | 8.38-9.91 | 24-Nov-15 | 3 | **0.0199** | 0.0004 | **0.0037** | 0.0014 | 0.3 | <0.1 |
| | R | 8.38-9.91 | 3-Sep-15 | 3 | **0.0589** | 0.0011 | **0.0073** | 0.0022 | 0.4 | <0.1 |
| | R | 8.38-9.91 | 18-Jun-15 | 3 | **0.484** | 0.0069 | **0.184** | 0.0139 | 0.4 | <0.1 |
| | R | 9.91-11.43 | 18-Jun-15 | 3 | **0.423** | 0.0057 | **0.132** | 0.0119 | 0.5 | <0.1 |
| | R | Bulk | 4-May-15 | 3 | **0.201** | 0.0028 | **0.0504** | 0.0087 | 0.5 | |
| **BH1937** | R | 8.84-10.36 | 5-May-20 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 22-Nov-19 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interference

*** Detection limit raised due to dilution as a result of sample matrix interference

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1937 con't** | R | 8.84-10.36 | 30-May-19 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 17-Oct-18 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 28-Mar-18 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 16-May-17 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 6-Jan-17 | 4,5 | <0.00060** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 21-Dec-16 | 4,5 | **0.038** | <0.00040 | 0.00053 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 12-Dec-16 | 4,5 | **0.026** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 25-Nov-16 | 4,5 | **0.042** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 10-Nov-16 | 4,5 | **0.036** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 28-Oct-16 | 4,5 | **6.0*** | 0.010 | **0.26** | **0.023** | **1.3*** | <0.10 |
| | R | 8.84-10.36 | 13-Oct-16 | 4,5 | **0.033** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 10-Oct-16 | 4,5 | **0.019** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 16-Sep-16 | 4,5 | **0.0089** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 3-Sep-16 | 4,5 | **0.034** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 19-Aug-16 | 4,5 | **0.011** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 5-Aug-16 | 4,5 | **0.042** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 13-May-16 | 4,5 | 0.0031 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 8-Apr-16 | 4,5 | **0.0118** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 8.84-10.36 | 19-Nov-15 | 4,5 | **0.0052** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 8.84-10.36 | 22-Sep-15 | 4,5 | 0.0026 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 8.84-10.36 | 18-Jun-15 | 4,5 | 0.0031 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1938** | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1939** | R | Bulk | 5-May-20 | 4 | 0.0012 | <0.00040 | 0.0011 | 0.00089 | <0.10 | <0.10 |
| | R | Bulk | 22-Nov-19 | 4 | **0.0085** | <0.00040 | **0.0027** | 0.0011 | <0.10 | <0.10 |
| | R | Bulk | 31-May-19 | 4 | **0.021** | 0.00055 | **0.012** | 0.002 | <0.10 | <0.10 |
| | R | Bulk | 18-Oct-18 | 4 | **0.15** | 0.0013 | **0.041** | 0.0040 | 0.14 | <0.10 |
| | R | Bulk | 10-Apr-18 | 4 | **0.52** | 0.0020 | **0.057** | 0.0058 | 0.4 | <0.10 |
| | R | Bulk | 17-May-17 | 4 | **5.4*** | 0.0050 | **0.067** | 0.0090 | **<1.0*** | <0.10 |
| | R | Bulk | 19-Apr-17 | 4 | **4.8*** | 0.0048 | **0.16** | 0.0092 | 0.58 | <0.10 |
| | R | Bulk | 9-Mar-17 | 4 | **4.8*** | 0.0053 | **0.21** | 0.0094 | 0.48 | <0.10 |
| | R | Bulk | 6-Jan-17 | 4 | **5.4*** | 0.0082 | **0.21** | 0.016 | <0.10 | <0.10 |
| | R | Bulk | 21-Dec-16 | 4 | **6.0*** | 0.011 | **0.25** | 0.019 | <0.10 | <0.10 |
| | R | Bulk | 12-Dec-16 | 4 | **5.8*** | 0.012 | **0.28** | **0.022** | **<2.0*** | <0.10 |
| | R | Bulk | 25-Nov-16 | 4 | **7.4*** | 0.011 | **0.27** | **0.022** | **<1.0*** | <0.10 |
| | R | Bulk | 10-Nov-16 | 4 | **7.1*** | 0.011 | **0.29** | **0.024** | **<1.0*** | <0.10 |
| | R | Bulk | 28-Oct-16 | 4 | **0.038** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 13-Oct-16 | 4 | **5.9*** | 0.012 | **0.29** | **0.026** | **0.81** | <0.10 |
| | R | Bulk | 10-Oct-16 | 4 | **7.2*** | 0.014 | **0.30** | **0.024** | **<2.0*** | <0.10 |
| | R | Bulk | 16-Sep-16 | 4 | **6.8*** | 0.015 | **0.32** | **0.038** | 0.53 | <0.10 |
| | R | Bulk | 3-Sep-16 | 4 | **7.1*** | 0.012 | **0.23** | **0.027** | **2.6*** | <0.10 |
| | R | Bulk | 19-Aug-16 | 4 | **7.4*** | 0.013 | **0.24** | **0.035** | **1.5** | <0.10 |
| | R | Bulk | 5-Aug-16 | 4 | **8.1*** | 0.016 | **0.31** | **0.046** | **<2.0*** | <0.10 |
| | R | Bulk | 17-May-16 | 4 | **6.6** | 0.014 | **0.23** | **0.029** | **<1.0*** | <0.10 |
| | R | Bulk | 20-Nov-15 | 4 | **8.99** | 0.0180 | **0.240** | **0.0520** | **1.0** | <0.1 |
| | R | Bulk | 21-Sep-15 | 4 | **8.00** | **0.0244** | **0.286** | **0.0547** | **1.2** | <0.1 |
| | R | Bulk | 11-Jun-15 | 4 | **8.57** | 0.0170 | **0.218** | **0.0440** | 0.2 | <0.1 |
| | R | Bulk | 1-Apr-15 | 4 | **9.31** | **0.0278** | **0.297** | **0.166** | 0.1 | 0.1 |
| **BH1940** | C | N/A | N/A | 3 | Decommissioned on 13 April 2016. | | | | | |
| **BH1941** | R | 7.32-8.84 | 4-Jun-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 7.32-8.84 | 29-Nov-19 | 5 | <0.00040 | 0.00056 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1942** | R | 4.42-5.94 | 3-Jun-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.1 | <0.1 |
| | R | 4.42-5.94 | 29-Nov-19 | 5 | <0.0005 | 0.0012 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1943** | R | N/A | N/A | 4,5 | Well damaged and no longer serviceable. | | | | | |
| | R | 7.32-8.84 | 18-May-17 | 4, 5 | **1.8*** | <0.00040 | <0.00040 | <0.00080 | **<1.0*** | <0.10 |
| | R | 7.32-8.84 | 14-Nov-16 | 4, 5 | **1.7*** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 7.32-8.84 | 13-May-16 | 4, 5 | **1.7** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 7.32-8.84 | 26-Nov-15 | 4, 5 | **2.01** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 7.32-8.84 | 4-Sep-15 | 4, 5 | **1.58** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 7.32-8.84 | 18-Jun-15 | 4, 5 | **1.91** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 8.84-10.36 | 18-Jun-15 | 4, 5 | **1.62** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 10.36-11.89 | 18-Jun-15 | 4, 5 | **1.70** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 15-Apr-15 | 4, 5 | **1.66** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1944** | R | Bulk | 8-May-20 | 3 | **0.028** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 22-Nov-19 | 3 | **0.021** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 7-Jun-19 | 3 | **0.034** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 23-Oct-18 | 3 | **0.016** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 5-Apr-18 | 3 | **0.012** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 19-May-17 | 3 | 0.0036 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 16-Nov-16 | 3 | 0.00055 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 17-May-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 27-Nov-15 | 3 | 0.0008 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 17-Sep-15 | 3 | 0.0016 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 11-Jun-15 | 3 | 0.0013 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 13-Apr-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1945** | R | Bulk | 20-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1946** | R | Bulk | 22-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1947** | R | Bulk | 8-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1948** | R | N/A | N/A | 5 | Well damaged and no longer serviceable. | | | | | |
| **BH1949** | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| | R | Bulk | 23-Nov-15 | 2 | <0.0005 | 0.0003 | <0.0005 | 0.0027 | <0.1 | <0.1 |
| | R | Bulk | 2-Apr-15 | 2 | **0.0058** | 0.0051 | **0.0167** | **0.0579** | 0.3 | - |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interference

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1950A** | R | Bulk | 25-May-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 11-Dec-19 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 7-Jun-19 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 19-Oct-18 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 9-May-17 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | 0.14 |
| | R | Bulk | 9-Nov-16 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 10-May-16 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 20-Nov-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 17-Sep-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.5 |
| | R | Bulk | 11-Jun-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 6-May-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1951** | R | Bulk | 20-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1952** | R | 12.50-14.02 | 3-Jun-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 12.50-14.02 | 27-Nov-19 | 2 | <0.00040 | 0.0016 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1953** | R | 15.54-17.07 | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1954** | R | 5.49-7.01 | 5-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 28-Nov-19 | 3 | <0.00040 | 0.0011 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 31-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 17-Oct-18 | 3 | 0.0013 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 29-Mar-18 | 3 | 0.0023 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 15-May-17 | 3 | 0.0020 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 9-Nov-16 | 3 | **0.0063** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 13-May-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 24-Nov-15 | 3 | **0.0053** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 5.49-7.01 | 22-Sep-15 | 3 | **0.0065** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 5.49-7.01 | 18-Jun-15 | 3 | 0.0025 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 7.01-8.53 | 18-Jun-15 | 3 | 0.0022 | <0.0003 | <0.0005 | 0.0005 | <0.1 | <0.1 |
| | R | Bulk | 26-Mar-15 | 3 | 0.0013 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1955** | R | N/A | N/A | 5 | Well decommissioned on 31 March 2016. | | | | | |
| **BH1955A** | R | Bulk | 22-May-20 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1956** | R | Bulk | 3-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 17-Dec-19 | 3 | 0.0024 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89- 13.41 | 12-Dec-19 | 3 | **0.0057** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89- 13.41 | 7-Jun-19 | 3 | 0.0011 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 24-May-19 | 3 | **0.024** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 16-Oct-18 | 3 | **0.019** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89- 13.41 | 15-Oct-18 | 3 | **0.36** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 10-Apr-18 | 3 | **0.040** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89- 13.41 | 29-Mar-18 | 3 | **0.008** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 11-May-17 | 3 | **0.031** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 7-Nov-16 | 3 | **0.077** | <0.00040 | <0.00040 | 0.0022 | <0.10 | <0.10 |
| | R | Bulk | 7-Nov-16 | 3 | **0.22** | 0.0017 | 0.00088 | 0.0057 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 9-May-16 | 3 | **0.41** | 0.0035 | 0.00065 | 0.0099 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 19-Nov-15 | 3 | **1.73** | **0.0713** | **0.0071** | **0.0950** | <0.1 | <0.1 |
| | R | 10.36-11.89 | 24-Sep-15 | 3 | **2.90** | **0.256** | **0.0540** | **0.195** | <0.1 | <0.1 |
| | R | 11.89-13.41 | 18-Sep-15 | 3 | **3.04** | **0.246** | **0.0542** | **0.203** | 0.1 | <0.1 |
| | R | 8.84-10.36 | 18-Jun-15 | 3 | **0.0656** | 0.0050 | 0.0008 | 0.0033 | <0.1 | <0.1 |
| | R | 10.36-11.89 | 18-Jun-15 | 3 | **1.43** | **0.113** | **0.0180** | **0.0730** | 0.3 | <0.1 |
| | R | Bulk | 6-May-15 | 3 | **0.456** | **0.0549** | **0.0078** | **0.0369** | <0.1 | <0.1 |
| **BH1957** | C | 10.36-11.89 | 29-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1958** | C | 10.36-11.89 | 26-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 10.36-11.89 | 3-Jan-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 10.36-11.89 | 2-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 10.36-11.89 | 7-Nov-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 10.36-11.89 | 26-Mar-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.1 | <0.1 |
| | C | 10.36-11.89 | 4-May-17 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | C | 10.36-11.89 | 4-Nov-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | C | 10.36-11.89 | 11-May-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | 0.23 |
| | C | 10.36-11.89 | 16-Nov-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | C | 10.36-11.89 | 15-Sep-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | C | 10.36-11.89 | 16-Jun-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | C | Bulk | 19-Mar-15 | 3 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1959** | C | 10.97-12.50 | 29-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1960** | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1961** | R | 8.53-10.06 | 3-Jun-20 | 3,4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1962** | R | Bulk | 8-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1963** | R | 6.71-8.23 | 3-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1964** | R | Bulk | 8-May-20 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1965** | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1966** | R | 11.89-13.41 | 22-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.89-13.41 | 6-Dec-19 | 3 | <0.0005 | 0.00050 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1967** | R | Bulk | 20-May-20 | 2 | **0.073** | 0.0061 | **0.12** | 0.0016 | **1.9** | 0.36 |
| | R | Bulk | 17-Dec-19 | 2 | **0.086** | 0.0067 | **0.12** | 0.0019 | **1.3** | 0.30 |
| | R | Bulk | 28-May-19 | 2 | **0.12** | 0.015 | **0.012** | 0.0038 | **3.4** | 0.19 |
| | R | Bulk | 17-Oct-18 | 2 | **0.13** | 0.016 | **0.094** | 0.0040 | **2.4** | 0.19 |
| | R | Bulk | 6-Apr-18 | 2 | **0.16** | 0.018 | **0.18** | 0.0048 | **3.0** | 0.38 |
| | R | Bulk | 16-May-17 | 2 | **0.20** | 0.020 | **0.33** | 0.0056 | **4.7** | 0.39 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to matrix interferene

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1967 con't** | R | Bulk | 2-Nov-16 | 2 | **0.21** | 0.021 | **0.34** | 0.0051 | **3.4** | 0.40 |
| | R | Bulk | 10-May-16 | 2 | **0.24** | **0.022** | **0.36** | 0.0056 | **2.9** | 0.34 |
| | R | Bulk | 18-Nov-15 | 2 | **0.275** | **0.0236** | **0.441** | 0.0073 | **3.6** | 0.5 |
| | R | Bulk | 16-Sep-15 | 2 | **0.225** | 0.0191 | **0.270** | 0.0080 | **2.3** | 0.3 |
| | R | Bulk | 11-Jun-15 | 2 | **0.276** | **0.0224** | **0.342** | 0.0097 | **3.1** | 0.4 |
| | R | Bulk | 26-Feb-15 | 2 | **0.291** | **0.0251** | **0.438** | 0.0111 | **1.8** | 0.3 |
| **BH1968** | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1969** | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1970** | C | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1971** | R | 7.77-9.30 | 21-May-20 | 2 | **0.0099** | 0.00098 | **0.046** | <0.00089 | **1.2** | 0.17 |
| | R | 7.77-9.30 | 4-Dec-19 | 2 | **0.020** | 0.0024 | **0.064** | 0.00091 | **1.3** | 0.24 |
| | R | 7.77-9.30 | 13-May-19 | 2 | **0.021** | 0.0012 | **0.066** | <0.00089 | **1.0** | 0.22 |
| | R | 7.77-9.30 | 10-Oct-18 | 2 | **0.027** | 0.0014 | **0.13** | <0.00089 | **1.8** | 0.14 |
| | R | 7.77-9.30 | 27-Mar-18 | 2 | **0.031** | 0.0015 | **0.095** | <0.00089 | **1.1** | 0.27 |
| | R | 7.77-9.30 | 10-May-17 | 2 | **0.034** | 0.0021 | **0.21** | 0.0010 | **1.5** | 0.42 |
| | R | 7.77-9.30 | 2-Nov-16 | 2 | **0.050** | 0.0031 | **0.21** | 0.0014 | **2.0** | 0.29 |
| | R | 7.77-9.30 | 9-May-16 | 2 | **0.042** | 0.0026 | **0.28** | 0.0015 | **2.0** | 0.38 |
| | R | 7.77-9.31 | 17-Nov-15 | 2 | **0.108** | 0.0049 | **0.621** | 0.0074 | **2.2** | 0.3 |
| | R | 7.77-9.32 | 16-Sep-15 | 2 | **0.0795** | 0.0047 | **0.463** | 0.0086 | **1.4** | 0.3 |
| | R | 7.77-9.33 | 15-Jun-15 | 2 | **0.0474** | 0.0035 | **0.256** | 0.0091 | **1.4** | 0.3 |
| | R | Bulk | 2-Mar-15 | 2 | **0.0670** | 0.0041 | **0.361** | **0.0291** | **2.2** | 0.6 |
| **BH1972** | R | Bulk | 4-Jun-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1973** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| | R | Bulk | 18-Nov-15 | 1 | **0.0178** | 0.0026 | **0.156** | 0.0192 | 0.7 | 0.5 |
| | R | Bulk | 4-Mar-15 | 1 | **0.0198** | 0.0036 | **0.153** | **0.2660** | **1.1** | 0.7 |
| **BH1974** | R | Bulk | 20-May-20 | 2 | 0.00086 | <0.00040 | <0.00040 | 0.0019 | 0.13 | <0.10 |
| | R | Bulk | 17-Dec-19 | 2 | 0.0016 | <0.00040 | <0.00040 | 0.0014 | 0.16 | <0.10 |
| | R | Bulk | 28-May-19 | 2 | <0.00040 | <0.00040 | <0.00040 | 0.0015 | <0.10 | <0.10 |
| | R | Bulk | 12-Oct-18 | 2 | <0.00040 | <0.00040 | <0.00040 | 0.0014 | <0.10 | <0.10 |
| | R | Bulk | 6-Apr-18 | 2 | 0.00082 | <0.00040 | 0.00048 | 0.0012 | 0.14 | <0.10 |
| | R | Bulk | 11-May-17 | 2 | 0.0029 | <0.00040 | 0.00082 | 0.0020 | 0.59 | <0.10 |
| | R | Bulk | 2-Nov-16 | 2 | 0.0032 | 0.00060 | **0.0016** | 0.0019 | 0.39 | <0.10 |
| | R | Bulk | 10-May-16 | 2 | **0.0079** | 0.0010 | **0.0030** | 0.0017 | 0.72 | <0.10 |
| | R | Bulk | 18-Nov-15 | 2 | **0.0077** | 0.0008 | **0.0023** | 0.0011 | 0.2 | 0.1 |
| | R | Bulk | 16-Sep-15 | 2 | **0.0098** | 0.0016 | **0.0034** | 0.0032 | 0.4 | <0.1 |
| | R | Bulk | 11-Jun-15 | 2 | **0.0095** | 0.0012 | **0.0033** | 0.0017 | 0.5 | <0.1 |
| | R | Bulk | 27-Feb-15 | 2 | **0.0172** | 0.0019 | **0.0085** | 0.0027 | 0.4 | <0.1 |
| **BH1975** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| | R | Bulk | 11-May-17 | 1 | <0.00040 | <0.00040 | 0.0011 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 10-May-16 | 1 | <0.00040 | <0.00040 | <0.00040 | 0.0025 | <0.10 | <0.10 |
| | R | Bulk | 18-Nov-15 | 1 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.5 |
| | R | Bulk | 27-Feb-15 | 1 | <0.0005 | <0.0003 | 0.0006 | 0.0029 | 0.1 | <0.1 |
| **BH1976** | R | 11.28-12.80 | 4-Jun-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 4-Dec-19 | 2 | <0.00040 | 0.00078 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 10-May-19 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 10-Oct-18 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 27-Mar-18 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.1 | <0.1 |
| | R | 11.28-12.80 | 10-May-17 | 2 | <0.00040 | <0.00040 | 0.00065 | <0.00080 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 2-Nov-16 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 9-May-16 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 11.28-12.80 | 17-Nov-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 11.28-12.80 | 16-Sep-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 9.75-11.28 | 15-Jun-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 11.28-12.80 | 15-Jun-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 1-Apr-15 | 2 | <0.0005 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1977** | R | 3.05-4.57 | 1-Jun-20 | 3 | **0.016** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 28-Nov-19 | 3 | **0.0052** | 0.0011 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 31-May-19 | 3 | 0.0032 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 19-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 28-Mar-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 15-May-17 | 3 | <0.00050** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 16-Nov-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 13-May-16 | 3 | 0.0017 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 3.05-4.57 | 24-Nov-15 | 3 | 0.0013 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 3.05-4.57 | 22-Sep-15 | 3 | 0.0028 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 3.05-4.57 | 18-Jun-15 | 3 | **0.0076** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 19-Mar-15 | 3,4,5 | 0.0024 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1978** | R | Bulk | 20-May-20 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1979** | R | N/A | N/A | 3 | Well damaged and no longer serviceable. | | | | | |
| | R | Bulk | 17-May-16 | 3 | **1.60** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 27-Nov-15 | 3 | **1.35** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 17-Sep-15 | 3 | **1.37** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 11-Jun-15 | 3 | **1.22** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 9-Apr-15 | 3 | **1.07** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1980** | R | Bulk | 5-Jun-20 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1981** | R | 4.57-6.10 | 28-Nov-19 | 3 | <0.00040 | 0.0011 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 4.57-6.10 | 31-May-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 4.57-6.10 | 17-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 4.57-6.10 | 28-Mar-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 4.57-6.10 | 15-May-17 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to matrix interferene

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1981 con't** | R | 4.57-6.10 | 9-Nov-16 | 3 | <0.00060** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 4.57-6.10 | 13-May-16 | 3 | **0.055** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | 4.57-6.10 | 24-Nov-15 | 3 | **0.0064** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 4.57-6.10 | 22-Sep-15 | 3 | 0.0018 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 3.05-4.57 | 18-Jun-15 | 3 | **0.0052** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | 4.57-6.10 | 18-Jun-15 | 3 | **0.0061** | 0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 27-Mar-15 | 3 | **0.0864** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **BH1982** | R | Bulk | 5-May-20 | 3 | **0.24** | 0.00045 | **0.0024** | <0.00089 | <0.1 | <0.1 |
| | R | Bulk | 22-Nov-19 | 3 | **0.98** | 0.0021 | **0.0068** | 0.00097 | <0.1 | <0.1 |
| | R | Bulk | 31-May-19 | 3 | **3.7*** | 0.0066 | **0.046** | 0.0046 | <0.1 | <0.1 |
| | R | Bulk | 18-Oct-18 | 3 | **3.2*** | 0.0066 | **0.018** | 0.0047 | **<1.0*** | <0.10 |
| | R | Bulk | 10-Apr-18 | 3 | **5.9*** | 0.015 | **0.092** | 0.010 | **<1.0*** | <0.10 |
| | R | Bulk | 17-May-17 | 3 | **6.6*** | 0.019 | **0.070** | **0.028** | **<1.0*** | <0.10 |
| | R | Bulk | 19-Apr-17 | 3 | **4.7*** | 0.016 | **0.069** | **0.026** | 0.28 | <0.10 |
| | R | Bulk | 9-Mar-17 | 3 | **5.0*** | 0.018 | **0.076** | **0.028** | 0.63 | <0.10 |
| | R | Bulk | 6-Jan-17 | 3 | **4.2*** | 0.0094 | **0.074** | 0.015 | <0.10 | <0.10 |
| | R | Bulk | 21-Dec-16 | 3 | **2.6*** | 0.0067 | **0.040** | 0.011 | <0.10 | <0.10 |
| | R | Bulk | 12-Dec-16 | 3 | **2.7*** | 0.0079 | **0.047** | 0.014 | <0.10 | <0.10 |
| | R | Bulk | 25-Nov-16 | 3 | **3.1*** | 0.0066 | **0.059** | 0.018 | **<1.0*** | <0.10 |
| | R | Bulk | 10-Nov-16 | 3 | **5.2*** | 0.017 | **0.18** | **0.041** | **<1.0*** | <0.10 |
| | R | Bulk | 28-Oct-16 | 3 | **4.4*** | 0.017 | **0.18** | **0.038** | 0.72 | <0.10 |
| | R | Bulk | 13-Oct-16 | 3 | **2.8*** | 0.013 | **0.12** | 0.018 | 0.42 | <0.10 |
| | R | Bulk | 3-Oct-16 | 3 | **5.3*** | **0.022** | **0.22** | **0.029** | **<1.0*** | <0.10 |
| | R | Bulk | 16-Sep-16 | 3 | **6.3*** | **0.028** | **0.24** | **0.050** | 0.32 | <0.10 |
| | R | Bulk | 3-Sep-16 | 3 | **6.9*** | **0.029** | **0.21** | **0.063** | **1.9*** | <0.10 |
| | R | Bulk | 19-Aug-16 | 3 | **9.6*** | **0.033** | **0.22** | **0.079** | **1.2** | <0.10 |
| | R | Bulk | 5-Aug-16 | 3 | **5.7*** | **0.022** | **0.17** | **0.073** | **<1.0*** | <0.10 |
| | R | Bulk | 17-May-16 | 3 | **12** | **0.049** | **0.41** | **0.16** | <0.10 | <0.10 |
| | R | Bulk | 20-Nov-15 | 3 | **11.6** | **0.036** | **0.278** | **0.243** | **0.9** | <0.1 |
| | R | Bulk | 21-Sep-15 | 3 | **10.7** | **0.281** | **0.438** | **1.00** | 0.3 | <0.1 |
| | R | Bulk | 11-Jun-15 | 3 | **13.8** | **0.412** | **0.286** | **0.984** | <0.1 | <0.1 |
| | R | Bulk | 1-Apr-15 | 3 | **13.1** | **0.483** | **0.353** | **1.56** | 0.5 | <0.1 |
| **BH1983** | C | N/A | N/A | 3 | Well decommissioned on 12 April 2016. | | | | | |
| **BH1983A** | C | 14.94-16.46 | 29-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1984** | C | 12.19-13.72 | 26-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 12.19-13.72 | 7-Jan-20 | 3 | 0.0023 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 12.19-13.72 | 1-May-19 | 3 | 0.0011 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 12.19-13.72 | 7-Nov-18 | 3 | 0.0022 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 12.19-13.72 | 6-Apr-18 | 3 | 0.0013 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | 12.19-13.72 | 3-Nov-16 | 3 | **0.0076** | 0.00072 | <0.00040 | 0.0042 | <0.10 | <0.10 |
| | C | 12.19-13.72 | 11-May-16 | 3 | **0.0076** | 0.0022 | <0.00040 | 0.0079 | 0.29 | <0.10 |
| | C | 12.19-13.72 | 12-Nov-15 | 3 | **0.0054** | 0.0027 | <0.0005 | 0.0063 | <0.1 | <0.1 |
| | C | 12.19-13.72 | 15-Sep-15 | 3 | **0.0064** | 0.0047 | <0.0005 | 0.0103 | 0.2 | <0.1 |
| | C | 9.14-10.67 | 15-Jun-15 | 3 | 0.0034 | 0.0025 | <0.0005 | 0.0033 | <0.1 | <0.1 |
| | C | 10.67-12.19 | 15-Jun-15 | 3 | 0.0033 | 0.0022 | <0.0005 | 0.0035 | <0.1 | <0.1 |
| | C | 12.19-13.72 | 15-Jun-15 | 3 | **0.004** | 0.0024 | <0.0005 | 0.0034 | <0.1 | <0.1 |
| | C | Bulk | 8-May-15 | 3 | **0.0017** | 0.0026 | <0.0005 | 0.0051 | 0.1 | <0.1 |
| **BH1985** | C | 10.97-12.50 | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1986** | C | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1987** | C | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH1988** | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| **BH2001** | R | Bulk | 22-May-20 | 5 | 0.00042 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 21-Nov-19 | 5 | 0.00073 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 4-Jun-19 | 5 | 0.00052 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 24-Oct-18 | 5 | <0.00060** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 3-Apr-18 | 5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 19-May-17 | 5 | <0.00070** | <0.00040 | <0.00040 | <0.00090 | <0.10 | <0.10 |
| | R | Bulk | 17-Nov-16 | 5 | 0.0012 | <0.00040 | <0.00040 | 0.00089 | <0.10 | <0.10 |
| | R | Bulk | 31-May-16 | 5 | 0.00074 | 0.00045 | <0.00040 | 0.00093 | <0.10 | <0.10 |
| **BH2002** | R | Bulk | 4-Jun-20 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 3-Dec-19 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 13-Jun-19 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 23-Oct-18 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 4-Apr-18 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 24-May-17 | 4 | <0.00060** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 16-Nov-16 | 4 | 0.00088 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 31-May-16 | 4 | **0.031** | 0.00062 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| **BH2003** | R | Bulk | 5-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH2004** | R | Bulk | 8-May-20 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH2005** | R | 3.96-5.48 | 1-Jun-20 | 3 | **0.091** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 28-Nov-19 | 3 | 0.0012 | 0.0012 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 4-Jun-19 | 3 | 0.0019 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 19-Oct-18 | 3 | **0.040** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 28-Mar-18 | 3 | <0.00042** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 15-May-17 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 16-Nov-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 3.96-5.48 | 25-May-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH2006** | R | Bulk | 22-May-20 | 3,4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 4-Jun-19 | 3,4,5 | 0.0009 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **Residential Guideline[2]** | | | | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| **Commercial Guideline[2]** | | | | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interferent

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| BH2007 | R | 14.33-15.85 | 3-Jun-20 | 3 | 0.0010 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 14.33-15.85 | 3-Dec-19 | 3 | <0.00040 | 0.00068 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH2008 | R | Bulk | 20-May-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH2009 | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | |
| BH2010 | R | 15.54-17.07 | 22-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH2011 | R | Bulk | 20-May-20 | 2 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH2012 | R | 14.94-16.46 | 22-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3001A | R | Bulk | 20-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3001B | R | Bulk | 20-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3001C | R | Bulk | 20-May-20 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3002A | R | Bulk | 20-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3002B | R | Bulk | 20-May-20 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3003A | R | Bulk | 20-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH3003B | R | Bulk | 20-May-20 | 4 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH4002 | C | Bulk | 27-May-20 | 3 | 0.00068* | 0.15 | 0.0039 | 2.9 | 1.4 | 0.50 |
| | C | Bulk | 9-Jan-20 | 3 | 0.0013* | 0.15 | 0.0067 | 4.3 | 4.0 | 0.78 |
| | C | Bulk | 3-Jul-19 | 3 | 0.0018 | 0.23 | 0.0190 | 4.5 | 3.9 | 0.66 |
| BH4003A | C | Bulk | 27-May-20 | 3 | 0.87 | 0.017 | 0.0014 | 0.93 | 0.79 | 0.26 |
| | C | Bulk | 9-Jan-20 | 3 | 0.93 | 0.025 | 0.0024 | 1.4 | 0.78 | 0.41 |
| | C | Bulk | 7-Jul-19 | 3 | 0.74 | 0.024 | 0.0021 | 1.1 | 1.3 | 0.34 |
| BH4003B | C | Bulk | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | Bulk | 9-Jan-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | Bulk | 3-Jul-19 | 3 | 0.0017 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH4004A | C | Bulk | 2-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH4004B | C | Bulk | 2-Jun-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH4005 | C | Bulk | 2-Jun-20 | 3 | 0.016 | 0.0018 | 0.019 | 0.009 | 0.14 | <0.10 |
| | C | Bulk | 9-Jan-20 | 3 | 0.036 | 0.0082 | 0.043 | 0.076 | 0.54 | <0.10 |
| | C | Bulk | 3-Jul-19 | 3 | 0.031 | 0.014 | 0.063 | 0.28 | 0.44 | <0.10 |
| BH4006 | C | Bulk | 2-Jun-20 | 3 | 0.11 | 0.0011 | <0.00040 | 0.066 | 0.74 | 0.15 |
| | C | Bulk | 9-Jan-20 | 3 | 0.63 | 0.0069 | <0.00040 | 0.35 | 1.4 | 0.32 |
| | C | Bulk | 4-Jul-19 | 3 | 0.49 | 0.0064 | <0.00040 | 0.26 | 0.64 | 0.13 |
| BH4007 | C | Bulk | 2-Jun-20 | 3 | 0.71 | 0.0015 | <0.00040 | 0.027 | 0.61 | 0.10 |
| | C | Bulk | 7-Jan-20 | 3 | 0.76 | 0.0013 | <0.00040 | 0.021 | 0.47 | <0.10 |
| | C | Bulk | 4-Jul-19 | 3 | 0.76 | 0.0014 | <0.00040 | 0.013 | 0.39 | <0.10 |
| BH4008A | C | Bulk | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | 0.020 | <0.10 | <0.10 |
| | C | Bulk | 10-Jan-20 | 3 | <0.00040 | 0.00081 | <0.00040 | 0.058 | <0.10 | <0.10 |
| | C | Bulk | 18-Oct-19 | 3 | <0.00040 | 0.0025 | 0.00048 | 0.093 | <0.10 | <0.10 |
| BH4008B | C | Bulk | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH4009A | C | Bulk | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | Bulk | 10-Jan-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | C | Bulk | 18-Oct-19 | 3 | <0.00040 | 0.0045 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH4009B | C | Bulk | 27-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH510A | R | 14.33-15.85 | 25-May-20 | 3 | 0.64 | 0.016 | 0.61 | 0.094 | 1.7 | 0.25 |
| | R | 14.33-15.85 | 10-Dec-19 | 3 | 0.55 | 0.0061 | 0.33 | 0.010 | 0.52 | 0.11 |
| | R | 14.33-15.85 | 24-May-19 | 3 | 0.92 | 0.012 | 0.54 | 0.15 | 1.4 | 0.16 |
| | R | 14.33-15.85 | 15-Oct-18 | 3 | 0.86 | 0.019 | 0.61 | 0.21 | 1.6 | 0.13 |
| | R | 14.33-15.85 | 29-Mar-18 | 3 | 0.090 | 0.0017 | 0.047 | 0.022 | 0.19 | <0.10 |
| | R | 14.33-15.85 | 8-May-17 | 3 | 1.6* | 0.035 | 0.73 | 0.29 | 1.8 | <0.10 |
| | R | 14.33-15.85 | 7-Nov-16 | 3 | 2.6* | 0.097 | 0.87 | 0.94 | 1.3 | 0.29 |
| | R | 14.33-15.85 | 9-May-16 | 3 | 1.3 | 0.20 | 0.95 | 0.50 | 2.2 | 0.46 |
| | R | 14.33-15.86 | 19-Nov-15 | 3 | 2.07 | 0.383 | 1.16 | 1.12 | <0.1 | 0.3 |
| | R | 14.33-15.87 | 4-Sep-15 | 3 | 1.70 | 0.259 | 0.742 | 0.532 | 3.2 | 0.3 |
| | R | 14.33-15.88 | 19-Jun-15 | 3 | 3.61 | 1.97 | 1.16 | 1.81 | 3.2 | 0.2 |
| | R | Bulk | 8-Apr-15 | 3 | 3.52 | 1.33 | 0.779 | 1.81 | 3.1 | 0.2 |
| BH732 | R | 7.32-8.84 | 3-Jun-20 | - | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH912 | R | Bulk | 4-Jun-20 | - | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH1102 | R | 10.67-12.19 | 21-May-20 | - | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 10.67-12.19 | 6-Dec-19 | - | <0.00040 | 0.00057 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH1701 | R | Bulk | 20-May-20 | - | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| BH1704 | R | Bulk | 27-May-20 | 3 | 0.28 | 0.053 | 0.12 | 0.53 | 2.5 | 1.6 |
| | R | Bulk | 12-Dec-19 | 3 | 0.31 | 0.020 | 0.16 | 1.3 | 4.9 | 2.9 |
| | R | Bulk | 13-Jun-19 | 3 | 0.4 | 0.093 | 0.12 | 5 | 12 | 34 |
| | R | Bulk | 25-Oct-18 | 3 | 0.39 | 0.36 | 0.19 | 7.9 | 8.1 | 3.4 |
| | R | Bulk | 10-Apr-18 | 3 | 0.52 | 1.3* | 0.23 | 12 | 22 | 3 |
| | R | Bulk | 9-May-17 | 3 | 0.96* | 5.2* | 0.75* | 15* | 37* | 1.9 |
| | R | Bulk | 8-Nov-16 | 3 | 1.2 | 5.9 | 1.0 | 11 | 15 | 2.3 |
| | R | Bulk | 17-May-16 | 3 | 1.2 | 16 | 2.0 | 14 | 16 | 6.2 |
| | R | Bulk | 19-Nov-15 | 3 | 0.731 | 7.00 | 1.22 | 9.59 | 11.0 | 2.4 |
| | R | Bulk | 8-Sep-15 | 3 | 1.92 | 47.8 | 7.97 | 69.0 | 424 | 20.8 |
| | R | Bulk | 12-Jun-15 | 3 | 1.26 | 5.49 | 0.381 | 2.67 | 0.3 | <0.5 |
| | R | Bulk | 2-Apr-15 | 3 | 0.806 | 0.284 | 0.179 | 0.317 | 0.5 | 0.2 |
| **Residential Guideline[2]** | | | | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| **Commercial Guideline[2]** | | | | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interferent

*** Detection limits raised due to dilution to bring analyte within the calibrated range.

# Table 7 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX1** | R | Bulk | 25-May-20 | 3 | 0.0022 | <0.00040 | 0.00076 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 25-Nov-19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 17-Jun-19 | 3 | **0.087** | 0.0011 | **0.0087** | 0.0052 | <0.10 | <0.10 |
| | R | Bulk | 18-Oct-18 | 3 | **0.13** | 0.0025 | **0.02** | 0.02 | <0.10 | <0.10 |
| | R | Bulk | 4-Apr-18 | 3 | **0.30** | 0.0046 | **0.040** | **0.039** | 0.11 | <0.10 |
| | R | Bulk | 5-May-17 | 3 | **0.058** | 0.0011 | **0.0090** | 0.0095 | <0.10 | <0.10 |
| | R | Bulk | 1-Nov-16 | 3 | **6.3*** | **0.35** | **0.34** | **0.59** | <0.10 | 0.10 |
| | R | Bulk | 6-May-16 | 3 | **9.3** | **2.7** | **0.55** | **1.4** | <0.10 | 0.38 |
| | R | Bulk | 20-Nov-15 | 3 | **7.97** | **2.55** | **0.386** | **0.932** | 0.1 | 0.2 |
| | R | Bulk | 17-Sep-15 | 3 | **7.66** | **2.10** | **0.330** | **0.891** | 0.2 | 0.2 |
| | R | Bulk | 11-Jun-15 | 3 | **10.2** | **3.05** | **0.445** | **1.06** | **3.6** | 0.3 |
| | R | Bulk | 15-Apr-15 | 3 | **10.0** | **3.61** | **0.478** | **1.26** | 0.2 | 0.2 |
| **EX2** | R | Bulk | 25-May-20 | 3 | **0.17** | 0.0057 | **0.16** | 0.0042 | 0.43 | 0.1 |
| | R | Bulk | 10-Dec-19 | 3 | **0.11** | 0.0071 | **0.048** | 0.0066 | 0.62 | 0.12 |
| | R | Bulk | 16-Jun-13 | 3 | **0.2** | 0.0066 | **0.19** | 0.0089 | 0.47 | <0.10 |
| | R | Bulk | 19-Oct-18 | 3 | **0.41** | 0.012 | **0.15** | **0.031** | 0.53 | <0.10 |
| | R | Bulk | 4-Apr-18 | 3 | **0.47** | 0.013 | **0.19** | **0.12** | 0.42 | <0.10 |
| | R | Bulk | 9-May-17 | 3 | **0.19** | 0.0044 | **0.031** | **0.070** | 0.28 | <0.10 |
| | R | Bulk | 1-Nov-16 | 3 | **0.97** | **0.023** | **0.57** | **0.27** | **0.81** | 0.11 |
| | R | Bulk | 10-May-16 | 3 | **1.1** | **0.022** | **0.56** | **0.32** | 0.68 | <0.10 |
| | R | Bulk | 20-Nov-15 | 3 | **1.75** | **0.0372** | **0.832** | **0.393** | 0.2 | <0.1 |
| | R | Bulk | 17-Sep-15 | 3 | **1.95** | **0.0399** | **0.867** | **0.635** | 0.2 | 0.1 |
| | R | Bulk | 11-Jun-15 | 3 | **2.01** | **0.031** | **0.791** | **0.758** | 0.1 | 0.2 |
| | R | Bulk | 15-Apr-15 | 3 | **1.56** | **0.0254** | **0.609** | **0.501** | 0.2 | 0.2 |
| **EX3** | R | Bulk | 25-May-20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | 0.75 |
| | R | Bulk | 25-Nov-19 | 3 | **0.016** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 17-Jun-19 | 3 | 0.003 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 18-Oct-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 4-Apr-18 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.1 | <0.1 |
| | R | Bulk | 5-May-17 | 3 | <0.00045** | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 1-Nov-16 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 6-May-16 | 3 | **0.019** | 0.00087 | **0.0017** | <0.00080 | <0.10 | <0.10 |
| | R | Bulk | 17-Nov-15 | 3 | 0.0032 | 0.0004 | 0.0006 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 3-Sep-15 | 3 | 0.0015 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 11-Jun-15 | 3 | 0.0016 | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| | R | Bulk | 15-Apr-15 | 3 | **0.078** | <0.0003 | <0.0005 | <0.0005 | <0.1 | <0.1 |
| **EX4** | R | Bulk | 20-May-20 | 3 | **0.29** | **0.016** | **0.43** | **1.1** | **2.4** | 0.61 |
| | R | Bulk | 10-Dec-19 | 3 | **0.22** | **0.015** | **0.39** | **1.1** | **0.81** | 0.68 |
| | R | Bulk | 16-Jun-13 | 3 | **0.49** | **0.05** | **0.8** | **4.4** | **4.1** | **1.8** |
| | R | Bulk | 24-Oct-18 | 3 | **0.26** | **0.022** | **0.38** | **0.96** | **1.9** | 0.55 |
| | R | Bulk | 4-Apr-18 | 3 | **0.47** | **0.021** | **0.53** | **1.4** | **2.2** | 0.74 |
| | R | Bulk | 9-May-17 | 3 | **0.70** | **0.050** | **0.48** | **3.5*** | **2.0** | 0.66 |
| | R | Bulk | 1-Nov-16 | 3 | **1.3** | **1.0** | **0.84** | **4.6** | **4.5** | 0.84 |
| | R | Bulk | 18-May-16 | 3 | **2.5** | **1.1** | **1.2** | **7.0** | **7.2** | **1.3** |
| | R | Bulk | 19-Nov-15 | 3 | **2.17** | **0.335** | **0.922** | **5.9** | **6.1** | 0.8 |
| | R | 10.36-11.89 | 17-Sep-15 | 3 | **3.36** | **1.6** | **1.06** | **8.6** | **5.3** | 0.9 |
| | R | 10.36-11.89 | 19-Jun-15 | 3 | **3.95** | **2.17** | **0.828** | **7.2** | **5.2** | 0.8 |
| | R | Bulk | 16-Apr-15 | 3 | **2.21** | **0.684** | **0.591** | **6.9** | **3.8** | 0.8 |
| **EX5** | R | 10.67-12.19 | 21-May-20 | 3 | **2.5*** | **5.2*** | **1.2*** | **3.1** | **7.1** | 0.63 |
| | R | 10.67-12.19 | 11-Dec-19 | 3 | **2.2*** | **5.0*** | **2.4*** | **3.0** | **6.0** | 0.70 |
| | R | 10.67-12.19 | 12-Jun-19 | 3 | **1.8*** | **4.6*** | **1.4*** | **3.5** | **8.8** | 0.88 |
| | R | 10.67-12.19 | 18-Oct-18 | 3 | **2.3*** | **5.8*** | **1.5*** | **4.2** | <10 | 0.63 |
| | R | 10.67-12.19 | 27-Mar-18 | 3 | **2.7** | **5.7** | **0.99** | **3.4** | **2.4** | 0.9 |
| | R | 10.67-12.19 | 8-May-17 | 3 | **3.7*** | **9.3*** | **1.5*** | **4.7*** | **4.4*** | 0.55 |
| | R | 10.67-12.19 | 1-Nov-16 | 3 | **2.6** | **5.4** | **1.1** | **3.7** | **3.8** | 0.84 |
| | R | 10.67-12.19 | 17-May-16 | 3 | **7.4** | **16** | **1.6** | **7.1** | **8.8** | 0.92 |
| | R | 10.67-12.20 | 18-Nov-15 | 3 | **4.17** | **8.62** | **1.38** | **4.85** | **5.3** | 1.0 |
| | R | 10.67-12.21 | 17-Sep-15 | 3 | **2.57** | **5.62** | **1.09** | **3.69** | **5.4** | 0.8 |
| | R | 10.67-12.22 | 19-Jun-15 | 3 | **3.61** | **7.64** | **1.36** | **4.35** | **4.6** | 0.6 |
| | R | Bulk | 17-Apr-15 | 3 | **2.72** | **7.29** | **1.38** | **5.24** | **4.0** | 1.0 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interferent

*** Detection limits raised due to dilution to bring analyte within the calibrated range.

## Table 7 - Summary of Groundwater Laboratory Analyses
## BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **EX6** | R | Bulk | 25-May-20 | 3 | **0.22** | **0.15** | **0.79** | **0.62** | **3.4** | 0.50 |
| | R | Bulk | 11-Dec-19 | 3 | **0.25** | **0.14** | **0.96** | **0.81** | **5.5** | 0.65 |
| | R | Bulk | 12-Jun-19 | 3 | **2.2 *** | **5.0 *** | **2.4 *** | **3.0** | **6.0** | 0.70 |
| | R | Bulk | 25-Oct-18 | 3 | **0.29** | **0.23** | **1.2*** | **1.2** | **4.4** | 0.54 |
| | R | Bulk | 4-Apr-18 | 3 | **0.13** | **0.10** | **0.71** | **0.68** | **2.3** | 0.58 |
| | R | Bulk | 10-May-17 | 3 | **0.32** | **0.37** | **1.5*** | **2.5*** | **5.8** | 0.96 |
| | R | Bulk | 2-Nov-16 | 3 | **0.35** | **0.32** | **1.4*** | **2.2*** | **4.2** | 0.66 |
| | R | Bulk | 18-May-16 | 3 | **0.42** | **0.15** | **0.65** | **0.95** | **2.7** | 0.44 |
| | R | Bulk | 23-Nov-15 | 3 | **0.414** | **0.137** | **0.562** | **0.75** | **4.8** | 0.3 |
| | R | Bulk | 17-Sep-15 | 3 | **0.497** | **0.17** | **0.79** | **0.971** | **1.6** | 0.4 |
| | R | Bulk | 11-Jun-15 | 3 | **0.426** | **0.156** | **0.664** | **0.939** | **1.6** | 0.5 |
| | R | Bulk | 17-Apr-15 | 3 | **0.389** | **0.148** | **0.674** | **1.01** | **2.1** | 0.5 |
| **EX7** | R | Bulk | 20-May-20 | 3 | **1.0** | **0.12** | **0.42** | **0.72** | **1.8** | 1.0 |
| | R | Bulk | 11-Dec-19 | 3 | **3.6 *** | **0.038** | **0.19** | **0.034** | **1.3** | <0.1 |
| | R | Bulk | 12-Jun-19 | 3 | **1.3 *** | **0.12** | **0.93** | **0.44** | **3.1** | 0.52 |
| | R | Bulk | 24-Oct-18 | 3 | **1.9***** | **0.049** | **0.48** | **0.25** | **1.9** | 0.28 |
| | R | Bulk | 4-Apr-18 | 3 | **2.8*** | **0.055** | **0.50** | **0.21** | **1.5** | 0.27 |
| | R | Bulk | 10-May-17 | 3 | **2.5*** | **0.18** | **0.66** | **1.4** | **2.9** | 0.64 |
| | R | Bulk | 1-Nov-16 | 3 | **2.8*** | **0.22** | **0.75** | **1.9** | **1.8** | 0.75 |
| | R | Bulk | 18-May-16 | 3 | **2.6** | **0.084** | **0.79** | **0.71** | **2.5** | 0.61 |
| | R | Bulk | 23-Nov-15 | 3 | **3.86** | **0.123** | **0.680** | **0.992** | **3.1** | 0.4 |
| | R | 11.58-13.11 | 17-Sep-15 | 3 | **2.45** | **0.118** | **0.778** | **1.50** | 0.6 | 0.6 |
| | R | 11.58-13.11 | 19-Jun-15 | 3 | **1.49** | **0.246** | **1.18** | **3.23** | **2.9** | **1.2** |
| | R | Bulk | 17-Apr-15 | 3 | **3.08** | **0.155** | **1.01** | **1.83** | **2.8** | 0.7 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Commercial Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 2.2 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | 4.6 | NGR | NGR | 134 | 32 | NGR |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | 2.8 | NGR | NGR | 80 | 19 | NGR |

**Notes:**

* Detection limit raised due to dilution
** Detection limit raised due to interferent
*** Detection limits raised due to dilution to bring analyte within the calibrated range.
1 Land Use abbreviations: C=Commercial; R=Residential; I=Industrial; N=Natural.
2 AEP 2019 Tier 1 and 2 Guidelines for fine and coarse-grained soil with elimination of the freshwater aquatic life pathway.
3 Site Specific Tier 2 Groundwater Remediation Guidelines for Various Areas in Hounsfield Heights.
**Bold** Indicates that the concentration did not meet the applicable AEP guideline.
**Bold** Indicates that the concentration did not meet the applicable Site Specific and AEP guideline.
Bulk Bulk sample collected using a dedicated, disposable bailer.
m bgs Meters below ground surface
All results in mg/L unless otherwise noted.
Only compounds with detectable concentrations in at least one sample are presented.
Testing was conducted by Bureau Veritas, Calgary, Alberta

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1901** | C | 19.66-21.18 | 26-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1902** | C | 22.71-24.23 | 29-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1903** | C | 23.62-25.15 | 29-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1904** | C | 12.80-14.33 | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0014 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 3-Jan-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 1-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0015 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 7-Nov-18 | 3 | <0.0010*** | <0.00050 | <0.00050 | <0.00020 | 0.0017 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0020*** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 26-Mar-18 | 3 | <0.00050 | <0.00050 | - | <0.00020 | 0.0013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 4-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0017* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 4-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0021 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 11-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0017 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.00089 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.80-14.33 | 16-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.002 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | 12.80-14.33 | 15-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | 12.80-14.33 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | Bulk | 17-Mar-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1905** | C | Bulk | 2-Jun-20 | 1 | <0.00060* | <0.00050 | 0.33 | <0.00020 | **0.030** | <0.00050 | 0.10 | <0.00050 | <0.0010 | <0.00050 | 0.0022 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 3-Jan-20 | 1 | <0.00060* | <0.00050 | 0.64 ** | <0.00020 | **0.013** | <0.00050 | 0.23 | <0.00050 | <0.0010 | <0.00050 | 0.0037 | 0.0015 * | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 1-May-19 | 1 | <0.00060* | <0.00050 | 0.97** | <0.00020 | **0.057** | <0.00050 | 0.28 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 7-Nov-18 | 1 | <0.00050 | <0.00050 | 1.6* | <0.00034*** | **0.058** | <0.00050 | 0.47 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0070*** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 6-Apr-18 | 1 | <0.00050 | <0.00050 | 1.5 * | 0.00039 | **0.051** | <0.00050 | 0.5 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 5-May-17 | 1 | 0.074* | <0.00050 | 1.1** | <0.00020 | **0.083** | <0.00050 | 0.33 | <0.00050 | <0.0010 | <0.00050 | 0.0041 | <0.0055*** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 8-Nov-16 | 1 | 0.0039* | <0.00050 | 1.4** | 0.00090* | **0.064** | <0.00050 | 0.41 | <0.00050 | <0.0010 | <0.00050 | <0.0040*** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 12-May-16 | 1 | 0.0026 | <0.00050 | 0.92 | <0.00020 | **0.080** | <0.00050 | 0.36 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 17-Nov-15 | 1 | <0.001 | <0.001 | - | - | **0.079** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | Bulk | 8-Sep-15 | 1 | <0.001 | <0.001 | - | - | **0.075** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | Bulk | 11-Jun-15 | 1 | <0.001 | <0.001 | - | - | **0.076** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | Bulk | 25-Feb-15 | 1 | <0.001 | <0.001 | - | - | **0.076** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1906** | R | 14.63-16.15 | 26-May-20 | 3 | 0.00079 | <0.00050 | <0.00050 | <0.00020 | **0.038** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 4-Dec-19 | 3 | 0.00065 | <0.00050 | <0.00050 | <0.00020 | **0.032** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 13-May-19 | 3 | 0.00082 | <0.00050 | <0.00050 | <0.00020 | **0.04** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 10-Oct-18 | 3 | 0.00062 | <0.00050 | <0.00050 | <0.00020 | **0.032** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 27-Mar-18 | 3 | 0.0006 | 0.0023 | <0.00050 | <0.00020 | **0.032** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 10-May-17 | 3 | 0.00092 | <0.00050 | <0.00050 | <0.00020 | **0.050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 2-Nov-16 | 3 | 0.00077 | <0.00050 | <0.00050 | <0.00020 | **0.049** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 9-May-16 | 3 | 0.00070 | <0.00050 | <0.00050 | <0.00020 | **0.040** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.63-16.15 | 17-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.042** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.63-16.15 | 16-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.042** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to dilution

*** Detection limit raised due to matrix interferene

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1906 con't** | R | 11.58-13.10 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.032** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.10-14.63 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.034** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.63-16.15 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.037** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 16.15-17.68 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.032** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 8-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.040** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1907** | R | 11.89- 13.41 | 22-May-20 | 3 | <0.00050 | 0.00079 | 0.21 | 0.0015 | **0.015** | <0.00050 | 0.087 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Dec-19 | 3 | <0.00050 | <0.00050 | 0.016 | <0.00020 | 0.0031 | <0.00050 | 0.0071 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89- 13.41 | 6-Dec-19 | 3 | <0.00050 | <0.00050 | 0.018 | <0.00020 | **0.0060** | <0.00050 | 0.0063 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 24-May-19 | 3 | <0.00050 | <0.00050 | 0.0092 | <0.00020 | 0.00070 | <0.00050 | 0.0024 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89- 13.41 | 11-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-Apr-18 | 3 | <0.00050 | <0.00050 | 0.0061 | <0.00020 | <0.00050 | <0.00050 | 0.0023 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89- 13.41 | 27-Mar-18 | 3 | <0.00050 | 0.0023 | 0.34 | <0.00020 | **0.009** | <0.00050 | 0.13 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 12-May-17 | 3 | 0.059* | 0.0017* | 0.12 | 0.0013* | 0.0049 | <0.00050 | 0.052 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 10-May-17 | 3 | <0.0020*** | <0.00050 | 0.0090 | <0.00020 | 0.00084 | <0.00050 | 0.0033 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00070*** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 2-Nov-16 | 3 | <0.00050 | <0.00050 | 0.0077 | <0.00020 | 0.0013 | <0.00050 | 0.0029 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 2-Nov-16 | 3 | <0.00050 | <0.00050 | 0.0087 | <0.00020 | 0.00090 | <0.00050 | 0.0036 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00085 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 9-May-16 | 3 | <0.00050 | <0.00050 | 0.026 | <0.00020 | 0.00058 | <0.00050 | 0.0093 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 17-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.002 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 16-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.41-14.94 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 30-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.025** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1908** | R | 12.19-13.72 | 22-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00095 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 6-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 13-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00098 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 11-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 27-Mar-18 | 3 | <0.00050 | <0.00050 | 0.0014 | <0.00020 | <0.00050 | <0.00050 | 0.0009 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 10-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0015 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 2-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0014 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 9-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00082 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 12.19-13.72 | 17-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 12.19-13.72 | 16-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 12.19-13.72 | 12-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.72-14.94 | 12-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 28-Apr-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1909** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1910** | R | 10.97-12.50 | 26-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.041** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 4-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 10-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.039** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 11-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.048** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 27-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.021** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 10-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.038** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 2-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.029** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.97-12.50 | 9-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.028** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.43-12.50 | 16-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.028** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.43-12.50 | 16-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.032** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.49-12.50 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.030** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 12.50-14.02 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.025** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.02-15.54 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.030** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 15.54-17.07 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.030** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 22-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.040** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **Residential Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Commercial Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Detection limit raised due to matrix interference

** Results are potentially biased high

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1911 | R | 15.54-17.07 | 3-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0028 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 4-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.021 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 10-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 10-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.040 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 27-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.039 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 10-May-17 | 3 | 0.00077 | <0.00050 | <0.00050 | <0.00020 | 0.070 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 2-Nov-16 | 3 | 0.00065 | <0.00050 | <0.00050 | <0.00020 | 0.076 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 9-May-16 | 3 | 0.00064 | <0.00050 | <0.00050 | <0.00020 | 0.083 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 16-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.045 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 15.54-17.07 | 16-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.035 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.05-15.54 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 15.54-17.07 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 9-Apr-15 | 3 | <0.001 | <0.001 | - | - | 0.031 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH1912 | R | 13.41-14.94 | 25-May-20 | 3 | <0.0010 | <0.00050 | <0.00050 | <0.00020 | 0.027 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 9-Dec-19 | 3 | <0.0010 | <0.00050 | <0.00050 | <0.00020 | 0.030 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 30-Apr-19 | 3 | <0.0010 | <0.00050 | <0.00050 | <0.00020 | 0.033 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 29-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.041 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 5-Apr-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.045 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 17-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.054 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 3-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.044 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 10-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.040 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 13.41-14.94 | 12-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.044 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.41-14.94 | 8-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.041 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.41-14.94 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.035 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.94-16.46 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.038 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 16.46-17.98 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 17.98-19.51 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.037 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 10-Mar-15 | 3 | <0.001 | <0.001 | - | - | 0.048 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH1913 | R | 6.40-7.92 | 25-May-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1914 | R | Bulk | 25-May-20 | 1 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1915 | R | Bulk | 25-May-20 | 3 | <0.0010 | <0.00050 | 0.018 | <0.00020 | 0.012 | <0.00050 | 0.018 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 9-Dec-19 | 3 | <0.0010 | <0.00050 | 0.018 | <0.00020 | 0.0087 | <0.00050 | 0.022 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-Dec-19 | 3 | <0.0010 | <0.00050 | 0.027 | <0.00020 | 0.011 | <0.00050 | 0.028 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 30-Apr-19 | 3 | <0.0010 | <0.00050 | 0.02 | <0.00020 | 0.022 | <0.00050 | 0.0059 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 29-Oct-18 | 3 | <0.030* | <0.00050 | 0.067 | <0.00020 | 0.018 | <0.00050 | 0.026 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 29-Oct-17 | 3 | <0.0060* | <0.00050 | 0.11 | <0.00020 | 0.01 | <0.00050 | 0.035 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-Apr-18 | 3 | <0.00050 | <0.00050 | 0.049 | <0.00020 | 0.017 | <0.00050 | 0.017 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 17-May-17 | 3 | 0.016 | 0.0010 | 0.19 | <0.00020 | 0.017 | <0.00050 | 0.065 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-17 | 3 | 0.0095** | 0.00056 | 0.13 | <0.00020 | 0.025 | <0.00050 | 0.045 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 3-Nov-16 | 3 | <0.0018* | <0.00050 | 0.045 | <0.00020 | 0.037 | <0.00050 | 0.0069 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0045** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Nov-16 | 3 | <0.0018* | <0.00050 | 0.12 | <0.00020 | 0.043 | <0.00050 | 0.036 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0030** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 10-May-16 | 3 | <0.00050 | <0.00050 | 0.19 | <0.00020 | 0.024 | <0.00050 | 0.060 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 12-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.036 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.94-16.46 | 8-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.024 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.041 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.054 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.41-14.94 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.045 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.94-16.46 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.055 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 26-Feb-15 | 3 | <0.001 | <0.001 | - | - | 0.044 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH1916 | R | Bulk | 25-May-20 | 1 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **Residential Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Commercial Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Detection limit raised due to matrix interference

** Results are potentially biased high

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1917** | R | 13.41-14.94 | 4-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1918** | R | 10.36-11.89 | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1919** | R | 11.28-12.80 | 4-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1920** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1921** | R | 11.89-13.41 | 3-Jun-20 | 3 | <0.00050 | <0.00050 | 0.00074 | <0.00020 | **0.058** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 27-Nov-19 | 3 | <0.00050 | <0.00050 | 0.00053 | <0.00020 | **0.085** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 24-May-19 | 3 | 0.00053** | <0.00050 | <0.00050 | <0.00020 | **0.067** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0010** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 16-Oct-18 | 3 | 0.00053** | <0.00050 | <0.00050 | <0.00020 | **0.068** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0010** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 29-Mar-18 | 3 | <0.00050 | <0.00050 | 0.00065 | <0.0020 | **0.074** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 11-May-17 | 3 | 0.0021** | <0.00050 | 0.0016 | <0.00020 | **0.087** | <0.00050 | 0.0058 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0045** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 10-Nov-16 | 3 | <0.00090* | <0.00050 | 0.0018 | <0.00020 | **0.10** | <0.00050 | 0.0029 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 13-May-16 | 3 | 0.00091 | <0.00050 | 0.0016 | <0.00020 | **0.084** | <0.00050 | 0.0055 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.084** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 4-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.084** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.94-16.46 | 22-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.089** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.099** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.092** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.41-14.94 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.097** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 28-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.083** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1922** | R | 14.02-15.54 | 3-Jun-20 | 3 | <0.00050 | <0.00050 | 0.00063 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 28-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00071 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 16-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 29-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 11-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 13-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.02-15.54 | 23-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.007** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 15.54-17.07 | 3-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.003 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.97-12.50 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 12.50-14.02 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.033** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.02-15.54 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.040** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 5-May-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1923** | R | 10.67-12.19 | 21-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 10-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 24-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 15-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 27-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 15-May-17 | 3 | <0.00050 | <0.00050 | 0.00059 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 7-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 9-May-16 | 3 | <0.00050 | <0.00050 | 0.0017 | <0.00020 | <0.00050 | <0.00050 | 0.0011 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 17-Nov-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.67-12.19 | 3-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.67-12.19 | 12-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 12.19-13.72 | 12-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 2-Apr-15 | 3 | <0.0020 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1924** | R | 14.94-16.46 | 22-May-20 | 3 | 0.0028 | <0.00050 | <0.00050 | <0.00020 | **0.11** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.003 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Dec-19 | 3 | 0.0021 * | <0.00050 | <0.00050 | <0.00020 | **0.084** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 12-Dec-19 | 3 | <0.00090 (*) | <0.00050 | <0.00050 | <0.00020 | **0.073** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 28-May-19 | 3 | <0.00090 (*) | <0.00050 | <0.00050 | <0.00020 | **0.073** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

***** Detection limit raised due to matrix interference

****** Results are potentially biased high

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1924 con't** | R | Bulk | 13-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.068 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 10-May-19 | 3 | <0.00050 | <0.00050 | 0.00069 | <0.00020 | 0.089 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0031 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 12-Oct-18 | 3 | <0.00050 | <0.00050 | 0.00067 | <0.00020 | 0.062 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0029 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 10-Oct-18 | 3 | 0.0027** | <0.00050 | 0.001 | <0.00020 | 0.11 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0029 | <0.0024*' | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-Apr-18 | 3 | 0.0015 | <0.00050 | 0.0017 | <0.00020 | 0.10 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 27-Mar-18 | 3 | 0.002 | <0.00050 | 0.0019 | <0.00020 | 0.14 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | | <0.00050 |
| | R | 14.94-16.46 | 10-May-17 | 3 | 0.0037** | <0.00050 | 0.0066 | 0.00033 | 0.18 | <0.00050 | 0.00061 | <0.00050 | 0.0013** | <0.00050 | 0.0052 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 2-Nov-16 | 3 | 0.0019 | <0.00050 | 0.0087 | 0.00029** | 0.20 | <0.00050 | 0.00088 | <0.00050 | 0.0011 | <0.00050 | <0.0060 | <0.0025 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 2-Nov-16 | 3 | 0.0021 | <0.00050 | 0.0050 | <0.00020 | 0.23 | <0.00050 | <0.00050 | <0.00050 | 0.0011 | <0.0010 | <0.0045 | 0.0013 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 9-May-16 | 3 | 0.0015 | <0.00050 | 0.014 | <0.00020 | 0.13 | <0.00050 | 0.0025 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.94-16.46 | 17-Nov-15 | 3 | 0.001 | <0.001 | - | - | 0.129 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.94-16.46 | 16-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.189 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.94-16.46 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.271 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 7-May-15 | 3 | <0.001 | <0.001 | - | - | 0.144 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1925** | R | 16.76-18.29 | 22-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.018 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 16.76-18.29 | 10-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.011 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 16.76-18.29 | 27-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.029 | <0.00050 | 0.0019 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 16.76-18.29 | 15-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.022 | <0.00050 | 0.0014 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 16.76-18.29 | 29-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.026 | <0.00050 | 0.0017 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 16.76-18.29 | 8-May-17 | 3 | 0.0022** | <0.00050 | <0.00050 | <0.00020 | 0.042 | <0.00050 | 0.0049 | <0.00050 | <0.0010 | <0.00050 | 0.0034 | 0.0014** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00055 |
| | R | 16.76-18.29 | 7-Nov-16 | 3 | <0.00050 | <0.00050 | 0.00081 | <0.00020 | 0.060 | <0.00050 | 0.0071 | <0.00050 | <0.0010 | <0.00050 | <0.0060* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 16.76-18.29 | 9-May-16 | 3 | <0.00050 | <0.00050 | 0.00061 | <0.00020 | 0.053 | <0.00050 | 0.0074 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00052 |
| | R | 16.76-18.29 | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.079 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 16.76-18.29 | 4-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.055 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 16.76-18.29 | 12-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.041 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 7-May-15 | 3 | <0.001 | <0.001 | - | - | 0.040 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1926** | R | N/A | N/A | 2,3,4 | Well decommissioned on 14 April 2016. | | | | | | | | | | | | | | | | | | | |
| **BH1927** | R | 15.24-16.76 | 9-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1928** | R | Bulk | 2-Jun-20 | 3,4 | <0.0050 * | <0.0050 * | <0.025 * | <0.010 * | <0.0050 * | <0.0050 * | <0.025 * | <0.0050 * | <0.010 * | <0.0050 * | <0.020 * | <0.0050 * | <0.0050 * | <0.020* | <0.025 * | <0.025 * | <0.056 | <0.0050 * | <0.0050* | <0.0050 * |
| | R | Bulk | 22-Nov-19 | 3,4 | 0.0023 | <0.00050 | <0.00050 | <0.00020 | 0.23 | <0.00050 | <0.00050 | <0.00050 | 0.0013 | <0.00050 | 0.0023 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 21-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.24 | <0.00050 | <0.00050 | <0.00050 | 0.0013 | <0.00050 | 0.0029 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 30-May-19 | 3,4 | 0.0029 | <0.00050 | 0.00058 | <0.00020 | 0.33 | <0.00050 | <0.00050 | <0.00050 | 0.0017 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 29-May-19 | 3 | 0.0028 | <0.00050 | 0.00055 | <0.00020 | 0.28 | <0.00050 | <0.00050 | <0.00050 | 0.0017 | <0.00050 | 0.0023 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 16-Oct-18 | 3,4 | 0.0021 | <0.00050 | 0.00063 | <0.00020 | 0.26 | <0.00050 | <0.00050 | <0.00050 | 0.0014 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 15-Oct-18 | 3 | 0.0027 | <0.00050 | 0.00062 | <0.00020 | 0.31 | <0.00050 | <0.00050 | <0.00050 | 0.0015 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Apr-18 | 3,4 | 0.0034 | <0.00050 | 0.0008 | <0.00020 | 0.37 | <0.00050 | <0.00050 | <0.00050 | 0.0021 | <0.00050 | 0.0029 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 28-Mar-18 | 3 | 0.0023 | <0.00050 | <0.00050 | <0.00020 | 0.26 | <0.00050 | <0.00050 | <0.00050 | 0.0012 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 15-May-17 | 3 | 0.0024 | <0.00050 | 0.00051 | <0.00020 | 0.27 | <0.00050 | <0.00050 | <0.00050 | 0.0018 | <0.00050 | 0.0045 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-May-17 | 3,4 | 0.0030 | <0.00050 | 0.00075 | <0.00020 | 0.32 | <0.00050 | <0.00050 | <0.00050 | 0.0019 | <0.00050 | 0.0033 | <0.00050 | <0.00050 | - | <0.0055* | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 9-Nov-16 | 3 | 0.0023 | <0.00050 | 0.00053 | <0.00020 | 0.30 | <0.00050 | <0.00050 | <0.00050 | 0.0014 | <0.00050 | <0.0040* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-Nov-16 | 3,4 | 0.0023 | <0.00050 | 0.00083 | <0.00020 | 0.28 | <0.00050 | <0.00050 | <0.00050 | 0.0016 | <0.00050 | <0.0040* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 16-May-16 | 3 | 0.0022 | <0.00050 | 0.00065 | <0.00020 | 0.25 | <0.00050 | <0.00050 | <0.00050 | 0.0015 | <0.00050 | 0.0027 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 9.45-10.97 | 24-Nov-15 | 3 | 0.002 | <0.001 | - | - | 0.208 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.63-9.45 | 18-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.198 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 9.45-10.97 | 24-Sep-15 | 3 | 0.002 | <0.001 | - | - | 0.208 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | 0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 9.45-10.97 | 16-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.208 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.97-12.50 | 17-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.178 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 5-May-15 | 3,4 | <0.001 | <0.001 | - | - | 0.243 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **Residential Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Commercial Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Detection limit raised due to matrix interference

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1929** | R | 8.53-10.06 | 5-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 22-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.013** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 29-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.02** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 12-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00082 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 28-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.048** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 15-May-17 | 3 | 0.00061 | <0.00050 | <0.00050 | <0.00020 | **0.086** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 10-Nov-16 | 3 | 0.00058 | <0.00050 | <0.00050 | <0.00020 | **0.084** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 13-May-16 | 3 | 0.00076 | <0.00050 | <0.00050 | <0.00020 | **0.099** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 24-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.090** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.53-10.06 | 3-Sep-15 | 3 | 0.004 | <0.001 | - | - | **0.083** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.53-10.06 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.075** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.06-11.58 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.080** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.58-13.11 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.078** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 4-May-15 | 3 | <0.001 | <0.001 | - | - | **0.093** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1930** | R | 14.02-15.54 | 4-Jun-20 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 3-Dec-19 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 18-May-19 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 12-Oct-18 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 28-Mar-18 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 12-May-17 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 14-Nov-16 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00075 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 13-May-16 | 2,3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00075 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.02-15.54 | 22-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 12.50-14.02 | 16-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.02-15.54 | 16-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 1-May-15 | 2,3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1931** | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1932** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1933** | R | 11.89-13.41 | 4-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 26-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 2-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 11-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 6-Apr-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 4-May-17 | 3 | 0.0022** | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | 0.0010 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 14-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00075 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 11-May-16 | 3 | 0.0019 | <0.00050 | 0.0014 | <0.00020 | <0.00050 | <0.00050 | 0.0022 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 16-Nov-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 15-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 16-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 13.41-14.94 | 16-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 12-Mar-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1934** | R | Bulk | 5-Jun-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1935** | R | Bulk | 5-Jun-20 | 1 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1936** | R | 8.38-9.91 | 5-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 12-Dec-19 | 3 | <0.025 | <0.025 | <0.025 | <0.010 | <0.025 | <0.025 | <0.025 | <0.025 | <0.050 | <0.025 | <0.10 | <0.025 | <0.025 | - | <0.025 | <0.025 | <0.066 | <0.025 | <0.025 | <0.025 |
| | R | 8.38-9.91 | 30-May-19 | 3 | 0.00066 | <0.00050 | <0.00050 | <0.00020 | **0.063** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 17-Oct-18 | 3 | 0.0009 | <0.00050 | <0.00050 | <0.00020 | **0.078** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 28-Mar-18 | 3 | 0.0006 | <0.00050 | <0.00050 | <0.00020 | **0.060** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 16-May-17 | 3 | 0.00068 | <0.00050 | <0.00050 | <0.00020 | **0.059** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 14-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0030* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

***** Detection limit raised due to matrix interference

****** Results are potentially biased high

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1936 con't** | R | 8.38-9.91 | 13-May-16 | 3 | 0.0014 | <0.00050 | <0.00050 | <0.00020 | **0.12** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0033 | 0.00060 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 24-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.081** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.38-9.91 | 3-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.091** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.38-9.91 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.127** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 9.91-11.43 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.138** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 4-May-15 | 3 | <0.001 | <0.001 | - | - | **0.123** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1937** | R | 8.84-10.36 | 5-May-20 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00058 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 22-Nov-19 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00058 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 30-May-19 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0094** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 17-Oct-18 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0032 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 28-Mar-18 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0027 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 16-May-17 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0080** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 6-Jan-17 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0052** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 21-Dec-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.015** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 12-Dec-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.010** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 25-Nov-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.011** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 10-Nov-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.012** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 28-Oct-16 | 4,5 | 0.0028 | <0.00050 | 0.0012 | <0.00020 | **0.18** | <0.00050 | 0.00090 | <0.00050 | 0.0014 | <0.00050 | <0.0040* | <0.0010* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 13-Oct-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0090** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 3-Oct-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0054** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 16-Sep-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0045 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 3-Sep-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.011** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 19-Aug-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0064** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 5-Aug-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.017** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 13-May-16 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0047 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 8-Apr-16 | 4,5 | <0.001 | <0.001 | - | - | 0.004 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.84-10.36 | 19-Nov-15 | 4,5 | <0.001 | <0.001 | - | - | 0.003 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.84-10.36 | 22-Sep-15 | 4,5 | <0.001 | <0.001 | - | - | 0.002 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.84-10.36 | 18-Jun-15 | 4,5 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1938** | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1939** | R | Bulk | 5-May-20 | 4 | <0.0005 | <0.00049 | <0.00050 | <0.00019 | **0.050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 22-Nov-19 | 4 | 0.00084 | <0.00049 | <0.00050 | <0.00019 | **0.073** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 31-May-19 | 4 | 0.0012 | <0.00049 | <0.00050 | <0.00019 | **0.099** | <0.00050 | <0.00050 | <0.00050 | 0.0011 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Oct-18 | 4 | 0.0014 | <0.00050 | 0.00052 | <0.00020 | **0.12** | <0.00050 | <0.00050 | <0.00050 | 0.0011 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Apr-18 | 4 | 0.0025 | <0.00050 | 0.00076 | <0.00020 | **0.15** | <0.00050 | <0.00050 | <0.00050 | 0.0016 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-17 | 4 | 0.0028 | <0.00050 | <0.00050 | <0.00020 | **0.17** | <0.00050 | 0.00069 | <0.00050 | 0.0023 | <0.00050 | 0.0026 | 0.00065 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19-Apr-17 | 4 | 0.0022 | <0.00050 | 0.00055 | <0.00020 | **0.14** | <0.00050 | 0.00058 | <0.00050 | 0.0016 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-Mar-17 | 4 | 0.0033 | <0.00050 | 0.00076 | <0.00020 | **0.18** | <0.00050 | <0.00050 | <0.00050 | 0.0023 | <0.00050 | <0.0020 | <0.00068* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-Jan-17 | 4 | 0.0025 | <0.00050 | 0.0010 | <0.00020 | **0.17** | <0.00050 | 0.00071 | <0.00050 | 0.0019 | <0.00050 | <0.0035* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 21-Dec-16 | 4 | 0.0021 | <0.00050 | 0.00086 | <0.00020 | **0.19** | <0.00050 | 0.00063 | <0.00050 | 0.0014 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 12-Dec-16 | 4 | 0.0021 | <0.00050 | 0.0010 | <0.00020 | **0.13** | <0.00050 | 0.00080 | <0.00050 | 0.0019 | <0.00050 | <0.0030* | <0.0023* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 25-Nov-16 | 4 | 0.0029 | <0.00050 | 0.0010 | <0.00020 | **0.21** | <0.00050 | 0.00078 | <0.00050 | 0.0021 | <0.00050 | <0.0030* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Nov-16 | 4 | 0.0027 | <0.00050 | 0.0012 | <0.00020 | **0.17** | <0.00050 | 0.00093 | <0.00050 | 0.0021 | <0.00070* | <0.0045* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 28-Oct-16 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.010** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 13-Oct-16 | 4 | 0.0024 | <0.00050 | 0.00089 | <0.00020 | **0.18** | <0.00050 | 0.00071 | <0.00050 | 0.0015 | <0.00050 | <0.0040* | <0.00090* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Oct-16 | 4 | 0.0025 | <0.00050 | 0.0012 | <0.00020 | **0.16** | <0.00050 | 0.00097 | <0.00050 | 0.0017 | <0.00050 | <0.0028* | <0.00090* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 16-Sep-16 | 4 | 0.0031 | <0.00050 | 0.0017 | <0.00020 | **0.18** | <0.00050 | <0.00050 | <0.00050 | 0.0017 | <0.00050 | <0.0035* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Sep-16 | 4 | 0.0027 | <0.00050 | 0.0012 | <0.00020 | **0.17** | <0.00050 | 0.00010 | <0.00050 | 0.0017 | <0.00050 | 0.0029* | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19-Aug-16 | 4 | 0.0037 | <0.00050 | 0.0014 | <0.00020 | **0.21** | <0.00050 | 0.0011 | <0.00050 | 0.0024 | <0.00062* | 0.0040 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-Aug-16 | 4 | 0.0031 | <0.00050 | 0.0015 | <0.00020 | **0.22** | <0.00050 | 0.0011 | <0.00050 | 0.0017 | <0.00050 | <0.0045* | <0.0030* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-16 | 4 | <0.001 | <0.00050 | - | - | <0.00050 | <0.001 | - | <0.00050 | <0.001 | <0.001 | <0.001 | <0.00050 | <0.00050 | - | <0.001 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.0008 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Detection limit raised due to matrix interference

** Results are potentially biased high

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1939 con't | R | Bulk | 20-Nov-15 | 4 | <0.001 | <0.001 | - | - | 0.160 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 21-Sep-15 | 4 | 0.002 | <0.001 | - | - | 0.167 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 4 | <0.001 | <0.001 | - | - | 0.154 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 1-Apr-15 | 4 | <0.001 | <0.001 | - | - | 0.124 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH1940 | C | N/A | N/A | 3 | Decommissioned on 13 April 2016. | | | | | | | | | | | | | | | | | | | |
| BH1941 | R | 7.32-8.84 | 4-Jun-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1942 | R | 4.42-5.94 | 3-Jun-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1943 | R | N/A | N/A | 4, 5 | Well damaged and no longer serviceable. | | | | | | | | | | | | | | | | | | | |
| | R | 7.32-8.84 | 18-May-17 | 4, 5 | 0.00057 | <0.00050 | <0.00050 | <0.00020 | 0.029 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 14-Nov-16 | 4, 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.021 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 13-May-16 | 4, 5 | <0.001 | <0.00050 | - | - | <0.00050 | <0.001 | - | <0.00050 | <0.001 | <0.001 | <0.001 | <0.00050 | <0.00050 | - | <0.001 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.0008 |
| | R | 7.32-8.84 | 26-Nov-15 | 4, 5 | <0.001 | <0.001 | - | - | 0.018 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.32-8.84 | 4-Sep-15 | 4, 5 | <0.001 | <0.001 | - | - | 0.016 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.32-8.84 | 18-Jun-15 | 4, 5 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.84-10.36 | 18-Jun-15 | 4, 5 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 18-Jun-15 | 4, 5 | <0.001 | <0.001 | - | - | <0.001 | 0.023 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 15-Apr-15 | 4, 5 | <0.001 | <0.001 | - | - | 0.017 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH1944 | R | Bulk | 8-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1945 | R | Bulk | 20-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1946 | R | Bulk | 22-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1947 | R | Bulk | 8-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1948 | R | N/A | N/A | 5 | Well damaged and no longer serviceable. | | | | | | | | | | | | | | | | | | | |
| BH1949 | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| | R | Bulk | 23-Nov-15 | 2 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 2-Apr-15 | 2 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.002 | - | <0.001 | <0.001 | <0.0008 |
| BH1950A | R | Bulk | 25-May-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1951 | R | Bulk | 20-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1952 | R | 12.50-14.02 | 3-Jun-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1953 | R | 15.54-17.07 | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1954 | R | 5.49-7.01 | 5-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00072 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 28-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 28-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00094 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 17-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00076 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 29-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 15-May-17 | 3,4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 9-Nov-16 | 3,4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 13-May-16 | 3,4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.002 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 24-Nov-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 5.49-7.01 | 22-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 5.49-7.01 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.01-8.53 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 26-Mar-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH1955 | R | N/A | N/A | 5 | Well decommissioned on 31 March 2016. | | | | | | | | | | | | | | | | | | | |
| BH1955A | R | Bulk | 22-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1956 | R | Bulk | 3-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00062 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0016 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 12-Dec-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0051 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 7-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00083 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 27-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0093 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 16-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0021 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **Residential Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Commercial Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Detection limit raised due to dilution

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1956 con't | R | 11.89-13.41 | 15-Oct-18 | 3 | 0.00063 | <0.00050 | <0.00050 | <0.00020 | 0.028 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Apr-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0030 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 29-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | 0.0097 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00077 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 11-May-17 | 3 | 0.00051 | <0.00050 | <0.00050 | <0.00020 | 0.019 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 7-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.028 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 7-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 9-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.020 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 11.89-13.41 | 19-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.051 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 24-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.057 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | 0.002 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.89-13.41 | 18-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.066 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | 0.001 | <0.001 | <0.0008 |
| | R | 8.84-10.36 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.034 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 6-May-15 | 3 | <0.001 | <0.001 | - | - | 0.023 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | | <0.001 | <0.001 | <0.0008 |
| BH1957 | C | 10.36-11.89 | 29-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1958 | C | 10.36-11.89 | 26-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1959 | C | 10.97-12.50 | 29-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1960 | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| BH1961 | R | 8.53-10.06 | 3-Jun-20 | 3,4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1962 | R | Bulk | 8-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1963 | R | 6.71-8.23 | 3-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1964 | R | Bulk | 8-May-20 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1965 | R | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| BH1966 | R | 11.89-13.41 | 22-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1967 | R | Bulk | 20-May-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.023 | <0.00050 | 0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Dec-19 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.027 | <0.00050 | 0.0016 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | 0.00056 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 28-May-19 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.026 | <0.00050 | 0.0035 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Oct-18 | 2 | <0.00050 | 0.00073 ** | <0.00050 | <0.00020 | 0.028 | <0.00050 | 0.0029 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-Apr-18 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.028 | <0.00050 | 0.0035 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 16-May-17 | 2 | 0.017** | 0.0015** | <0.00050 | <0.00020 | 0.041 | <0.00050 | 0.0055 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 2-Nov-16 | 2 | <0.0031* | <0.00050 | <0.00050 | <0.00020 | 0.040 | <0.00050 | 0.0059 | <0.0020* | <0.0010 | <0.00050 | <0.0020 | <0.0030* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-May-16 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.046 | 0.00086 | 0.0056 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0070 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Nov-15 | 2 | <0.001 | <0.001 | - | - | 0.036 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 16-Sep-15 | 2 | <0.001 | <0.001 | - | - | 0.035 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 2 | <0.001 | <0.001 | - | - | 0.032 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 26-Feb-15 | 2 | <0.001 | <0.001 | - | - | 0.029 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | 0.002 | - | <0.001 | 0.001 | <0.0008 |
| BH1968 | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| BH1969 | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| BH1970 | C | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| BH1971 | R | 7.77-9.30 | 20-May-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.064 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0022* | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.30 | 4-Dec-19 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.17 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0022* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.30 | 13-May-19 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.17 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0022* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.30 | 10-Oct-18 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.13 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0022* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.30 | 27-Mar-18 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.21 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.30 | 10-May-17 | 2 | <0.015* | <0.00050 | <0.00050 | <0.00020 | 0.11 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0030* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.30 | 2-Nov-16 | 2 | <0.0025* | <0.00050 | 0.00053 | <0.00020 | 0.19 | <0.00050 | <0.00050 | <0.00093* | <0.0010 | <0.00050 | <0.0020 | <0.0040* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00057 |
| | R | 7.77-9.30 | 9-May-16 | 2 | <0.00050 | <0.00050 | 0.0013 | <0.00020 | 0.10 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.77-9.31 | 17-Nov-15 | 2 | <0.001 | <0.001 | - | - | 0.124 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.77-9.32 | 16-Sep-15 | 2 | <0.001 | <0.001 | - | - | 0.142 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.77-9.33 | 15-Jun-15 | 2 | <0.001 | <0.001 | - | - | 0.076 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 2-Mar-15 | 2 | <0.001 | <0.001 | - | - | 0.148 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1972** | R | Bulk | 4-Jun-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1973** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| | R | Bulk | 18-Nov-15 | 1 | <0.001 | <0.001 | - | - | **0.026** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 4-Mar-15 | 1 | <0.001 | <0.001 | - | - | **0.025** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1974** | R | Bulk | 20-May-20 | 2 | <0.00050 | <0.00050 | 0.00097 | <0.00020 | **0.024** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Dec-19 | 2 | 0.00053 | <0.00050 | 0.00077 | <0.00020 | **0.040** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 28-May-19 | 2 | <0.00050 | <0.00050 | 0.0005 | <0.00020 | **0.039** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 12-Oct-18 | 2 | 0.00052 | <0.00050 | 0.00059 | <0.00020 | **0.023** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-Apr-18 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.058** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 11-May-17 | 2 | 0.0015** | <0.00050 | 0.0010 | <0.00020 | **0.032** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.00059** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 2-Nov-16 | 2 | 0.00094 | <0.00050 | 0.00091 | <0.00020 | **0.098** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-May-16 | 2 | 0.00056 | <0.00050 | <0.00050 | <0.00020 | **0.051** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Nov-15 | 2 | 0.001 | <0.001 | - | - | **0.083** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 16-Sep-15 | 2 | <0.001 | <0.001 | - | - | **0.081** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 2 | <0.001 | <0.001 | - | - | **0.041** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 27-Feb-15 | 2 | 0.001 | <0.001 | - | - | **0.092** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1975** | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| | R | Bulk | 11-May-17 | 1 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-May-16 | 1 | <0.00050 | <0.00050 | 0.0014 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Nov-15 | 1 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 27-Feb-15 | 1 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1976** | R | 11.28-12.80 | 4-Jun-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1977** | R | 3.05-4.57 | 1-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0024 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 28-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0040 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 31-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0027 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 19-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0019 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 28-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0014 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 15-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0010 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 16-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0019 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 13-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0013 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.05-4.57 | 24-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 3.05-4.57 | 22-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 3.05-4.57 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 19-Mar-15 | 3,4,5 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1978** | R | Bulk | 20-May-20 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1979** | R | N/A | N/A | 3 | Well damaged and no longer serviceable. | | | | | | | | | | | | | | | | | | | |
| | R | Bulk | 17-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0066** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 27-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.002 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.005** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 9-Apr-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1980** | R | Bulk | 5-Jun-20 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1981** | R | 4.57-6.10 | 1-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.011** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 28-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0097** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 31-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.019** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 17-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.021** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 28-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.019** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 15-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.028** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 9-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.032** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 4.57-6.10 | 13-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.027** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | | | **Residential Guideline[2]** | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | **Commercial Guideline[2]** | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | **Site Specific Tier 2 Guidelines (N1)[3]** | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | **Site Specific Tier 2 Guidelines (S2)[3]** | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1981 con't** | R | 4.57-6.10 | 24-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.016** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 4.57-6.10 | 22-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.015** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 3.05-4.57 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 4.57-6.10 | 18-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 27-Mar-15 | 3 | <0.001 | <0.001 | - | - | **0.028** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1982** | R | Bulk | 5-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.025** | <0.00050 | <0.00050 | <0.00050 | <0.0009 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 22-Nov-19 | 3 | 0.00066 | <0.00050 | <0.00050 | <0.00020 | **0.042** | <0.00050 | <0.00050 | <0.00050 | <0.0009 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 31-May-19 | 3 | 0.002 | <0.00050 | <0.00050 | <0.00020 | **0.13** | <0.00050 | <0.00050 | <0.00050 | <0.0009 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Oct-18 | 3 | 0.0010 | <0.00050 | <0.00050 | <0.00020 | **0.068** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Apr-18 | 3 | 0.002 | <0.00050 | <0.00050 | <0.00020 | **0.11** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-17 | 3 | 0.0026 | <0.00050 | <0.00050 | <0.00020 | **0.13** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0038 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19-Apr-17 | 3 | 0.0018 | <0.00050 | <0.00050 | <0.00020 | **0.087** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-Mar-17 | 3 | 0.0028 | <0.00050 | <0.00050 | <0.00020 | **0.11** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0034 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-Jan-17 | 3 | 0.0015 | <0.00050 | <0.00050 | <0.00020 | **0.091** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.0011** | <0.0035** | <0.00090** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 21-Dec-16 | 3 | 0.00074 | <0.00050 | <0.00050 | <0.00020 | **0.056** | <0.00050 | 0.00080 | <0.00050 | <0.0010 | 0.00090 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 12-Dec-16 | 3 | 0.0012 | <0.00050 | <0.00050 | <0.00020 | **0.065** | <0.00050 | 0.00080 | <0.00050 | <0.0010 | 0.00091** | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 25-Nov-16 | 3 | 0.0010 | <0.00050 | <0.00050 | <0.00020 | **0.073** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.0012 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Nov-16 | 3 | 0.0016 | <0.00050 | <0.00050 | <0.00020 | **0.099** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.0010* | <0.0040** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 28-Oct-16 | 3 | 0.0015 | <0.00050 | <0.00050 | <0.00020 | **0.095** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0040** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 13-Oct-16 | 3 | 0.0012 | <0.00050 | <0.00050 | <0.00020 | **0.072** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00060** | <0.0030** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Oct-16 | 3 | 0.0017 | <0.00050 | <0.00050 | <0.00020 | **0.090** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0028** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 16-Sep-16 | 3 | 0.0024 | <0.00050 | <0.00050 | <0.00020 | **0.12** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0052** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Sep-16 | 3 | 0.0024 | <0.00050 | 0.00053 | <0.00020 | **0.12** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.0012** | <0.0035** | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19-Aug-16 | 3 | 0.0037 | <0.00050 | 0.00082 | <0.00020 | **0.18** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.0012** | 0.0061 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-Aug-16 | 3 | 0.0020 | <0.00050 | 0.00054 | <0.00020 | **0.092** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | **0.0021*** | <0.0055** | <0.0014** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-16 | 3 | 0.0043 | <0.00050 | 0.0013 | <0.00020 | **0.21** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.150** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 21-Sep-15 | 3 | 0.003 | <0.001 | - | - | **0.177** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.159** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 1-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.124** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1983** | C | N/A | N/A | 3 | Well decommissioned on 12 April 2016. | | | | | | | | | | | | | | | | | | | |
| **BH1983A** | C | 14.94-16.46 | 29-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1984** | C | 12.19-13.72 | 26-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.19-13.72 | 1-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.19-13.72 | 7-Nov-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.19-13.72 | 6-Apr-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.19-13.72 | 3-Nov-16 | 3 | <0.00050 | <0.00050 | 0.00055 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.19-13.72 | 11-May-16 | 3 | <0.00050 | <0.00050 | 0.00093 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | 12.19-13.72 | 12-Nov-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | 12.19-13.72 | 15-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | 9.14-10.67 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | 10.67-12.19 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | 12.19-13.72 | 15-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | C | Bulk | 8-May-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **BH1985** | C | 10.97-12.50 | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1986** | C | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1987** | C | N/A | N/A | 2 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH1988** | C | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| **BH2001** | R | Bulk | 22-May-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00043** | 0.0018 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 |
| | R | Bulk | 21-Nov-20 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0019 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Jun-19 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00043** | 0.0018 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH2001 con't | R | Bulk | 24-Oct-18 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00043** | 0.0015 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Apr-18 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0017 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 |
| | R | Bulk | 19-May-17 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0017 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Nov-16 | 5 | <0.00050 | <0.00050 | <0.00050 | <0.00040* | 0.0011 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 31-May-16 | 5 | <0.00050 | <0.00050 | 0.00054 | <0.00020 | 0.00094 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2002 | R | Bulk | 4-Jun-20 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2003 | R | Bulk | 5-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2004 | R | Bulk | 8-May-20 | 4,5 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2005 | R | 3.96-5.49 | 1-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0026 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.96-5.49 | 28-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.96-5.49 | 4-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0031 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.96-5.49 | 19-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0034 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.96-5.49 | 28-Mar-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0035 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00092 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.96-5.49 | 15-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0030 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00070 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.96-5.49 | 16-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0042 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.0010 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 3.35-4.88 | 25-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0024 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00068 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2006 | R | Bulk | 22-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0015 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 21-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0048 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0022 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 24-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0068** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 3-Apr-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0021 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 24-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00088 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0017 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 26-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00084 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2007 | R | 14.33-15.85 | 3-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2008 | R | Bulk | 20-May-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2009 | R | N/A | N/A | 1 | Dry monitoring well has been removed from the monitoring and sampling program. | | | | | | | | | | | | | | | | | | | |
| BH2010 | R | 15.54-17.07 | 22-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.00093 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 26-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0018 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 9-May-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0019 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 10-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0017 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 26-Mar-18 | 3 | <0.00050 | <0.00050 | <0.0010 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0012 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 9-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0013 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.02-15.54 | 8-Nov-16 | 3 | <0.00050 | <0.00050 | <0.0010 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.00073 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 15.54-17.07 | 8-Nov-16 | 3 | <0.00050 | <0.00050 | <0.0010 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0013 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2011 | R | Bulk | 20-May-20 | 2 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH2012 | R | 14.94-16.46 | 22-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH3001A | R | Bulk | 20-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH3001B | R | Bulk | 20-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH3001C | R | Bulk | 20-May-20 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH3002A | R | Bulk | 20-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0057 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0057 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0043 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH3002B | R | Bulk | 20-May-20 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH3003A | R | Bulk | 20-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0018 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0013 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0013 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 26-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | 0.0015 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **Residential Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Commercial Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to matrix interference

## Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH3003B** | R | Bulk | 20-May-20 | 4 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4002** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | 0.28 | <0.00020 | <0.00050 | <0.00050 | 0.087 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 9-Jan-20 | 3 | <0.00050 | 0.0016 | 0.40 | <0.00020 | <0.00050 | <0.00050 | 0.11 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 3-Jul-19 | 3 | <0.00050 | 0.00074 | 0.44 | <0.00020 | <0.00050 | <0.00050 | 0.14 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4003A** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | 0.024 | 0.00076 | **0.090** | <0.00050 | 0.0042 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 9-Jan-20 | 3 | <0.00050 | 0.0013 | 0.034 | 0.00087 | **0.089** | <0.00050 | 0.0058 | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 7-Jul-19 | 3 | <0.00050 | <0.00050 | 0.025 | 0.00090 | **0.088** | <0.00050 | 0.0045 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4003B** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4004A** | C | Bulk | 2-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4004B** | C | Bulk | 2-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4005** | C | Bulk | 3-Jun-20 | 3 | <0.00050 | <0.00050 | 0.0018 | <0.00020 | <0.00050 | <0.00050 | 0.024 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.002 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 8-Jan-20 | 3 | <0.00050 | <0.00050 | 0.015 | <0.00020 | <0.00050 | <0.00050 | 0.011 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 3-Jul-19 | 3 | <0.00050 | <0.00050 | 0.081 | <0.00020 | <0.00050 | <0.00050 | 0.029 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4006** | C | Bulk | 3-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.011** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.002 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 9-Jan-20 | 3 | <0.00050 | <0.00050 | 0.0034 | <0.00020 | **0.037** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 3-Jul-19 | 3 | <0.00050 | <0.00050 | 0.0063 | <0.00020 | **0.033** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.0025 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | <0.00050 |
| **BH4007** | C | Bulk | 3-Jun-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.037** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.002 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 7-Jan-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.030** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 4-Jul-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.039** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4008A** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 10-Jan-20 | 3 | <0.00050 | <0.00050 | 0.0013 | <0.00020 | <0.00050 | <0.00050 | 0.00055 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 18-Oct-19 | 3 | <0.00050 | <0.00050 | 0.0062 | <0.00020 | <0.00050 | <0.00050 | 0.0014 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4008B** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4009A** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0051** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 10-Jan-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0051** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 18-Oct-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0077** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH4009B** | C | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0031 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 10-Jan-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0040 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | C | Bulk | 18-Oct-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0045 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH510A** | R | 14.33-15.85 | 25-May-20 | 3 | <0.00050 | <0.00050 | 0.016 | <0.00020 | **0.034** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | 0.0032 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.85 | 10-Dec-19 | 3 | <0.00050 | <0.00050 | 0.0058 | <0.00020 | **0.056** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.85 | 27-May-19 | 3 | <0.00050 | <0.00050 | 0.022 | <0.00020 | **0.037** | <0.00050 | 0.00067 | <0.00050 | <0.0010 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.85 | 15-Oct-18 | 3 | <0.00050 | <0.00050 | 0.027 | <0.00020 | **0.044** | <0.00050 | 0.0015 | <0.00050 | <0.0010 | <0.00050 | 0.0036 | 0.0022* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.85 | 29-Mar-18 | 3 | <0.00050 | <0.00050 | 0.0033 | <0.0020 | 0.0027 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.85 | 8-May-17 | 3 | 0.0045* | <0.00050 | 0.056 | <0.00020 | **0.056** | <0.00050 | 0.019 | <0.00050 | <0.0010 | <0.00050 | 0.0066 | 0.0026* | <0.00050 | - | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00075 |
| | R | 14.33-15.85 | 7-Nov-16 | 3 | <0.00050 | <0.00050 | 0.070 | <0.00045* | **0.058** | <0.00050 | 0.025 | <0.00050 | <0.0010 | <0.0011^ | <0.0060^ | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.85 | 9-May-16 | 3 | <0.00050 | <0.00050 | 0.030 | 0.00073 | **0.039** | <0.00050 | 0.032 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 14.33-15.86 | 19-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.037** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.33-15.87 | 4-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.037** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 14.33-15.88 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.036** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 8-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.058** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

^ Due to high concentrations of VOCs in the sample, the detection limits were raised for all constituents analyzed. The detection limits were raised to values greater than the applicable AEP 2016 Tier 1 Guidelines.

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH732 | R | 7.32-8.84 | 3-Jun-20 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | 0.0012 | <0.0010 | 0.016 | <0.0020 | <0.00020 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | 0.017 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 22-Nov-19 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | 0.0012 | <0.0010 | 0.013 | <0.0020 | <0.00020 | <0.00050 | - | <0.00050 | <0.00050 | 0.014 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 12-Jun-19 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | 0.0012 | <0.0010 | 0.013 | <0.0020 | <0.00020 | <0.00050 | - | <0.00050 | <0.00050 | 0.014 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 16-Oct-18 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | 0.0014 | <0.0010 | 0.013 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | 0.015 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 28-Mar-18 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | 0.00088 | <0.0010 | 0.0067 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | 0.0076 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 19-May-17 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | 0.0016 | <0.0010 | 0.013 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | 0.014 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 15-Nov-16 | - | <0.00050 | <0.00050 | <0.0010 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 18-May-16 | - | <0.00050 | <0.00050 | <0.0010 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 7.32-8.84 | 27-Nov-15 | - | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.32-8.84 | 3-Sep-15 | - | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 5.79-7.32 | 19-Jun-15 | - | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 7.32-8.84 | 19-Jun-15 | - | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 8.84-10.36 | 19-Jun-15 | - | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 13-Apr-15 | - | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| BH912 | R | Bulk | 4-Jun-20 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1102 | R | 10.67-12.19 | 21-May-20 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1701 | R | Bulk | 20-May-20 | - | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1704 | R | Bulk | 27-May-20 | 3 | <0.00050 | <0.00050 | 0.25 | 0.00038 | 0.042 | <0.00050 | 0.27 | <0.0010 | <0.00050 | 0.0023 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.0025 | <0.00050 |
| | R | Bulk | 12-Dec-19 | 3 | <0.00050 | <0.00050 | 0.46 | 0.00034 * | 0.049 | <0.00050 | 0.38 | <0.0010 | <0.00050 | 0.0023 | <0.00050 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.0025 | <0.00050 |
| | R | Bulk | 13-Jun-19 | 3 | 0.039 * | <0.0025 | 1.3 *** | <0.0010 | 0.051 | 0.00089 * | 0.81 *** | <0.0025 | <0.0020 | <0.00050 | <0.0010 | <0.039 (**) | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.0025 | <0.00050 |
| | R | Bulk | 25-Oct-18 | 3 | <0.0025 | <0.0025 | 1.5 | <0.0010 | 0.048 | <0.0025 | 0.59 | <0.0025 | <0.0050 | <0.0025 | <0.010 | <0.0025 | <0.0025 | - | <0.0025 | <0.0025 | <0.0066 | <0.0025 | <0.0025 | <0.0025 |
| | R | Bulk | 10-Apr-18 | 3 | <0.00050 | 0.00057 * | 2.0 ** | 0.0010 * | 0.049 | <0.00050 | 0.61 ** | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-May-17 | 3 | 0.071* | 0.0016* | 2.8*** | 0.00096* | 0.048 | <0.00050 | 0.91*** | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 8-Nov-16 | 3 | 0.0084** | <0.00050 | 2.2*** | 0.0028** | 0.049 | 0.0017** | 0.71*** | 0.0020** | <0.0010 | <0.00050 | <0.0030* | <0.00050 | <0.00050 | - | 0.0025 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-May-16 | 3 | <0.00050 | <0.00050 | 1.4 | 0.0019 | 0.069 | <0.00050 | 0.31 | <0.001 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | 0.0047 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.040 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk^ | 8-Sep-15 | 3 | <0.1 | <0.1 | - | - | <0.1 | <0.1 | | <0.001 | <0.1 | <0.1 | <0.1 | | <0.001 | <0.1 | <0.1 | <0.1 | - | <0.1 | <0.1 | <0.08 |
| | R | Bulk | 12-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.058 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 2-Apr-15 | 3 | <0.001 | <0.001 | - | - | 0.042 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| EX1 | R | Bulk | 25-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 25-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Jun-19 | 3 | <0.00050 | <0.00050 | 0.0011 | <0.00020 | 0.0017 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Oct-18 | 3 | <0.00050 | <0.00050 | 0.0041 | <0.00020 | 0.0022 | <0.00050 | 0.0012 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Apr-18 | 3 | <0.00050 | <0.00050 | 0.0058 | <0.00020 | 0.0061 | <0.00050 | 0.0015 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0006 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-May-17 | 3 | <0.00050 | <0.00050 | 0.0018 | <0.00020 | 0.0025 | <0.00050 | 0.00057 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 1-Nov-16 | 3 | <0.00050 | <0.00050 | 0.040 | <0.00020 | 0.11 | <0.00050 | 0.012 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-May-16 | 3 | <0.00050 | <0.00050 | 0.073 | <0.00020 | 0.13 | <0.00050 | 0.023 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | 0.019 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00096 |
| | R | Bulk | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.106 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Sep-15 | 3 | <0.001 | <0.001 | - | - | 0.086 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 3 | <0.001 | <0.001 | - | - | 0.11 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 15-Apr-15 | 3 | <0.001 | <0.001 | - | - | 0.136 | <0.001 | - | 0.0017 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| EX2 | R | Bulk | 25-May-20 | 3 | <0.00075 ** | <0.00050 | 0.00054 | <0.00020 | 0.024 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Dec-19 | 3 | <0.00075 ** | <0.00050 | 0.00068 | <0.00020 | 0.049 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 13-Jun-19 | 3 | <0.00050 | <0.00050 | 0.00097 | <0.00020 | 0.023 | <0.00050 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.0010 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19-Oct-18 | 3 | 0.0018* | <0.00050 | 0.0022 | <0.00020 | 0.048 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00081** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Apr-18 | 3 | <0.00050 | <0.00050 | 0.0063 | <0.00020 | 0.050 | <0.00050 | 0.0033 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-May-17 | 3 | 0.00096* | <0.00050 | 0.0044 | <0.00020 | 0.020 | <0.00050 | 0.0051 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.00053* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

^ Due to high concentrations of VOCs in the sample, the detection limits were raised for all constituents analyzed. The detection limits were raised to values greater than the applicable AEP 2016 Tier 1 Guidelines.

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

# Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EX2 con't | R | Bulk | 1-Nov-16 | 3 | 0.0011* | <0.00050 | 0.023 | <0.00020 | **0.062** | <0.00050 | 0.011 | <0.00050 | <0.0010 | <0.00050 | 0.0030 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-May-16 | 3 | 0.00063 | <0.00050 | 0.029 | <0.00020 | **0.045** | <0.00050 | 0.015 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.053** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Sep-15 | 3 | 0.001 | <0.001 | - | - | **0.048** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.047** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 15-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.042** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| EX3 | R | Bulk | 25-May-20 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 25-Nov-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0028** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Jun-19 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-Oct-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Apr-18 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 5-May-17 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 1-Nov-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 6-May-16 | 3 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.0063** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 17-Nov-15 | 3 | <0.001 | <0.001 | - | - | 0.002 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 3-Sep-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 3 | <0.001 | <0.001 | - | - | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 15-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.008** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| EX4 | R | Bulk | 20-May-20 | 3 | <0.00050 | <0.00050 | 0.24 | <0.00020 | **0.014** | <0.00050 | 0.037 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-Dec-19 | 3 | <0.00050 | <0.00050 | 0.19 | <0.00020 | **0.0094** | <0.00050 | 0.0099 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.012** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 13-Jun-19 | 3 | 0.0011 (*) | <0.00050 | 0.39 | 0.00031 | **0.012** | <0.00050 | 0.085 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.012** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 24-Oct-18 | 3 | <0.00090** | <0.00050 | 0.18 | 0.00047** | **0.014** | <0.00050 | 0.023 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0045** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Apr-18 | 3 | <0.00050 | <0.00050 | 0.22 | 0.00043 | **0.015** | <0.00050 | 0.034 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0038 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 9-May-17 | 3 | 0.0076* | 0.00096* | 0.49 | <0.00020 | **0.031** | <0.00050 | 0.096 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | 0.0077* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00097 |
| | R | Bulk | 1-Nov-16 | 3 | <0.00050 | <0.00050 | 0.50 | 0.0012* | **0.024** | <0.00090** | 0.14 | <0.00050 | <0.0010 | <0.0015** | <0.0020 | <0.00050 | <0.00050 | - | 0.00064 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-May-16 | 3 | <0.00050 | <0.00050 | 0.66 | 0.00086 | **0.038** | <0.00050 | 0.21 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | 0.0011 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00051 |
| | R | Bulk | 19-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.027** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 17-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.033** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.36-11.89 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.037** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 16-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.032** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| EX5 | R | 10.67-12.19 | 21-May-20 | 3 | <0.00050 | 0.00099 | 0.22 | 0.00021 | **0.068** | <0.00050 | 0.14 | <0.00050 | 0.01 | <0.00050 | 0.0091 | <0.00050 | <0.00050 | <0.0020 | 0.00093 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 11-Dec-19 | 3 | <0.00050 | 0.0015 | 0.23 | 0.00021 | **0.068** | <0.00050 | 0.12 | <0.00050 | <0.0010 | <0.00050 | 0.0091 | <0.00050 | <0.00050 | - | 0.00074 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 18-Oct-18 | 3 | <0.00050 | 0.0013* | 0.32 | 0.00047 | **0.054** | <0.00050 | 0.17 | <0.00050 | <0.0010 | <0.00050 | 0.0066 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 27-Mar-18 | 3 | 0.0012* | 0.0011 | 0.38 | <0.00020 | **0.086** | <0.00050 | 0.15 | <0.00050 | <0.0010 | <0.00050 | 0.0072 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 8-May-17 | 3 | 0.049* | <0.00050 | 0.40 | <0.00020 | **0.11** | <0.00050 | 0.20 | <0.00050 | 0.0011* | <0.00050 | 0.014 | 0.015* | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 1-Nov-16 | 3 | 0.0033* | <0.00050 | 0.34 | 0.00082* | **0.10** | 0.0013* | 0.16 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | 0.0013 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 10.67-12.19 | 17-May-16 | 3 | 0.0063 | <0.00050 | 0.49 | 0.00082 | **0.25** | <0.00050 | 0.20 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | - | 0.0018 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | 0.00058 |
| | R | 10.67-12.20 | 18-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.120** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.67-12.21 | 17-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.074** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 10.67-12.22 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.084** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.075** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| **Residential Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Commercial Guideline[2]** | | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| **Site Specific Tier 2 Guidelines (N1)[3]** | | | | | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S2)[3]** | | | | | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

* Results are potentially biased high

** Detection limit raised due to matrix interference

*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

## Table 8 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Dichloromethane | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EX6 | R | Bulk | 25-May-20 | 3 | <0.00050 | <0.00050 | 0.014 | <0.00020 | **0.021** | <0.00050 | 0.093 | <0.00050 | <0.0010 | <0.00050 | 0.0025 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 11-Dec-19 | 3 | <0.00050 | 0.0013 ** | 0.026 | <0.00020 | **0.025** | <0.00050 | 0.15 | <0.00050 | <0.0010 | <0.00050 | 0.0036 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 13-Jun-19 | 3 | 0.0031 * | 0.00098 * | 0.032 | <0.00020 | **0.025** | <0.00050 | 0.19 | <0.00050 | <0.0010 | <0.00050 | 0.0038 | <0.027 (**) | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 25-Oct-18 | 3 | <0.00050 | 0.0014* | 0.014 | <0.00020 | **0.031** | <0.00050 | 0.16 | <0.00050 | <0.0010 | <0.00050 | 0.0035 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Apr-18 | 3 | <0.00050 | 0.00066* | 0.0091 | <0.00020 | **0.021** | <0.00050 | 0.088 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0080** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-May-17 | 3 | <0.010** | 0.0020* | 0.056 | <0.00020 | **0.051** | <0.00090** | 0.27 | <0.00050 | <0.0010 | <0.00050 | 0.0052 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 2-Nov-16 | 3 | <0.00050 | <0.00050 | 0.069 | 0.00048* | **0.054** | 0.0011* | 0.25 | <0.0015** | <0.0010 | <0.00050 | <0.0060** | <0.0060** | <0.00050 | - | <0.00050* | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-May-16 | 3 | <0.00050 | <0.00050 | 0.045 | <0.00020 | **0.056** | <0.00050 | 0.093 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 23-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.040** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Sep-15 | 3 | <0.001 | <0.001 | - | - | **0.047** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 11-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.056** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.050** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| EX7 | R | Bulk | 20-May-20 | 3 | <0.00050 | <0.00050 | 0.27 | <0.00020 | **0.14** | <0.00050 | 0.15 | <0.00050 | <0.0010 | <0.00050 | 0.0036 | <0.00050 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 11-Dec-19 | 3 | 0.0059 | 0.00055 ** | 0.0026 | <0.00020 | **0.31** | <0.00050 | 0.0050 | <0.00050 | <0.0010 | <0.00050 | 0.012 | <0.010** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 13-Jun-19 | 3 | 0.0046 ** | 0.00087 * | 0.082 | <0.00020 | **0.15** | <0.00050 | 0.13 | <0.00050 | <0.0010 | <0.00050 | 0.0052 | <0.010** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 24-Oct-18 | 3 | 0.0066*** | <0.00050 | 0.031 | <0.00050 | **0.25** | <0.00050 | 0.035 | <0.00050 | <0.0010 | <0.00050 | 0.0081 | <0.0045** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 4-Apr-18 | 3 | 0.0053 | 0.00059* | 0.026 | 0.00022 | **0.25** | <0.00050 | 0.024 | <0.00050 | <0.0010 | <0.00050 | 0.0080 | <0.0023** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 10-May-17 | 3 | <0.0090** | 0.0011* | 0.24 | <0.00050 | **0.24** | <0.00050 | 0.13 | <0.00050 | 0.0010* | <0.00050 | 0.011 | <0.0050** | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 1-Nov-16 | 3 | 0.0035 | <0.00050 | 0.32 | 0.00041* | **0.23** | 0.00055* | 0.15 | <0.00050 | <0.0010 | <0.0015** | 0.0097 | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 18-May-16 | 3 | 0.0037 | <0.00050 | 0.10 | <0.00020 | **0.21** | <0.00050 | 0.11 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.0011 | <0.00050 | - | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 23-Nov-15 | 3 | <0.001 | <0.001 | - | - | **0.0250** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.58-13.11 | 17-Sep-15 | 3 | 0.002 | <0.001 | - | - | **0.158** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | 11.58-13.11 | 19-Jun-15 | 3 | <0.001 | <0.001 | - | - | **0.085** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | R | Bulk | 17-Apr-15 | 3 | <0.001 | <0.001 | - | - | **0.209** | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.001 | <0.001 | - | <0.001 | <0.001 | <0.0008 |
| | | | | **Residential Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| | | | | **Commercial Guideline[2]** | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.05 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.002 |
| | | | | **Site Specific Tier 2 Guidelines (N1)[3]** | NG | NG | NG | NG | 0.29 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (N2)[3]** | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S1)[3]** | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| | | | | **Site Specific Tier 2 Guidelines (S2)[3]** | NG | NG | NG | NG | 0.17 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

1 Land Use abbreviations: C=Commercial; R=Residential; I=Industrial; N=Natural.
2 AEP 2019 Tier 1 and 2 Guidelines for fine and coarse-grained soil with elimination of the freshwater aquatic life pathway.
3 Site Specific Tier 2 Guidelines for Various Areas in Hounsfield Heights.
**Bold** Indicates that the concentration did not meet the applicable guideline.
**Bold** Indicates that the concentration did not meet the applicable Site Specific and AEP guideline.
Bulk Bulk sample collected using a dedicated, disposable bailer.
m bgs Meters below ground surface
* Results are potentially biased high
** Detection limit raised due to matrix interference
*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.
\- Not analyzed.
All results in mg/L unless otherwise noted.
Only compounds with detectable concentrations in at least one sample are presented.
Testing was conducted by Bureau Veritas, Calgary, Alberta

## Table 9 - Summary of Groundwater Laboratory Analyses - Routine

| Sample ID | BH1906 | BH1906 | BH1910 | BH1910 | BH1918 | BH1918 | BH1925 | BH1925 | BH1927 | BH1927 | BH1928 | BH1928 | BH1944 | BH1944 | BH1953 | BH1953 | BH1956 | BH1956 | BH1958 | BH1958 | AEP 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | C | C | Tier 1 |
| Sample Date | 29-Jan-20 | 26-May-20 | 29-Jan-20 | 26-May-20 | 28-Jan-20 | 27-May-20 | 29-Jan-20 | 22-May-20 | 29-Jan-20 | 27-May-20 | 28-Jan-20 | 2-Jun-20 | 28-Jan-20 | 8-May-20 | 28-Jan-20 | 27-May-20 | 29-Jan-20 | 3-Jun-20 | 7-Jan-20 | 26-May-20 | Guideline[2] |
| ***Misc. Inorganics*** | | | | | | | | | | | | | | | | | | | | | |
| Conductivity (µS/cm) | 1900 | 1900 | 1900 | 1900 | 2400 | 2400 | 1900 | 2100 | 1100 | 1100 | 11000 | 1000 | 1000 | 980 | 2100 | 2100 | 1400 | 1400 | 2200 | 1600 | NG |
| pH | 7.49 | 7.77 | 7.47 | 7.89 | 7.61 | 7.54 | 7.59 | 7.20 | 7.57 | 7.07 | 7.36 | 7.75 | 7.75 | 7.83 | 7.52 | 7.73 | 7.37 | 7.56 | 7.60 | 7.94 | 6.5-8.5 |
| ***Anions*** | | | | | | | | | | | | | | | | | | | | | |
| *Alkalinity (PP as $CaCO_3$)* | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | NG |
| *Alkalinity (Total as $CaCO_3$)* | 540 | 500 | 570 | 530 | 610 | 560 | 600 | 560 | 370 | 350 | 710 | 460 | 460 | 430 | 670 | 620 | 500 | 480 | 400 | 440 | NG |
| *Bicarbonate ($HCO_3$)* | 650 | 610 | 690 | 650 | 740 | 680 | 730 | 690 | 460 | 430 | 870 | 570 | 570 | 530 | 820 | 750 | 610 | 590 | 490 | 540 | NG |
| *Carbonate ($CO_3$)* | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | NG |
| *Hydroxide (OH)* | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | NG |
| Dissolved Chloride (Cl) | **200 *** | **230 *** | **250 *** | **270 *** | **390 *** | **440*** | **260 *** | **360*** | 120 | **130** | **3200***** | 27 | 27 | 28 | **270 *** | **270 *** | 83 | 94 | **420 *** | **220 *** | 120 |
| Dissolved Sulphate ($SO_4$) | 33 | 34 | 29 | 31 | 46 | 50 | 46 | 45 | 32 | 33 | 81 | 54 | 54 | 56 | 53 | 46 | 65 | 43 | 37 | 37 (1) | 4293 |
| ***Nutrients*** | | | | | | | | | | | | | | | | | | | | | |
| Dissolved Nitrite (N) | 5.6 * | 6.1*** | 0.41 | 0.31 | <0.010 | <0.010 | <0.010 | <0.010 | 0.42 | 0.41 | 3.0 | 0.029 | 0.029 | <0.010 | 0.020 | 0.024 | 0.058 | 0.092 | <0.010 | <0.010 | NG |
| Dissolved Nitrate (N) | **29 *** | **30 **** | **11 *** | **7.0** | **8.6** | **7.1** | 0.24 | 0.065 | **3.7** | **3.3** | **42***** | **4.2** | **4.2** | **3.9** | **13 *** | **12 *** | **19 *** | **17 *** | **3.9** | **2.6** | 3 |
| ***Elements*** | | | | | | | | | | | | | | | | | | | | | |
| Dissolved Calcium (Ca) | 190 | 200 | 140 | 140 | 170 | 170 | 150 | 190 | 100 | 110 | 1500*** | 100 | 100 | 100 | 170 | 170 | 150 | 140 | 160 | 140 | NG |
| Dissolved Iron (Fe) | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 | 0.89 | 1.1 | <0.060 | <0.060 | **0.31** | <0.060 | <0.060 | 0.097 | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 | 0.3 |
| Dissolved Magnesium (Mg) | 100 | 100 | 140 | 130 | 160 | 150 | 140 | 130 | 59 | 59 | 280 | 66 | 66 | 66 | 130 | 130 | 78 | 60 | 120 | 93 | NG |
| Dissolved Manganese (Mn) | **0.59** | **0.62** | **0.79** | **0.73** | 0.0049 | <0.0040 | **0.41** | **0.55** | **0.44** | **0.40** | **3.1** | **0.22** | **0.22** | **0.17** | **0.20** | **0.19** | 0.015 | <0.0040 | <0.0040 | <0.0040 | 0.05 |
| Dissolved Potassium (K) | 4.3 | 4.5 | 3.4 | 3.4 | 5.8 | 5.8 | 3.0 | 2.9 | 3.2 | 3.2 | 95 | 3.1 | 3.1 | 3.0 | 5.9 | 6 | 2.8 | 5.6 | 4.9 | 4.3 | NG |
| Dissolved Sodium (Na) | 27 | 29 | 42 | 43 | 90 | 93 | 36 | 40 | 27 | 27 | **340** | 13 | 13 | 13 | 78 | 78 | 12 | 48 | 92 | 44 | 200 |
| ***Calculated Parameters*** | | | | | | | | | | | | | | | | | | | | | |
| Anion Sum | 20 | 20 | 20 | 19 | 25 | 25 | 20 | 22 | 12 | 12 | 110 | 11 | 11 | 11 | 23 | 22 | 15 | 14 | 21 | 16 | NG |
| Cation Sum | 20 | 20 | 20 | 20 | 25 | 25 | 20 | 23 | 11 | 11 | 110 | 11 | 11 | 11 | 23 | 23 | 15 | 14 | 22 | 17 | NG |
| Hardness ($CaCO_3$) | 910 | 930 | 920 | 890 | 1100 | 1000 | 930 | 1000 | 510 | 510 | 4900 | 530 | 530 | 540 | 980 | 950 | 700 | 590 | 900 | 730 | NG |
| Ion Balance (% Difference) | 0.0010 | 1.2 | 1.2 | 0.94 | 1.3 | 0.28 | 0.064 | 0.83 | 2.4 | 0.41 | 2.0 | 1.3 | 1.3 | 1.9 | 0.12 | 1.7 | 1.8 | 1.3 | 3.3 | 1.5 | NG |
| Dissolved Nitrate ($NO_3$) | 130 | 130 | 50 | 31 | 38 | 31 | 1.1 | 0.29 | 16 | 15 | 190 | 19 | 19 | 17 | 59 | 55 | 83 | 77 | 17 | 12 | NG |
| Nitrate plus Nitrite (N) | 34 | 36 | 12 | 7.3 | 8.6 | 7.1 | 0.24 | 0.065 | 4.1 | 3.7 | 45 | 4.3 | 4.3 | 3.9 | 13 | 12 | 19 | 18 | 3.9 | 2.6 | NG |
| Dissolved Nitrite ($NO_2$) | 19 | 20 | 1.4 | 1.0 | <0.033 | <0.033 | <0.033 | <0.033 | 1.4 | 1.3 | 9.8 | 0.095 | 0.095 | <0.033 | 0.065 | 0.079 | 0.19 | 0.30 | <0.033 | <0.033 | NG |
| Calculated TDS | **1000** | **1100** | **1000** | **970** | **1300** | **1300** | **990** | **1100** | **590** | **580** | **6100** | **560** | **560** | **550** | **1200** | **1100** | **770** | **760** | **1100** | **820** | 500 |

**Notes:**

* Detection limit raised due to dilution

** Detection limit raised due to interferent

*** Detection limits raised due to dilution to bring analyte within the calibrated range.

## Table 9 - Summary of Groundwater Laboratory Analyses - Routine

| Sample ID | BH1962 | BH1962 | BH1982 | BH1982 | BH1984 | BH1984 | BH2003 | BH2003 | BH2010 | BH2010 | BH2012 | BH2012 | BH3001A | BH3001A | BH4007 | BH4007 | EX-7 | EX-7 | AEP 2019 Tier 1 Guideline[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | R | R | R | R | C | C | R | R | R | R | R | R | R | R | C | C | R | R | |
| Sample Date | 28-Jan-20 | 8-May-20 | 21-Jan-20 | 5-May-20 | 7-Jan-20 | 26-May-20 | 29-Jan-20 | 5-Jun-20 | 29-Jan-20 | 22-May-20 | 29-Jan-20 | 22-May-20 | 28-Jan-20 | 20-May-20 | 7-Jan-20 | 2-Jun-20 | 29-Jan-20 | 22-May-20 | |
| ***Misc. Inorganics*** | | | | | | | | | | | | | | | | | | | |
| Conductivity (µS/cm) | 600 | 590 | 5500 | 1800 | 1300 | 1200 | 1500 | 1800 | 1300 | 1200 | 1600 | 1600 | 1500 | 1500 | 2500 | 2600 | 1900 | 1900 | NG |
| pH | 7.73 | 7.92 | N/A | 7.70 | 7.53 | 7.91 | 7.67 | 7.59 | 7.65 | 7.55 | 7.58 | 7.61 | 7.75 | 7.88 | 7.67 | 7.92 | 7.20 | 7.25 | 6.5-8.5 |
| ***Anions*** | | | | | | | | | | | | | | | | | | | |
| *Alkalinity (PP as $CaCO_3$)* | <1.0 | <1.0 | 1700 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | NG |
| *Alkalinity (Total as $CaCO_3$)* | 320 | 300 | 4800 | 530 | 510 | 510 | 560 | 530 | 400 | 370 | 450 | 410 | 500 | 520 | 630 | 650 | 590 | 520 | NG |
| *Bicarbonate ($HCO_3$)* | 390 | 360 | 1600 | 640 | 620 | 620 | 680 | 650 | 490 | 450 | 550 | 500 | 610 | 640 | 770 | 790 | 720 | 640 | NG |
| *Carbonate ($CO_3$)* | <1.0 | <1.0 | 2100 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | NG |
| *Hydroxide (OH)* | <1.0 | <1.0 | <100 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | NG |
| Dissolved Chloride (Cl) | 1.5 | 1.8 | **2900 *** | **200***** | 87 | 79 | **140** | **220***** | **160** | **160** | **200** | **230*** | **180** | **190** | **370*** | **410*** | **280 *** | **310*** | 120 |
| Dissolved Sulphate ($SO_4$) | 20 | 22 | **<1000 *** | 69 | 46 | 42 | 89 | 80 | 38 | 51 | 58 | 66 | 55 | 50 | 44 | 37* | 8.0 | 11 | 429[3] |
| ***Nutrients*** | | | | | | | | | | | | | | | | | | | |
| Dissolved Nitrite (N) | <0.010 | <0.010 | <50 ** | <0.010 | 0.1 | 0.037 | <0.010 | <0.010 | <0.010 | 0.019 | 0.018 | <0.10 (2) | <0.010 | <0.010 | 4.3 | 4.6 | <0.010 | <0.010 | NG |
| Dissolved Nitrate (N) | <0.010 | <0.010 | **<50 **** | **7.5** | **6** | **5.8** | 0.93 | 1.1 | **4.5** | **4.6** | **16 *** | **14***** | **5.2** | 0.48 | **19*** | **21*** | <0.010 | <0.010 | 3 |
| ***Elements*** | | | | | | | | | | | | | | | | | | | |
| Dissolved Calcium (Ca) | 64 | 68 | 1300 | 96 | 110 | 110 | 100 | 120 | 130 | 140 | 110 | 110 | 120 | 140 | 94 | 100 | 170 | 190 | NG |
| Dissolved Iron (Fe) | 0.26 | 0.21 | **33** | 0.22 | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 | 0.096 | <0.060 | <0.060 | <0.060 | <0.060 | <0.060 | **0.32** | **16** | **12** | 0.3 |
| Dissolved Magnesium (Mg) | 29 | 30 | 93 | 87 | 93 | 88 | 85 | 87 | 72 | 69 | 120 | 120 | 97 | 110 | 240 | 230 | 120 | 110 | NG |
| Dissolved Manganese (Mn) | **0.15** | **0.14** | **3.0** | **0.28** | **0.3** | **0.28** | **0.32** | **0.46** | **0.051** | **0.023** | **0.16** | **0.14** | <0.0040 | <0.0040 | **0.34** | **0.35** | **1.3** | **1.2** | 0.05 |
| Dissolved Potassium (K) | 2.0 | 1.9 | 410 | 2.4 | 4.5 | 4.6 | 3.4 | 3.8 | 3.7 | 3.5 | 4.0 | 3.9 | 4.3 | 4.9 | 4.5 | 5.0 | 2.8 | 2.9 | NG |
| Dissolved Sodium (Na) | 21 | 20 | 1900 | 140 | 27 | 26 | 98 | 130 | 19 | 20 | 39 | 40 | 49 | 53 | 71 | 75 | 56 | 55 | 200 |
| ***Calculated Parameters*** | | | | | | | | | | | | | | | | | | | |
| Anion Sum | 6.9 | 6.4 | 180 | 18 | 14 | 14 | 17 | 18 | 14 | 13 | 17 | 17 | 17 | 17 | 26 | 27 | 20 | 19 | NG |
| Cation Sum | 6.5 | 6.8 | 160 | 18 | 15 | 14 | 17 | 19 | 13 | 14 | 17 | 18 | 16 | 18 | 27 | 28 | 21 | 22 | NG |
| Hardness ($CaCO_3$) | 280 | 290 | 3500 | 600 | 660 | 640 | 610 | 650 | 620 | 630 | 750 | 790 | 700 | 780 | 1200 | 1200 | 900 | 930 | NG |
| Ion Balance (% Difference) | 2.8 | 2.8 | 3.6 | 0.25 | 2 | 1.0 | 1.4 | 0.48 | 1.1 | 1.6 | 0.35 | 1.5 | 1.0 | 3.7 | 3.5 | 0.98 | 3.2 | 5.7 | NG |
| Dissolved Nitrate ($NO_3$) | <0.044 | <0.044 | <220 | 33 | 26 | 26 | 4.1 | 4.9 | 20 | 21 | 70 | 64 | 23 | 2.1 | 84 | 92 | <0.044 | <0.044 | NG |
| Nitrate plus Nitrite (N) | <0.014 | <0.014 | <71 | 7.5 | 6.1 | 5.8 | 0.93 | 1.1 | 4.5 | 4.7 | 16 | 14 | 5.2 | 0.48 | 23 | 25 | <0.014 | <0.014 | NG |
| Dissolved Nitrite ($NO_2$) | <0.033 | <0.033 | <160 | <0.033 | 0.34 | 0.12 | <0.033 | <0.033 | <0.033 | 0.062 | 0.060 | <0.33 | <0.033 | <0.033 | 14 | 15 | <0.033 | <0.033 | NG |
| Calculated TDS | 330 | 320 | **9400** | **950** | **700** | **680** | **860** | **960** | **680** | **680** | **860** | **880** | **1000** | **1000** | **1300** | **1400** | **1000** | **1000** | 500 |

**Notes:**

* Detection limit raised due to dilution
** Detection limit raised due to interferent
*** Detection limits raised due to dilution to bring analyte within the calibrated range.
N/A Analytical test could not be performed.
1 Land Use abbreviations: C=Commercial; R=Residential; I=Industrial; N=Natural.
2 AEP 2019 Tier 1 and 2 Guidelines for fine and coarse-grained soil with elimination of the freshwater aquatic life pathway.
3 Site Specific Tier 2 Groundwater Remediation Guidelines for Various Areas in Hounsfield Heights.
**Bold** Indicates that the concentration did not meet the applicable AEP guideline.
Bulk Bulk sample collected using a dedicated, disposable bailer.
All results in mg/L unless otherwise noted.
Only compounds with detectable concentrations in at least one sample are presented.
Testing was conducted by Bureau Veritas, Calgary, Alberta

# Appendix A
## Bureau Veritas Certificates of Analysis

Clifton

Your Project #: CG2430.1 E49
Your C.O.C. #: M061072, M061073

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/01**
Report #: R2884922
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C035161**
**Received: 2020/05/26, 08:55**

Sample Matrix: Water
# Samples Received: 16

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 13 | N/A | 2020/05/28 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| BTEX/F1 in Water by HS GC/MS/FID | 2 | N/A | 2020/05/29 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 15 | N/A | 2020/05/29 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 15 | 2020/05/28 | 2020/05/30 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 16 | N/A | 2020/06/01 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 16 | N/A | 2020/05/29 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061072, M061073

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/01**
Report #: R2884922
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C035161**
**Received: 2020/05/26, 08:55**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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BV Labs Job #: C035161
Report Date: 2020/06/01

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU9223 | XU9223 | XU9224 | XU9225 | XU9226 | XU9227 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 11:50 | 2020/05/25 11:50 | 2020/05/25 11:30 | 2020/05/25 13:30 | 2020/05/25 12:30 | 2020/05/25 13:30 | | |
| **COC Number** | | M061072 | M061072 | M061072 | M061072 | M061072 | M061072 | | |
| | **UNITS** | **1912** | **1912 Lab-Dup** | **1913** | **1914** | **1915** | **1916** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | N/A | <0.10 | <0.10 | 0.35 | <0.10 | 0.10 | 9863292 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | 0.052 | 0.049 | <0.00040 | <0.00040 | 0.013 | <0.00040 | 0.00040 | 9862557 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00067 | <0.00040 | 0.00040 | 9862557 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.0013 | <0.00040 | 0.00040 | 9862557 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.016 | <0.00080 | 0.00080 | 9862557 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.0056 | <0.00040 | 0.00040 | 9862557 |
| Xylenes (Total) | mg/L | <0.00089 | N/A | <0.00089 | <0.00089 | 0.022 | <0.00089 | 0.00089 | 9861860 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | N/A | <0.10 | <0.10 | 1.2 | <0.10 | 0.10 | 9861860 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 1.2 | <0.10 | 0.10 | 9862557 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 103 | 103 | 105 | 104 | 107 | N/A | 9862557 |
| 4-Bromofluorobenzene (sur.) | % | 92 | 91 | 86 | 84 | 85 | 87 | N/A | 9862557 |
| D4-1,2-Dichloroethane (sur.) | % | 85 | 88 | 84 | 85 | 88 | 86 | N/A | 9862557 |
| O-TERPHENYL (sur.) | % | 111 | N/A | 110 | 97 | 101 | 99 | N/A | 9863292 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C035161
Report Date: 2020/06/01

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU9228 | XU9229 | XU9230 | XU9231 | | XU9232 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 12:35 | 2020/05/25 14:45 | 2020/05/25 13:30 | 2020/05/25 12:45 | | 2020/05/25 12:45 | | |
| **COC Number** | | M061072 | M061072 | M061072 | M061072 | | M061072 | | |
| | **UNITS** | **9915** | **HYDRA4** | **EX2** | **9510A** | **QC Batch** | **510A** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 0.35 | <0.10 | 0.10 | 0.20 | 9863292 | 0.25 | 0.10 | 9863292 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | 0.013 | <0.00040 | 0.17 | 0.69 | 9862557 | 0.64 | 0.00040 | 9862557 |
| Toluene | mg/L | 0.00066 | <0.00040 | 0.0057 | 0.018 | 9862557 | 0.016 | 0.00040 | 9862557 |
| Ethylbenzene | mg/L | 0.0013 | <0.00040 | 0.16 | 0.65 | 9862557 | 0.61 | 0.00040 | 9862557 |
| m & p-Xylene | mg/L | 0.017 | <0.00080 | 0.0033 | 0.094 | 9862557 | 0.090 | 0.00080 | 9862557 |
| o-Xylene | mg/L | 0.0054 | <0.00040 | 0.00086 | 0.0035 | 9862557 | 0.0032 | 0.00040 | 9862557 |
| Xylenes (Total) | mg/L | 0.022 | <0.00089 | 0.0042 | 0.098 | 9861860 | 0.094 | 0.00089 | 9861987 |
| F1 (C6-C10) - BTEX | mg/L | 1.2 | <0.10 | 0.43 | 1.7 | 9861860 | 1.7 | 0.10 | 9861987 |
| F1 (C6-C10) | mg/L | 1.3 | <0.10 | 0.76 | 3.2 | 9862557 | 3.1 | 0.10 | 9862557 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 105 | 105 | 107 | 9862557 | 106 | N/A | 9862557 |
| 4-Bromofluorobenzene (sur.) | % | 85 | 84 | 94 | 87 | 9862557 | 85 | N/A | 9862557 |
| D4-1,2-Dichloroethane (sur.) | % | 88 | 84 | 83 | 75 | 9862557 | 90 | N/A | 9862557 |
| O-TERPHENYL (sur.) | % | 102 | 101 | 101 | 102 | 9863292 | 100 | N/A | 9863292 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C035161
Report Date: 2020/06/01

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU9233 | XU9234 | XU9235 | XU9236 | XU9238 | XU9238 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 14:00 | 2020/05/25 14:15 | 2020/05/25 16:45 | 2020/05/25 16:45 | 2020/05/25 17:45 | 2020/05/25 17:45 | | |
| **COC Number** | | M061073 | M061073 | M061073 | M061073 | M061073 | M061073 | | |
| | **UNITS** | **1950A** | **EX3** | **EX1** | **EX91** | **EX6** | **EX6 Lab-Dup** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | 0.75 | <0.10 | <0.10 | 0.50 | 0.49 | 0.10 | 9863292 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | 0.0022 | 0.0022 | 0.22 | N/A | 0.00040 | 9862557 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.15 | N/A | 0.00040 | 9862557 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | 0.00076 | 0.00075 | 0.79 | N/A | 0.00040 | 9862557 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.53 | N/A | 0.00080 | 9862557 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.095 | N/A | 0.00040 | 9862557 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.62 | N/A | 0.00089 | 9861860 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 3.4 | N/A | 0.10 | 9861860 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 5.1 | N/A | 0.10 | 9862557 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 105 | 106 | 104 | 107 | 105 | N/A | N/A | 9862557 |
| 4-Bromofluorobenzene (sur.) | % | 83 | 80 | 84 | 81 | 85 | N/A | N/A | 9862557 |
| D4-1,2-Dichloroethane (sur.) | % | 85 | 85 | 88 | 85 | 89 | N/A | N/A | 9862557 |
| O-TERPHENYL (sur.) | % | 106 | 103 | 100 | 104 | 110 | 110 | N/A | 9863292 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9223 | XU9224 | XU9225 | XU9226 | XU9227 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 11:50 | 2020/05/25 11:30 | 2020/05/25 13:30 | 2020/05/25 12:30 | 2020/05/25 13:30 | | |
| **COC Number** | | M061072 | M061072 | M061072 | M061072 | M061072 | | |
| | **UNITS** | **1912** | **1913** | **1914** | **1915** | **1916** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9861782 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9862567 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2-dichloroethane | mg/L | 0.027 | <0.00050 | <0.00050 | 0.012 | <0.00050 | 0.00050 | 9862567 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| RDL = Reportable Detection Limit | | | | | | | | |



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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9223 | XU9224 | XU9225 | XU9226 | XU9227 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 11:50 | 2020/05/25 11:30 | 2020/05/25 13:30 | 2020/05/25 12:30 | 2020/05/25 13:30 | | |
| **COC Number** | | M061072 | M061072 | M061072 | M061072 | M061072 | | |
| | **UNITS** | **1912** | **1913** | **1914** | **1915** | **1916** | **RDL** | **QC Batch** |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.018 | <0.00050 | 0.00050 | 9862567 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.018 | <0.00050 | 0.00050 | 9862567 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 102 | 101 | 101 | 100 | N/A | 9862567 |
| 4-Bromofluorobenzene (sur.) | % | 88 | 88 | 88 | 95 | 89 | N/A | 9862567 |
| D4-1,2-Dichloroethane (sur.) | % | 109 | 95 | 95 | 95 | 93 | N/A | 9862567 |

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Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9228 | XU9229 | XU9230 | XU9230 | XU9231 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 12:35 | 2020/05/25 14:45 | 2020/05/25 13:30 | 2020/05/25 13:30 | 2020/05/25 12:45 | | |
| **COC Number** | | M061072 | M061072 | M061072 | M061072 | M061072 | | |
| | **UNITS** | **9915** | **HYDRA4** | **EX2** | **EX2 Lab-Dup** | **9510A** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | N/A | <0.0013 | 0.0013 | 9861782 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0030 | 0.0020 | 9862567 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9862567 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2-dichloroethane | mg/L | 0.012 | <0.00050 | 0.024 | 0.023 | 0.031 | 0.00050 | 9862567 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9228 | XU9229 | XU9230 | XU9230 | XU9231 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 12:35 | 2020/05/25 14:45 | 2020/05/25 13:30 | 2020/05/25 13:30 | 2020/05/25 12:45 | | |
| **COC Number** | | M061072 | M061072 | M061072 | M061072 | M061072 | | |
| | **UNITS** | **9915** | **HYDRA4** | **EX2** | **EX2 Lab-Dup** | **9510A** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,4-trimethylbenzene | mg/L | 0.019 | <0.00050 | 0.00054 | 0.00055 | 0.014 | 0.00050 | 9862567 |
| 1,3,5-trimethylbenzene | mg/L | 0.019 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 101 | 104 | 103 | 106 | N/A | 9862567 |
| 4-Bromofluorobenzene (sur.) | % | 96 | 88 | 84 | 84 | 86 | N/A | 9862567 |
| D4-1,2-Dichloroethane (sur.) | % | 95 | 94 | 119 | 114 | 114 | N/A | 9862567 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9232 | XU9233 | XU9234 | XU9235 | XU9236 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 12:45 | 2020/05/25 14:00 | 2020/05/25 14:15 | 2020/05/25 16:45 | 2020/05/25 16:45 | | |
| **COC Number** | | M061072 | M061073 | M061073 | M061073 | M061073 | | |
| | **UNITS** | **510A** | **1950A** | **EX3** | **EX1** | **EX91** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9861782 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chloromethane | mg/L | 0.0032 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9862567 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2-dichloroethane | mg/L | 0.034 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| RDL = Reportable Detection Limit | | | | | | | | |



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9232 | XU9233 | XU9234 | XU9235 | XU9236 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 12:45 | 2020/05/25 14:00 | 2020/05/25 14:15 | 2020/05/25 16:45 | 2020/05/25 16:45 | | |
| **COC Number** | | M061072 | M061073 | M061073 | M061073 | M061073 | | |
| | **UNITS** | **510A** | **1950A** | **EX3** | **EX1** | **EX91** | **RDL** | **QC Batch** |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,4-trimethylbenzene | mg/L | 0.016 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 105 | 101 | 102 | 101 | 102 | N/A | 9862567 |
| 4-Bromofluorobenzene (sur.) | % | 88 | 88 | 88 | 88 | 89 | N/A | 9862567 |
| D4-1,2-Dichloroethane (sur.) | % | 110 | 95 | 94 | 96 | 97 | N/A | 9862567 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9237 | XU9238 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 | 2020/05/25 17:45 | | |
| **COC Number** | | M061073 | M061073 | | |
| | **UNITS** | **TRIP BLANK5** | **EX6** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | 0.0013 | 9861782 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Chloromethane | mg/L | <0.0020 | 0.0025 | 0.0020 | 9862567 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00020 | 9862567 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.021 | 0.00050 | 9862567 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9862567 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9862567 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| RDL = Reportable Detection Limit | | | | | |



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU9237 | XU9238 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/25 | 2020/05/25 17:45 | | |
| **COC Number** | | M061073 | M061073 | | |
| | **UNITS** | **TRIP BLANK5** | **EX6** | **RDL** | **QC Batch** |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.014 | 0.00050 | 9862567 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.093 | 0.00050 | 9862567 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9862567 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 104 | N/A | 9862567 |
| 4-Bromofluorobenzene (sur.) | % | 88 | 87 | N/A | 9862567 |
| D4-1,2-Dichloroethane (sur.) | % | 94 | 109 | N/A | 9862567 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 3.0°C |

**Results relate only to the items tested.**



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# QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9862557 | DO1 | Matrix Spike [XU9224-01] | 1,4-Difluorobenzene (sur.) | 2020/05/28 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/28 | | 85 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/28 | | 83 | % | 50 - 140 |
| | | | Benzene | 2020/05/28 | | 87 | % | 50 - 140 |
| | | | Toluene | 2020/05/28 | | 86 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/28 | | 84 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/28 | | 87 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/28 | | 87 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/28 | | 90 | % | 60 - 140 |
| 9862557 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/28 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/28 | | 85 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/28 | | 82 | % | 50 - 140 |
| | | | Benzene | 2020/05/28 | | 90 | % | 60 - 130 |
| | | | Toluene | 2020/05/28 | | 90 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/28 | | 89 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/28 | | 92 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/28 | | 90 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/28 | | 95 | % | 60 - 140 |
| 9862557 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/28 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/28 | | 83 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/28 | | 82 | % | 50 - 140 |
| | | | Benzene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/28 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/28 | <0.10 | | mg/L | |
| 9862557 | DO1 | RPD [XU9223-01] | Benzene | 2020/05/29 | 6.2 | | % | 30 |
| | | | Toluene | 2020/05/29 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/29 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/05/29 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/29 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/29 | NC | | % | 30 |
| 9862567 | QW1 | Matrix Spike [XU9231-01] | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 113 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | Bromoform | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/29 | | 103 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/29 | | 93 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/29 | | 102 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/29 | | 108 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | Chloroform | 2020/05/29 | | 83 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/29 | | 96 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/29 | | 90 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dichloropropane | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | | 107 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | | 123 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/29 | | 83 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | Styrene | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | | 100 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/29 | | 103 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | | 89 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/29 | | 90 | % | 50 - 140 |
| 9862567 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | Bromoform | 2020/05/29 | | 106 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/29 | | 102 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/29 | | 98 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/29 | | 109 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Chloroform | 2020/05/29 | | 84 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | | 98 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/29 | | 86 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/29 | | 87 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/29 | | 87 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | | 107 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | | 115 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Styrene | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | | 99 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/29 | | 104 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | | 92 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Trichloroethene | 2020/05/29 | | 105 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/29 | | 88 | % | 60 - 130 |
| 9862567 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/29 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/29 | <0.00050 | | mg/L | |
| 9862567 | QW1 | RPD [XU9230-01] | Bromodichloromethane | 2020/05/29 | NC | | % | 30 |
| | | | Bromoform | 2020/05/29 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/29 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/29 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/29 | NC | | % | 30 |
| | | | Chloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Chloroform | 2020/05/29 | NC | | % | 30 |
| | | | Chloromethane | 2020/05/29 | NC | | % | 30 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dibromoethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/29 | 6.4 | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/29 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/29 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | NC | | % | 30 |
| | | | Styrene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | 1.7 | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/05/29 | NC | | % | 30 |
| 9863292 | MHF | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/30 | | 111 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | | 105 | % | 60 - 140 |
| 9863292 | MHF | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/30 | | 116 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | | 110 | % | 60 - 140 |
| 9863292 | MHF | Method Blank | O-TERPHENYL (sur.) | 2020/05/30 | | 115 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | <0.10 | | mg/L | |
| 9863292 | MHF | RPD [XU9238-01] | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | 3.3 | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

9445

# CHAIN OF CUSTODY RECORD

M 061072

Page 1 of 2

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 - 30 Ave. NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-6228 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 6 | 0 | 3 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | | ✓ | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Regulatory Criteria**: ☑ AT1 ☐ CCME ☐ Drinking Water ☐ D50 (Drilling Waste) ☐ Saskatchewan ☐ Other:

**Special Instructions**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☑ VOC | BTEX F1-F2 ☑ | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1912 | | 2020/05/25 | 11:50 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1913 | | ↑ | 11:30 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 1914 | | | 13:30 | | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 1915 | | | 12:30 | | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | 1916 | | | 13:30 | | 5 | ✓ | ✓ | | | | | | | | | |
| 6 | 9915 | | ↓ | 12:35 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 7 | Hydra 4 | | 2020/05/25 | 14:45 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 8 | Ex 2 | | 2020/05/25 | 13:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 9 | 9510A | | 2020/05/25 | 12:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 10 | 510 A | | 2020/05/25 | 12:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Bryn Gelavitz | 2020/05/26 | 08:00 | Jessica Lee | 20200526 | 08:55 | C035161 |

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AB FCD-00331/7

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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
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# CHAIN OF CUSTODY RECORD

M061073



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 - 30 Ave NE Calgary, Ab | Address: | | Project #: | CG 24301 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-6228 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | | Temp | 6 | 0 | 3 |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1950 A | | 2020/05/25 | 14:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 2 | Ex 3 | | 2020/05/25 | 14:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 3 | Ex 1 | | 2020/05/25 | 16:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 4 | Ex 91 | | 2020/05/25 | 16:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 5 | Trip Blank 5 | | 2020/05/25 | | W | 2 | ✓ | ✓ | | | | | | | | | |
| 6 | Ex 6 | | 2020/05/25 | 17:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Bryn Gelowitz | 2020/05/26 | 08:00 | Jessica Lee | 20200526 | 08:55 | C035161 |

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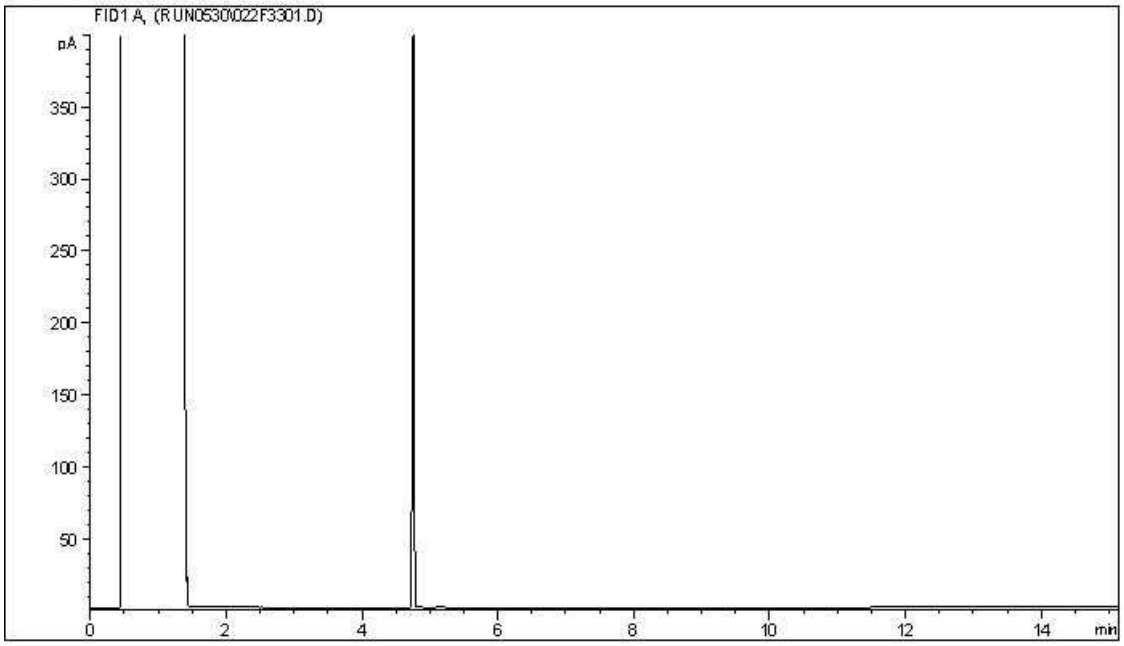
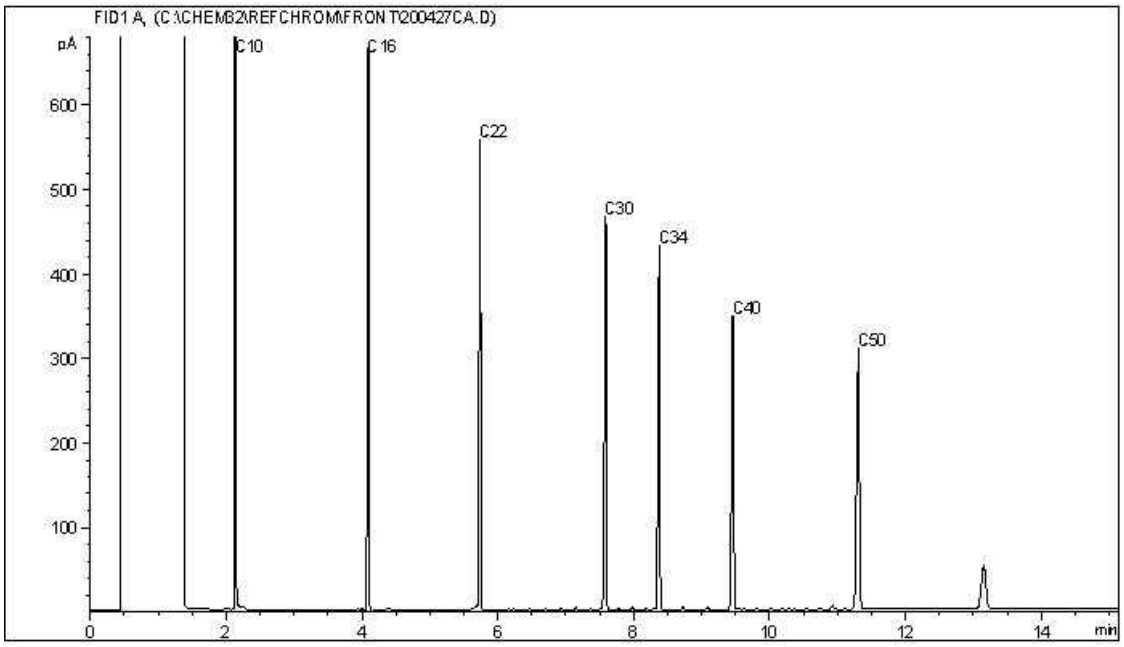
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



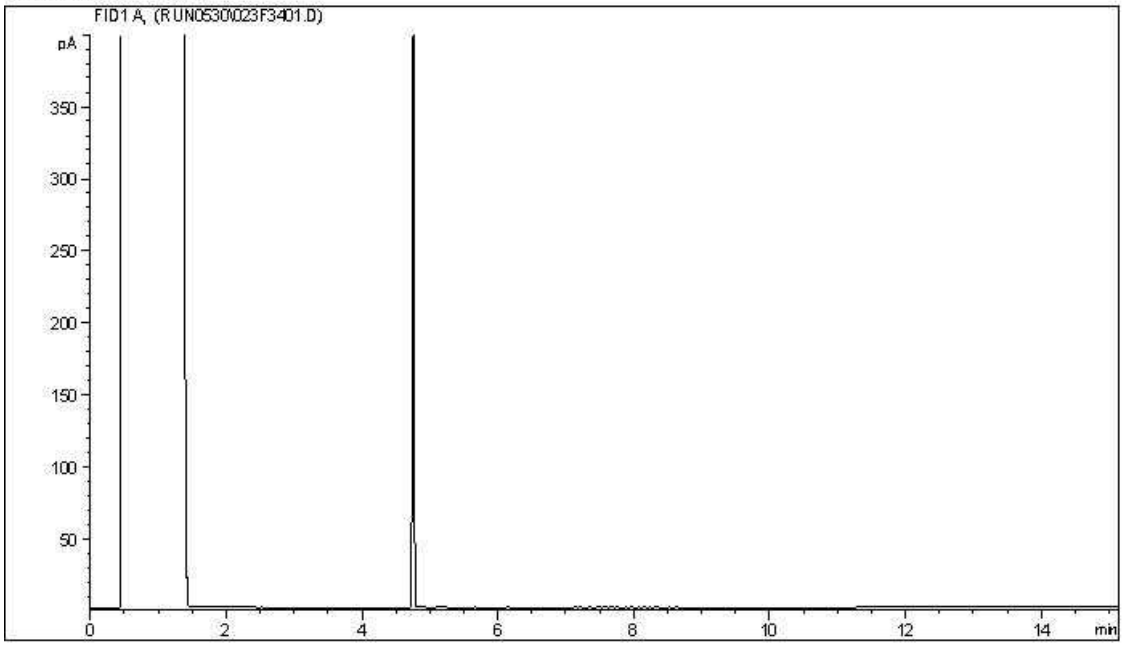

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

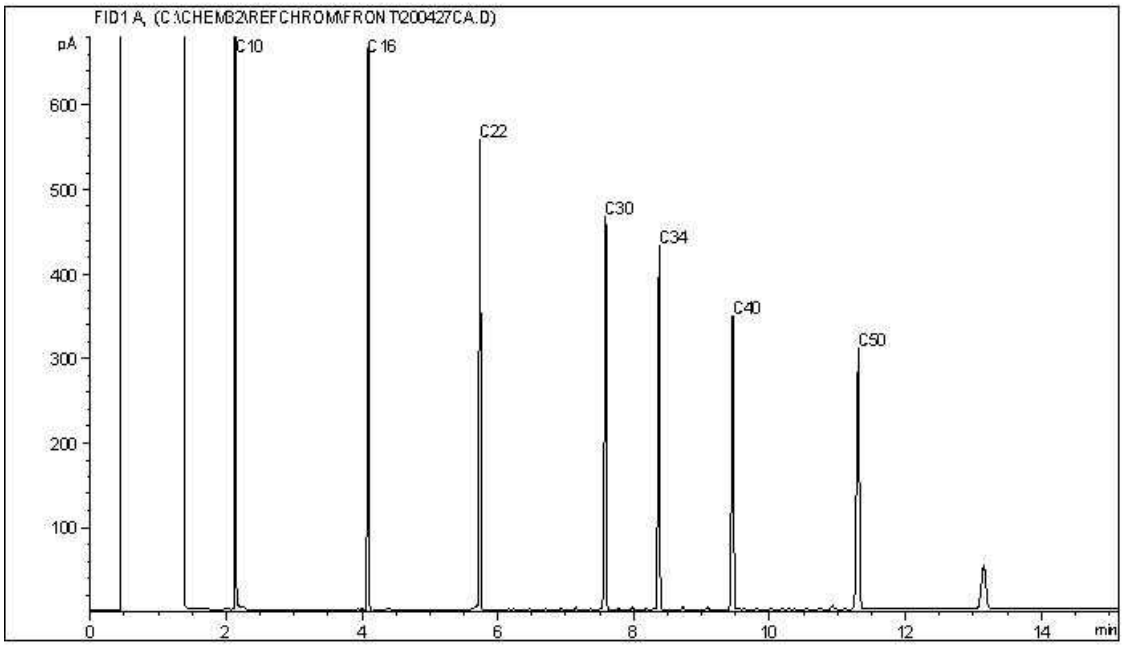
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
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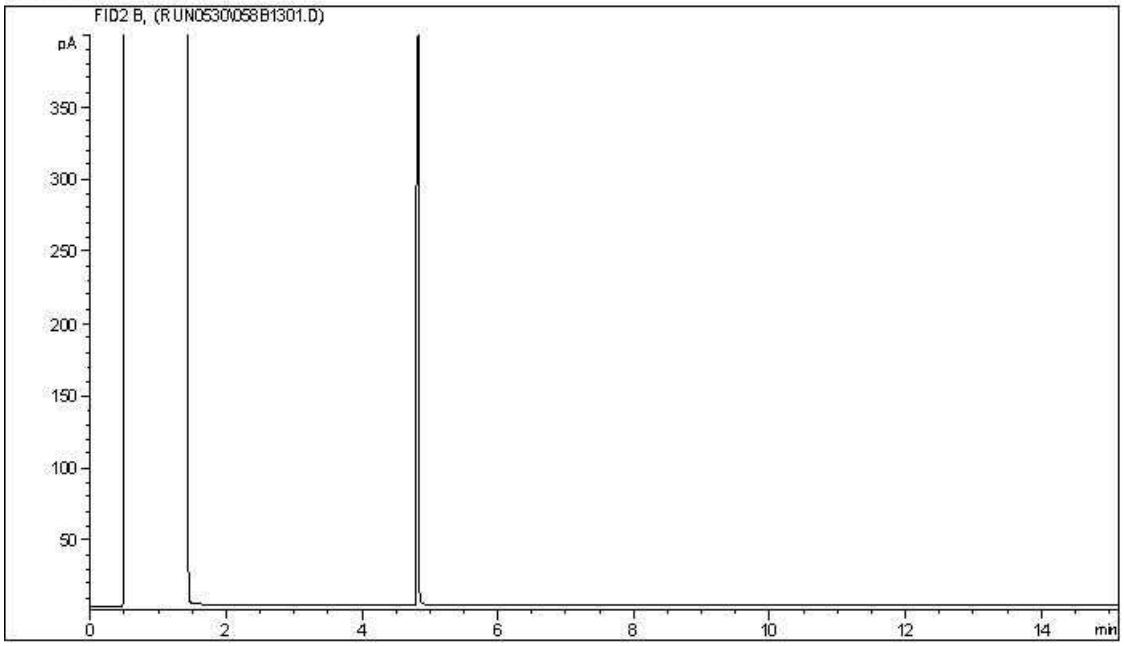
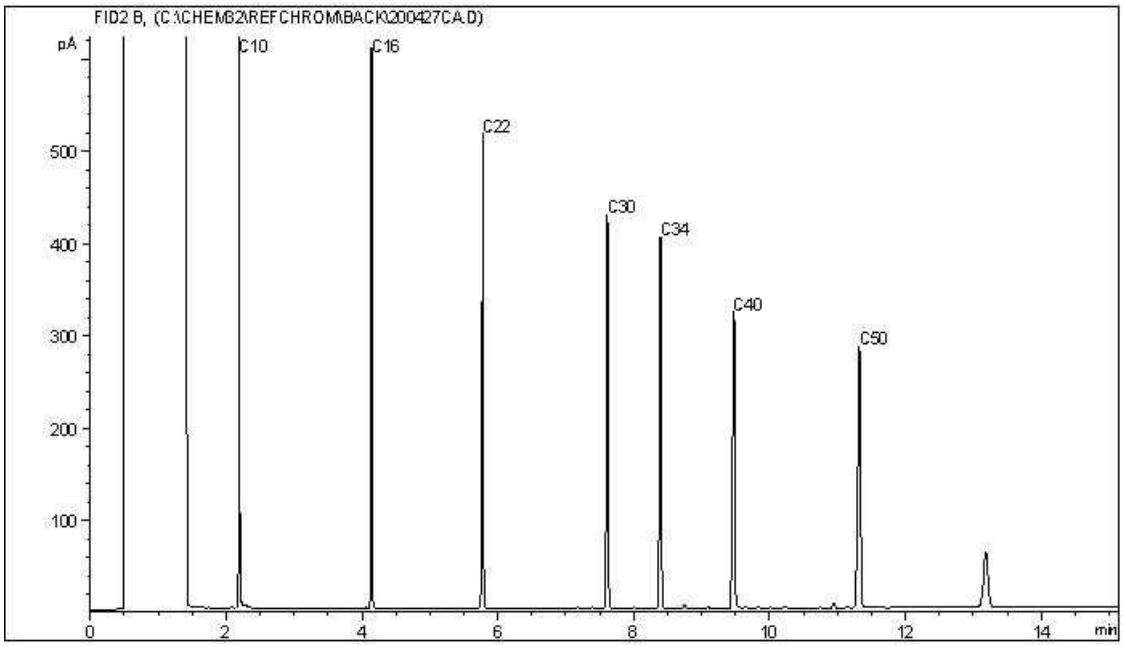
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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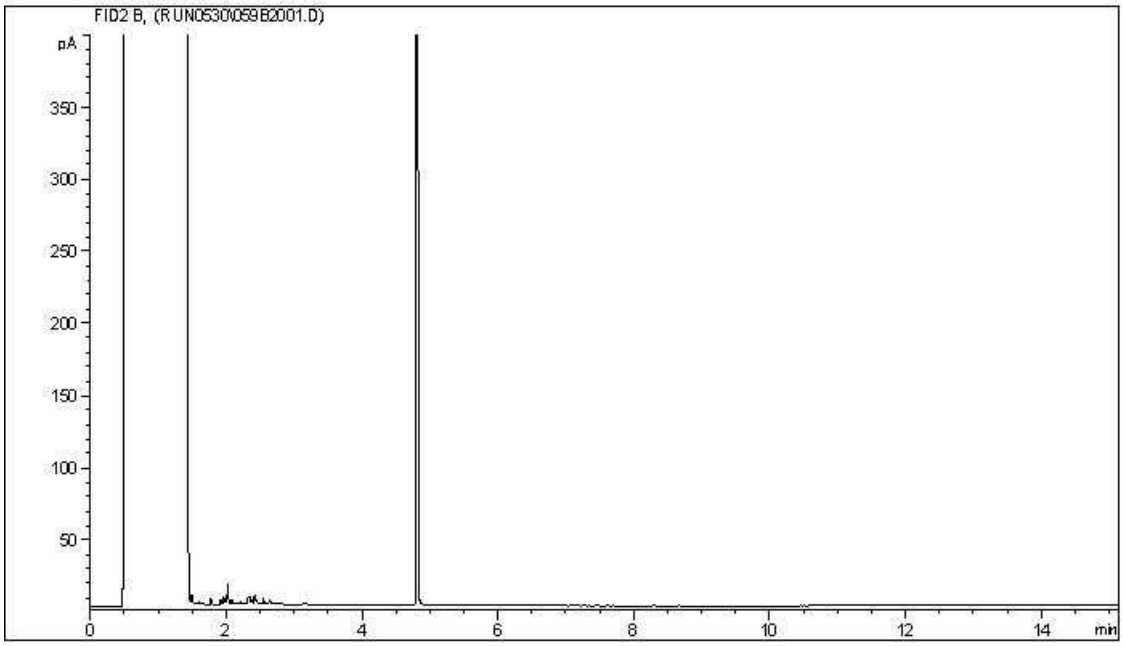
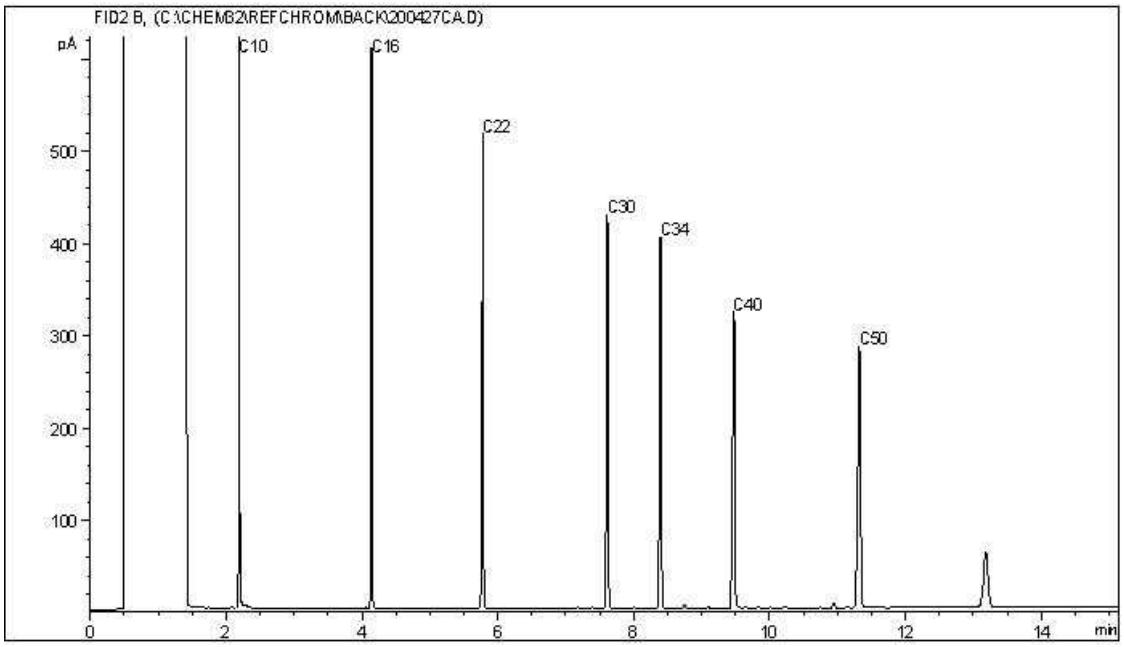
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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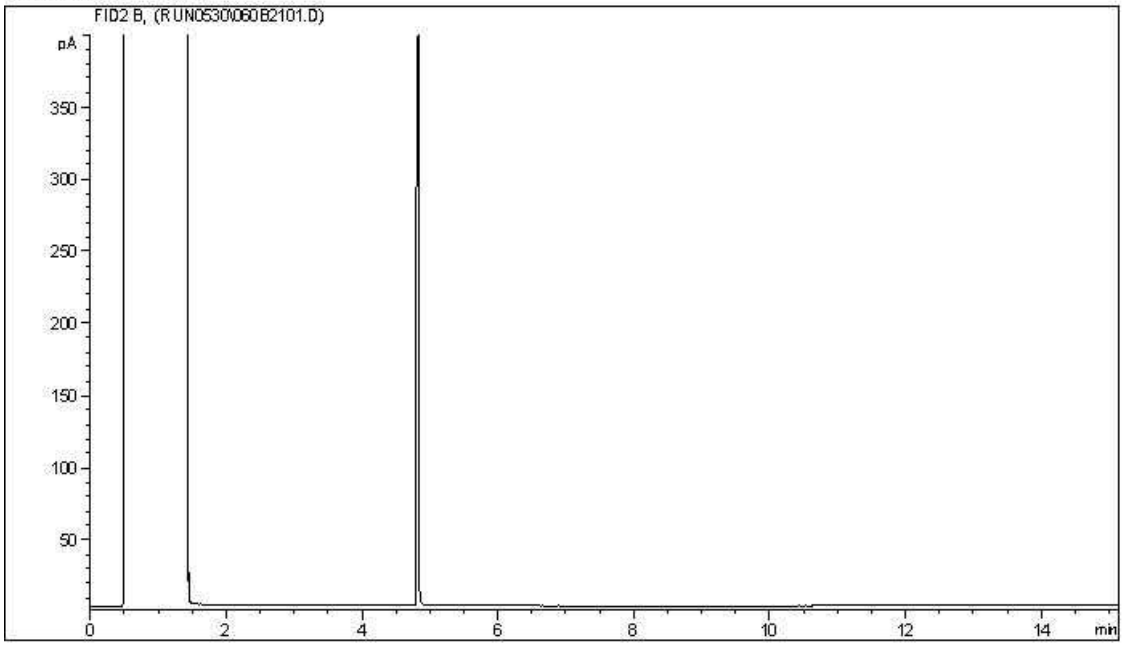
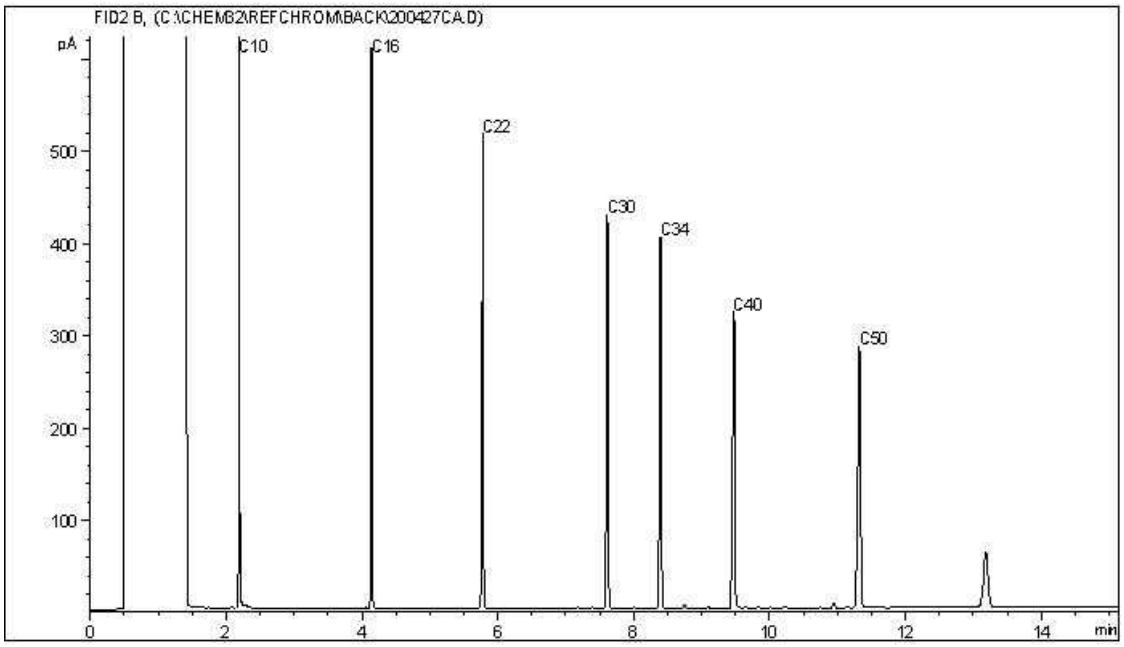
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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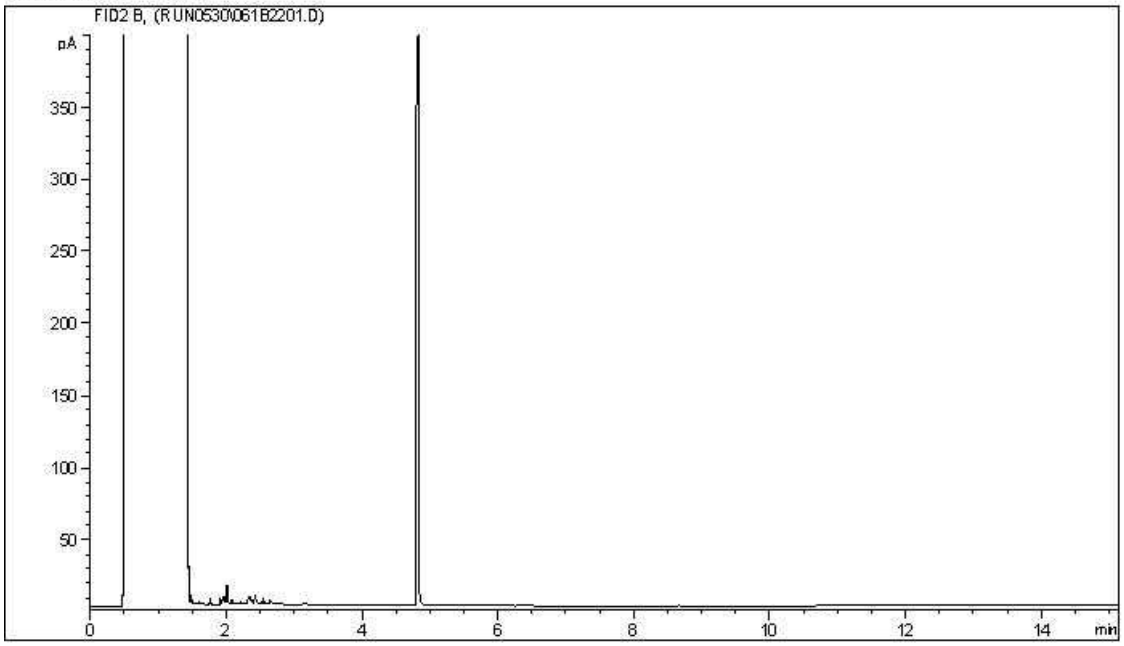
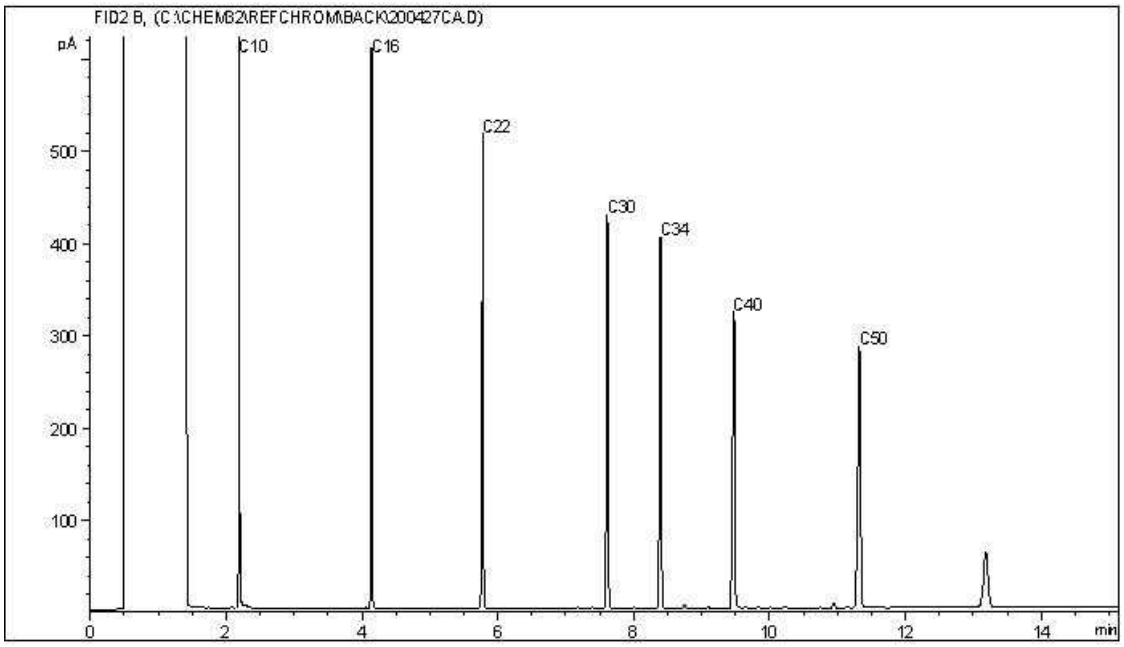
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

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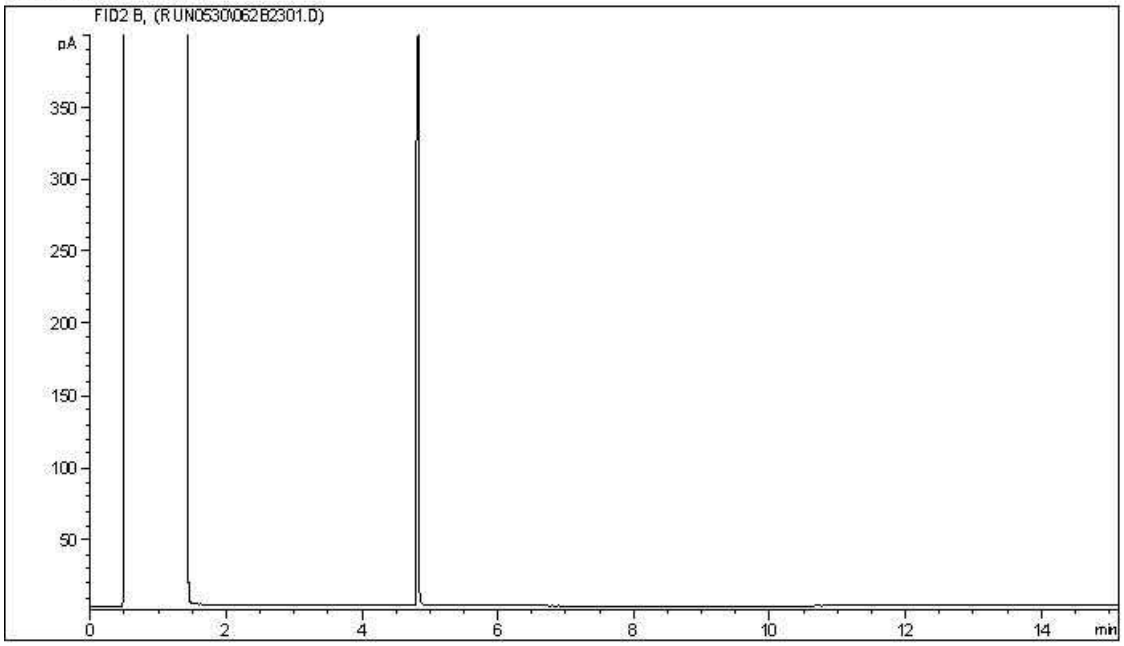
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9229

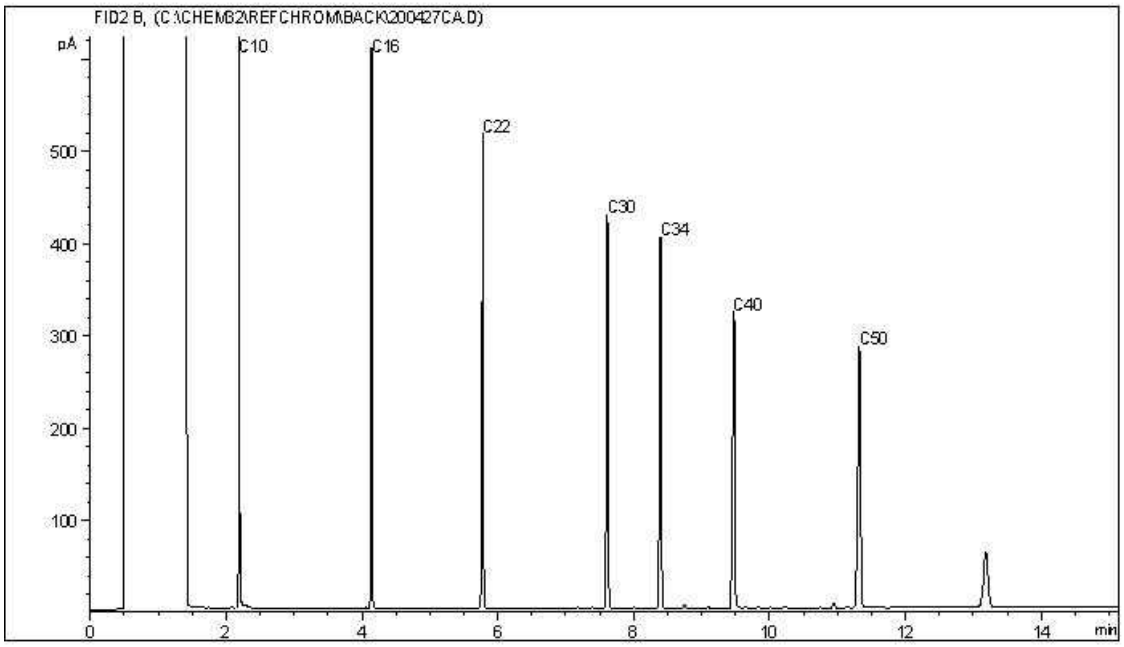
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: HYDRA4

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



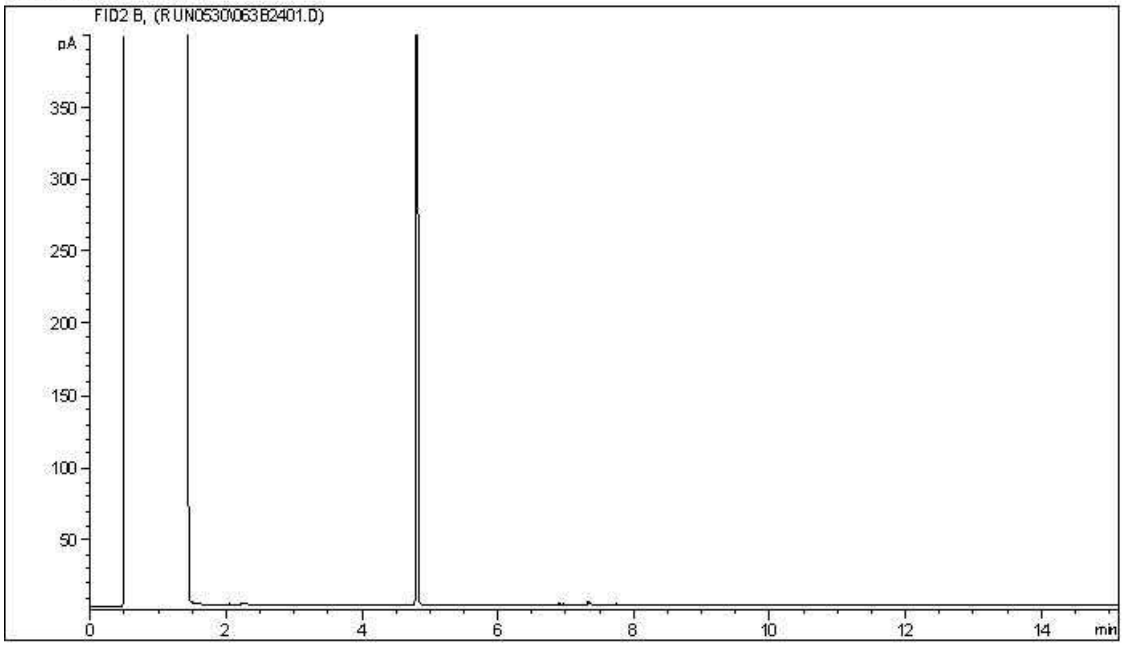

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

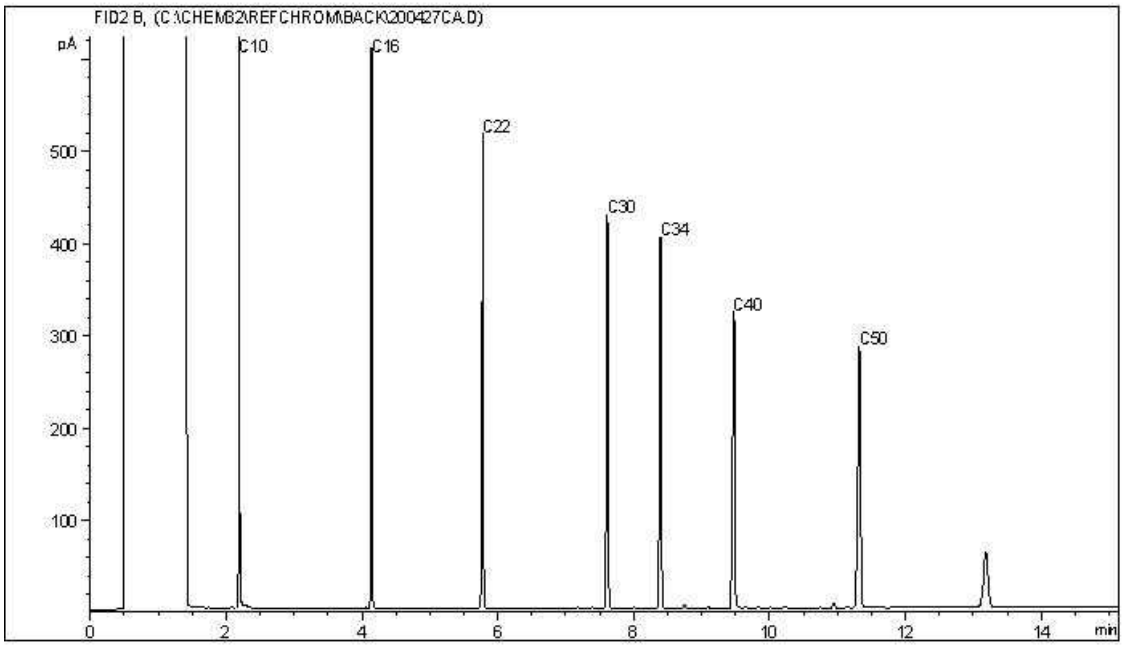
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



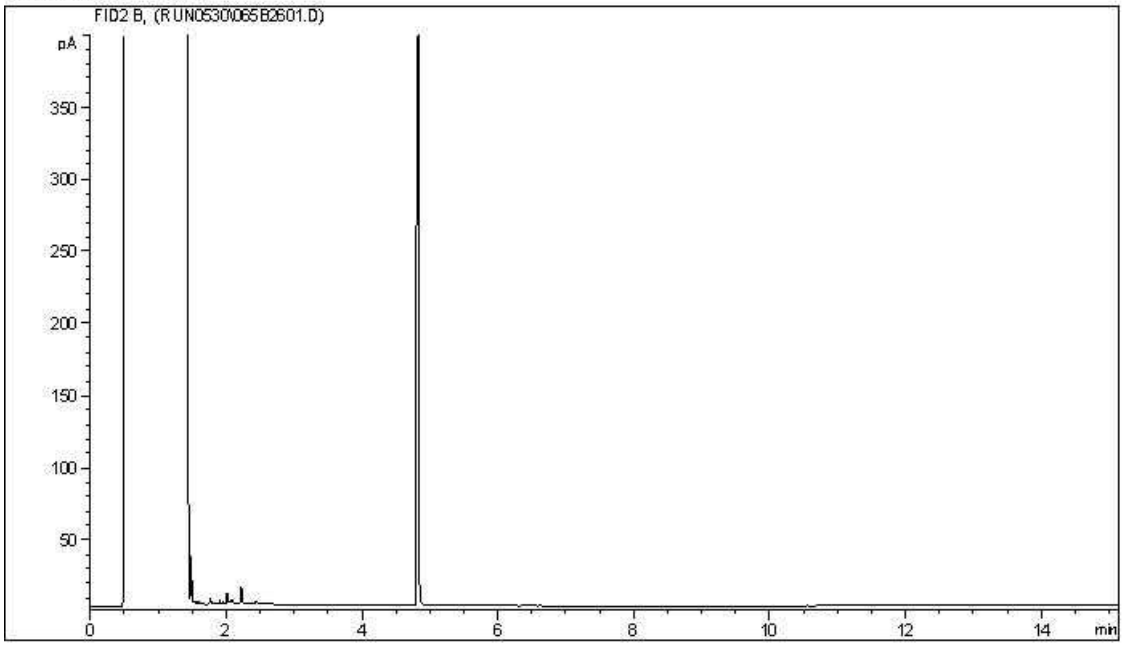

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

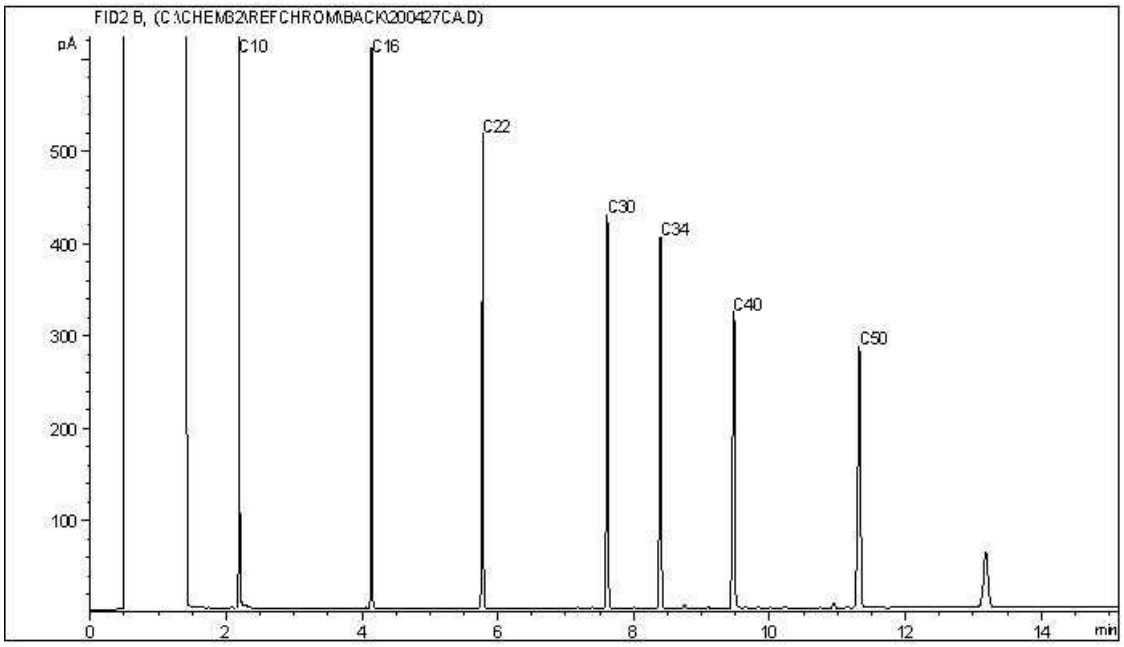
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

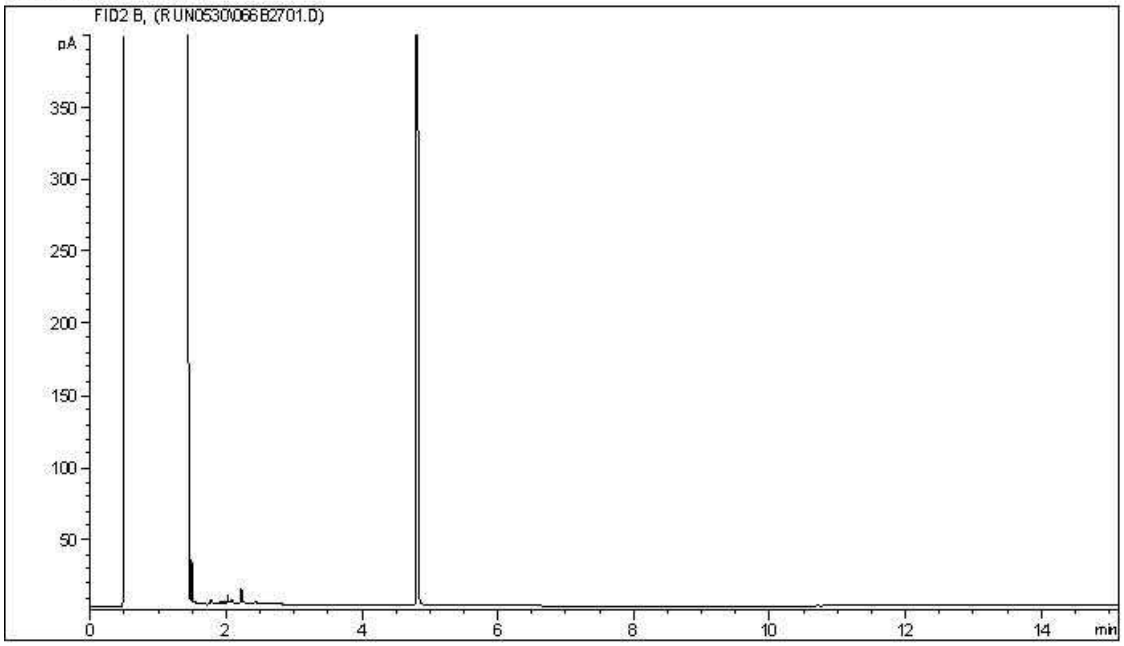
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9232

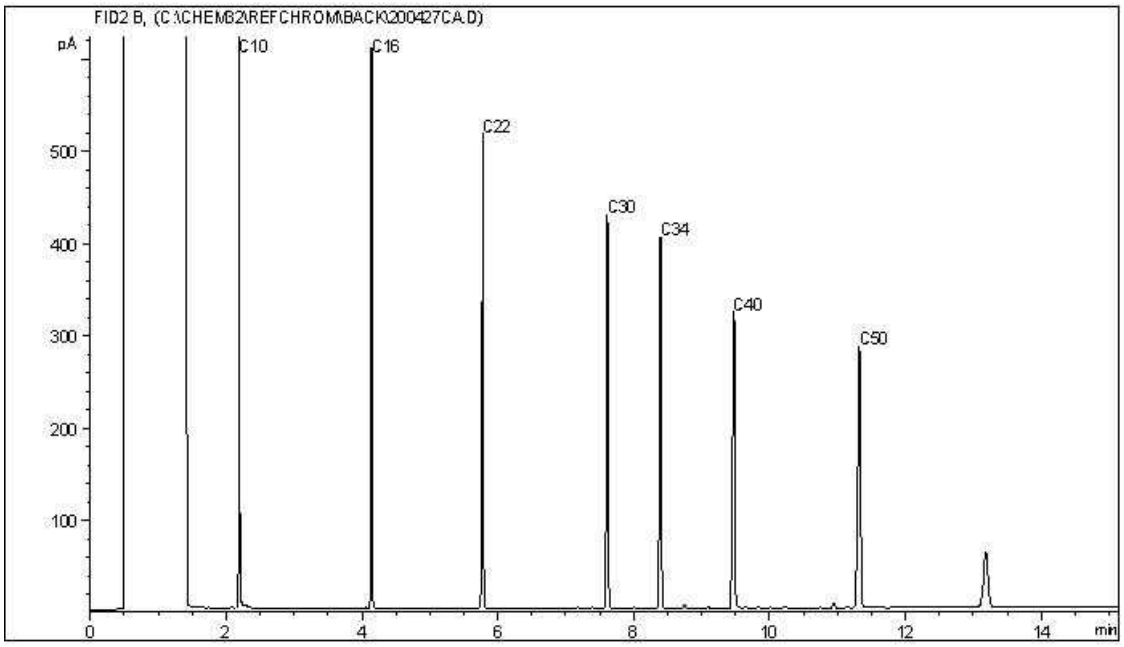
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 510A

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

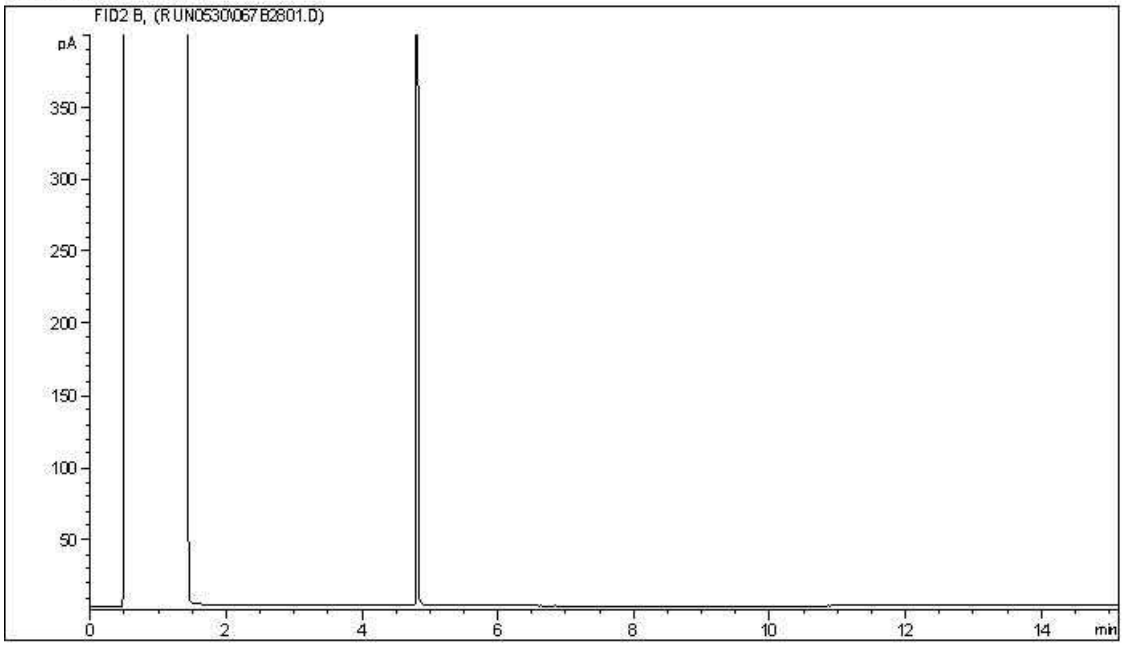
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9233

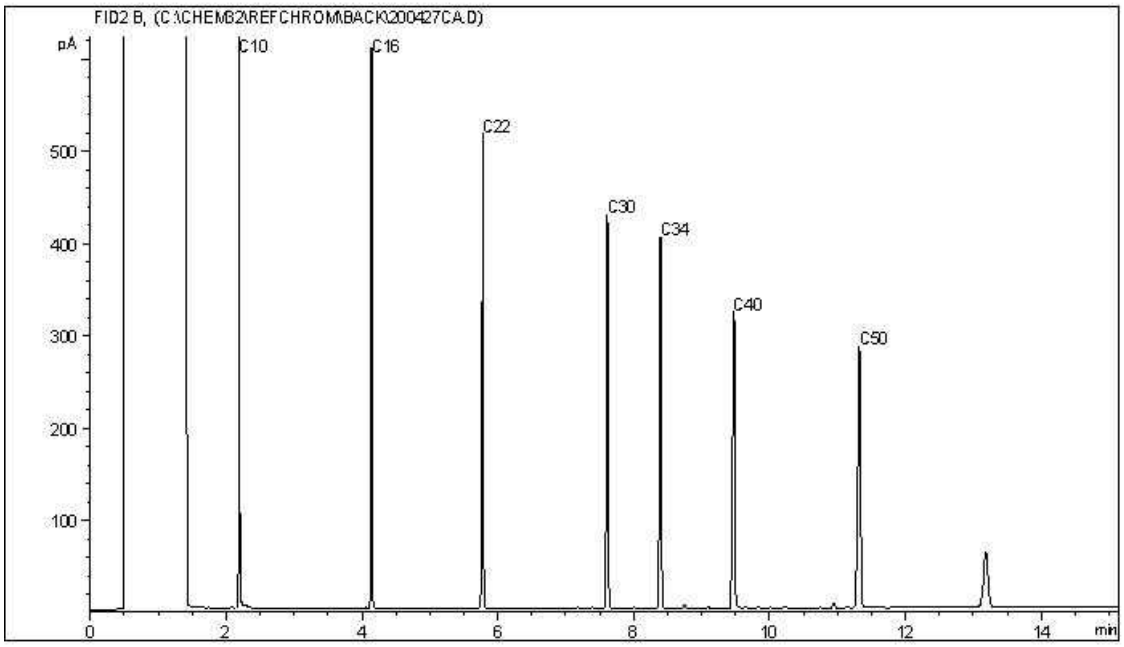
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1950A

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

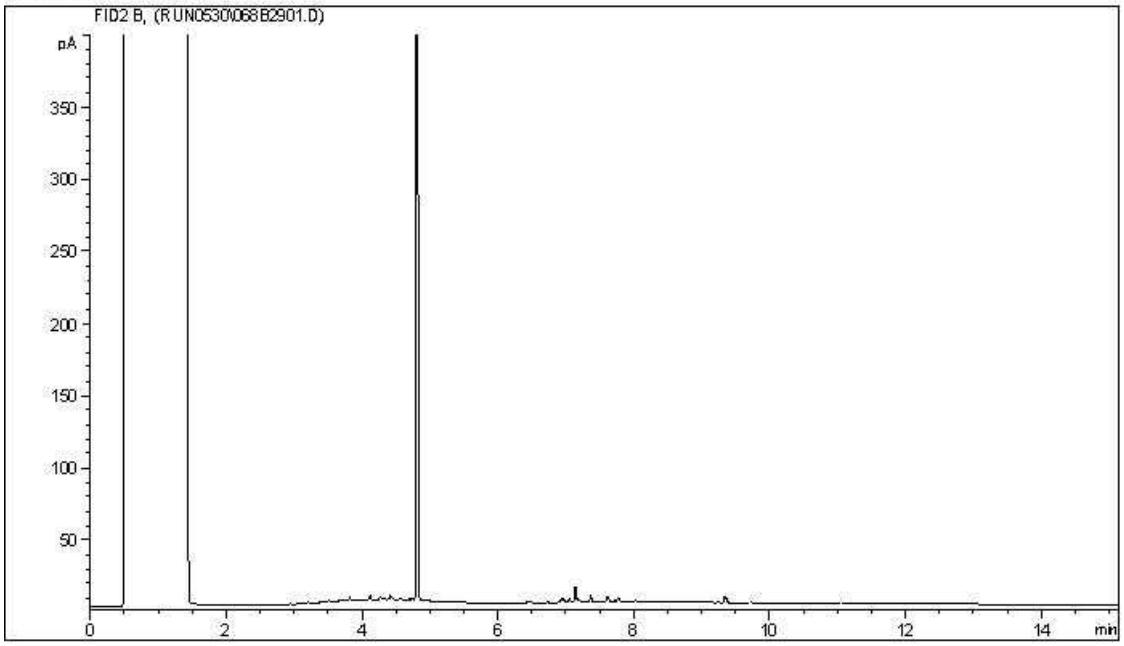
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9234

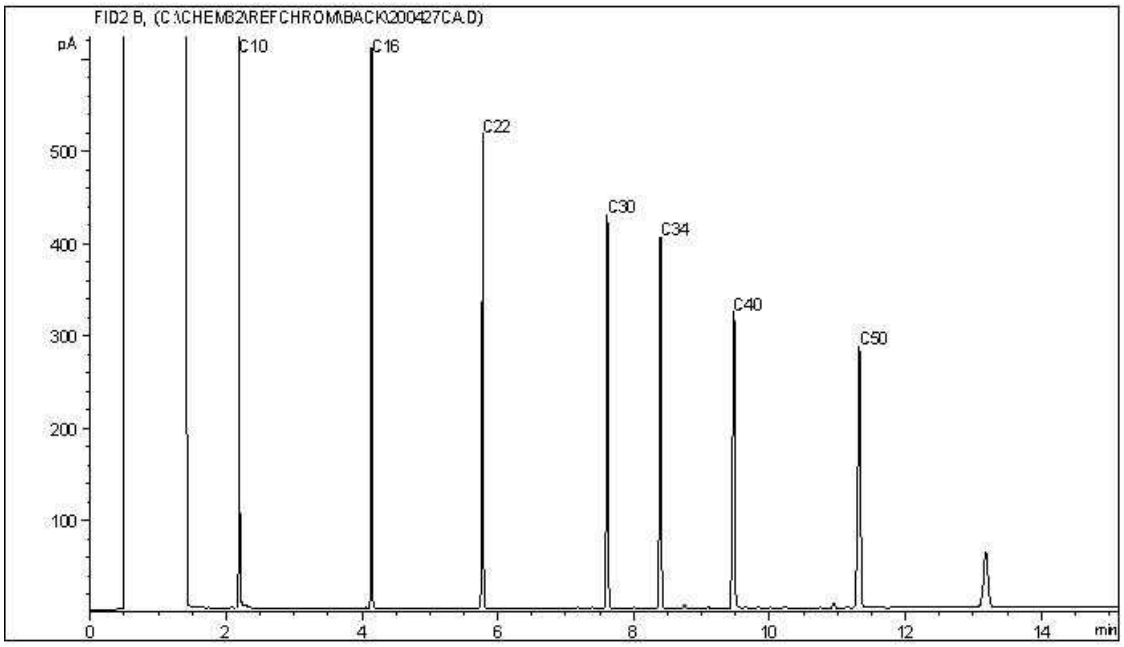
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: EX3

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



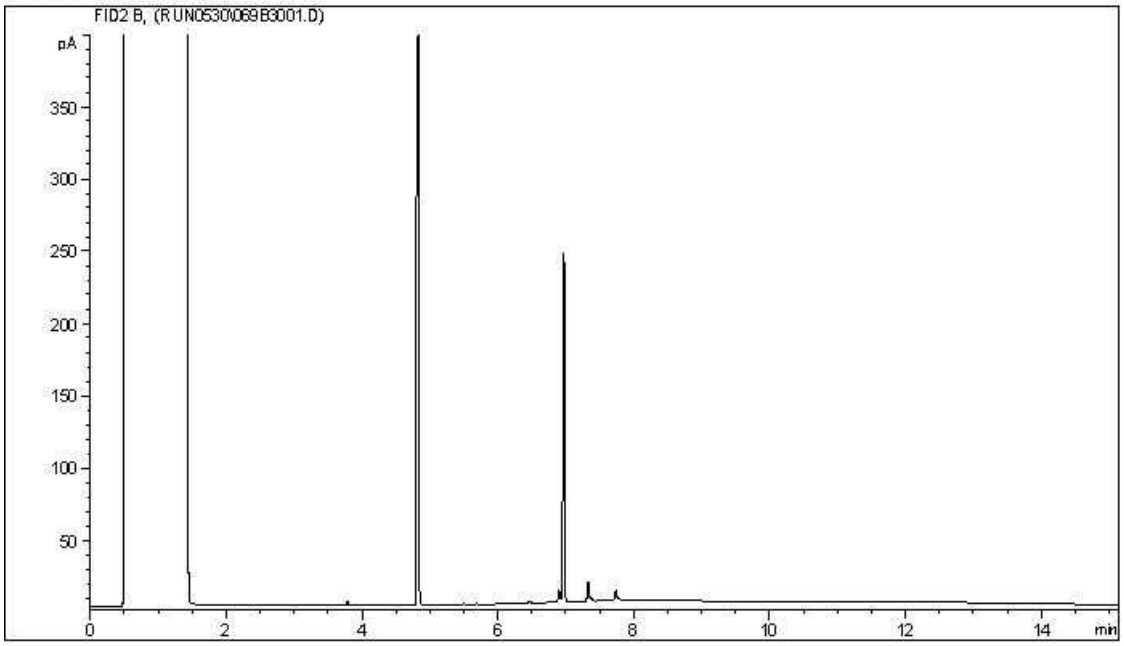

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

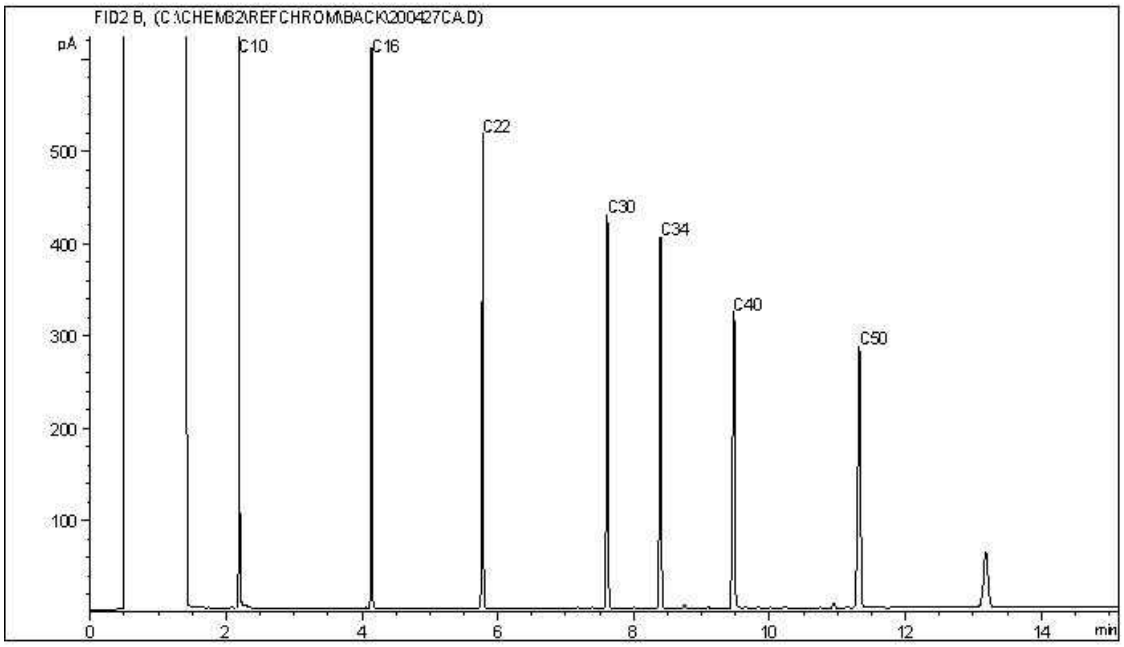
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

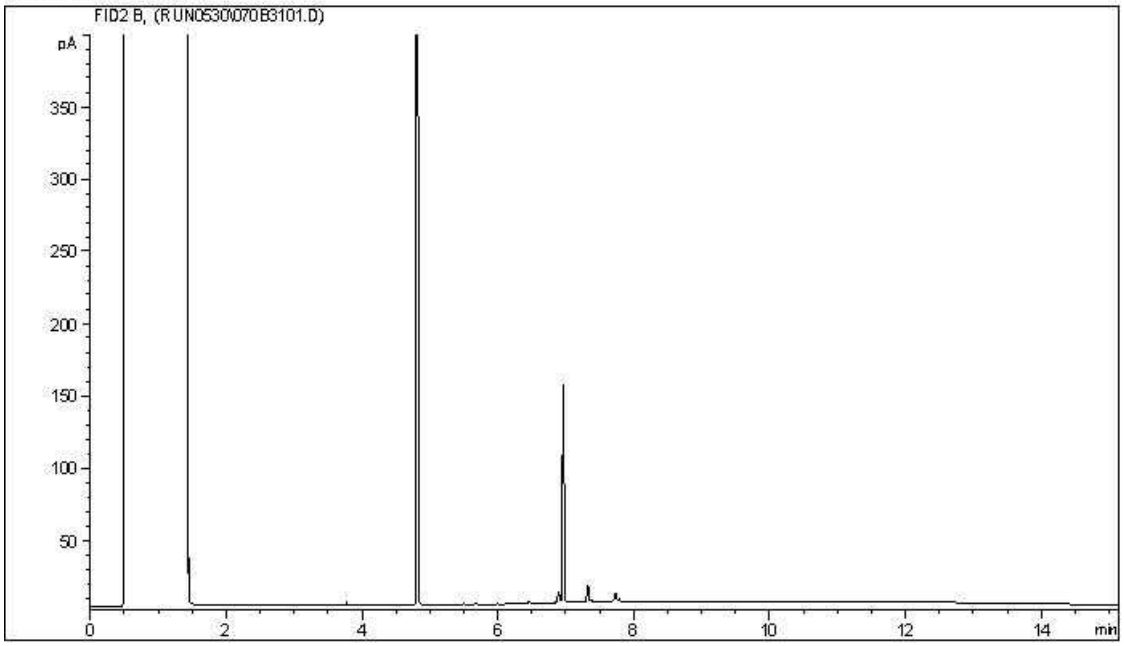
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9236

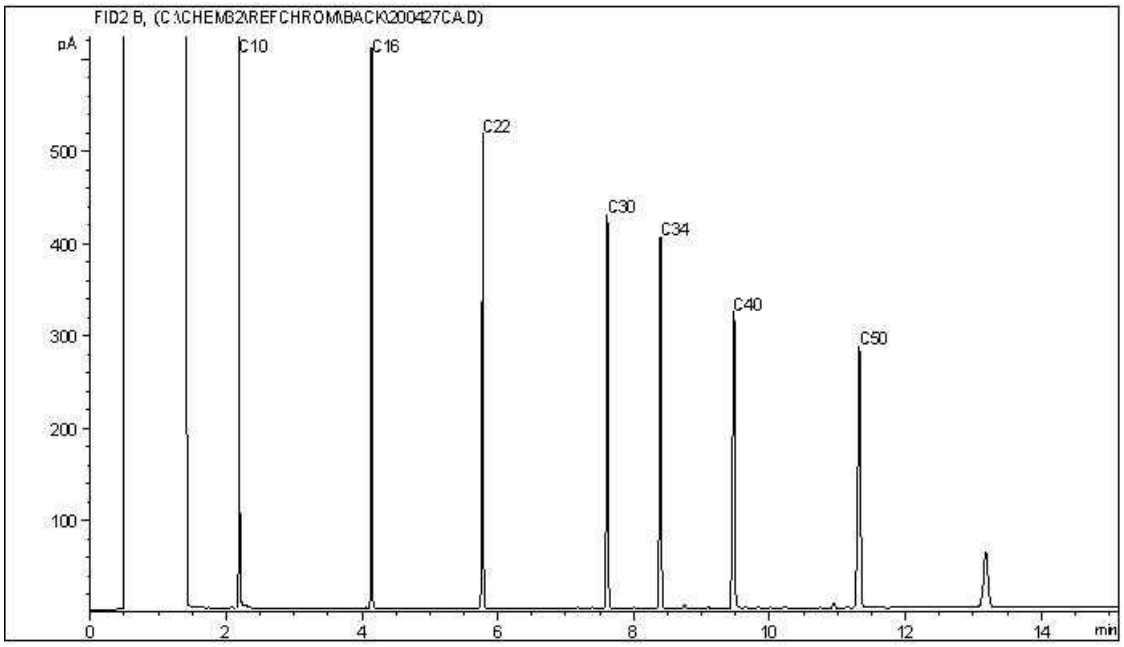
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: EX91

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

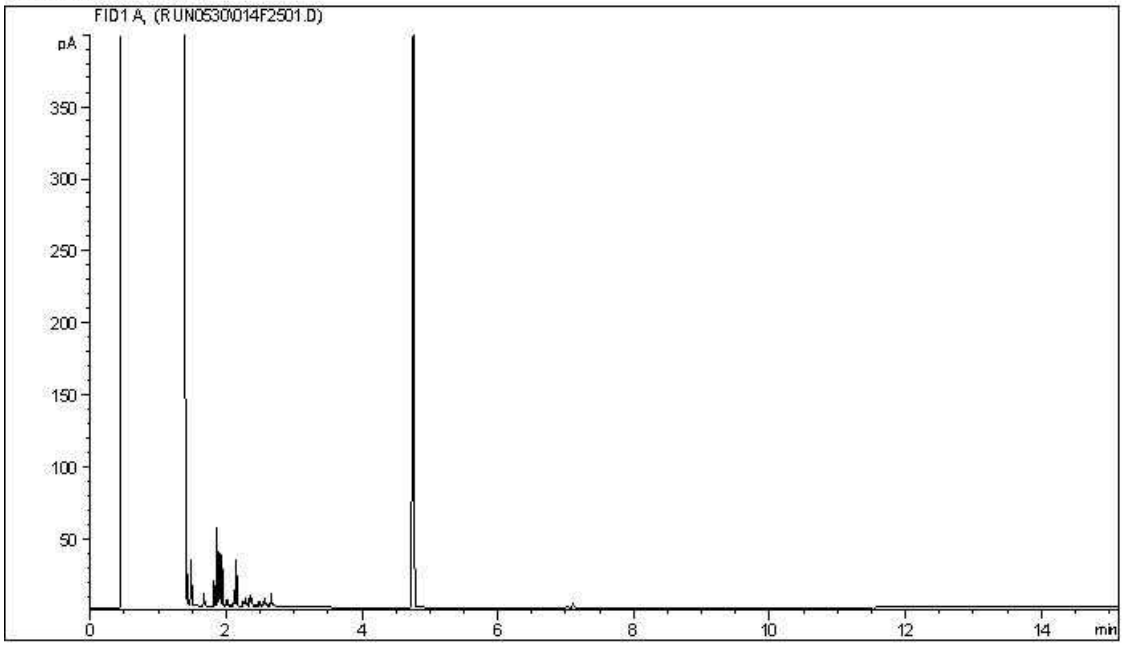
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9238

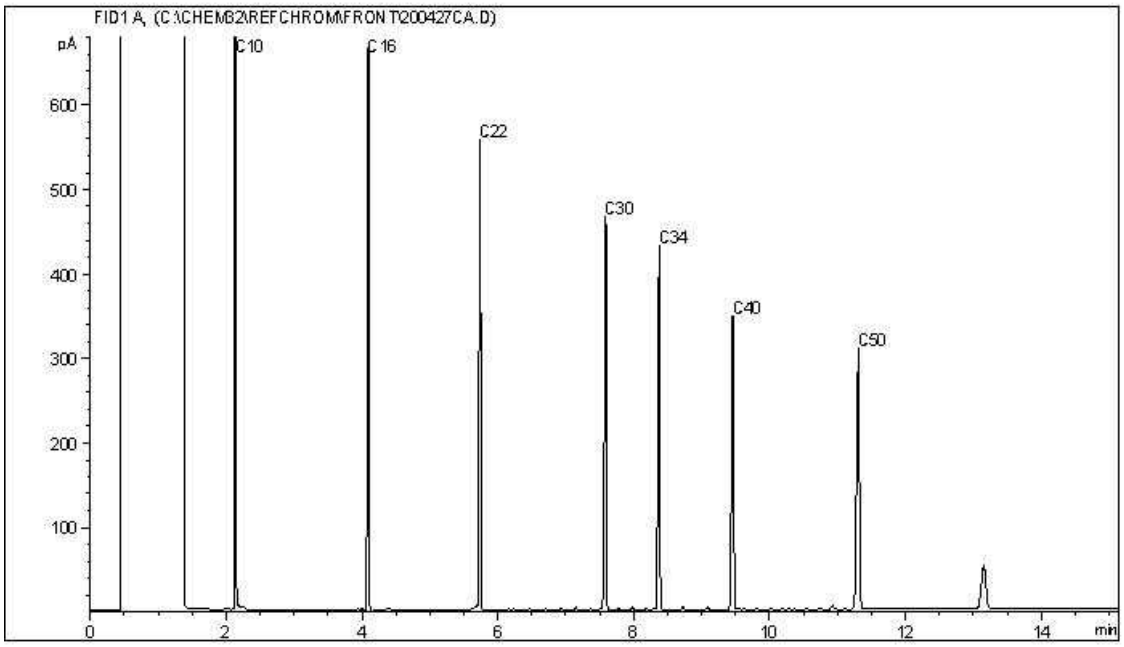
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: EX6

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

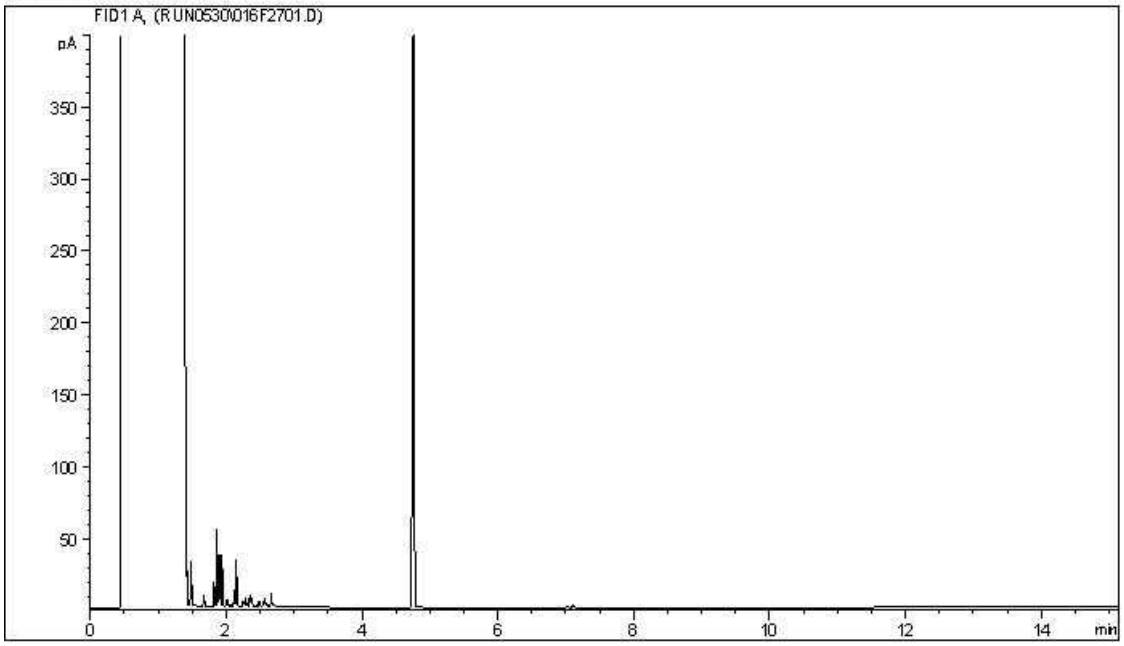
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035161
Report Date: 2020/06/01
BV Labs Sample: XU9238 Lab-Dup

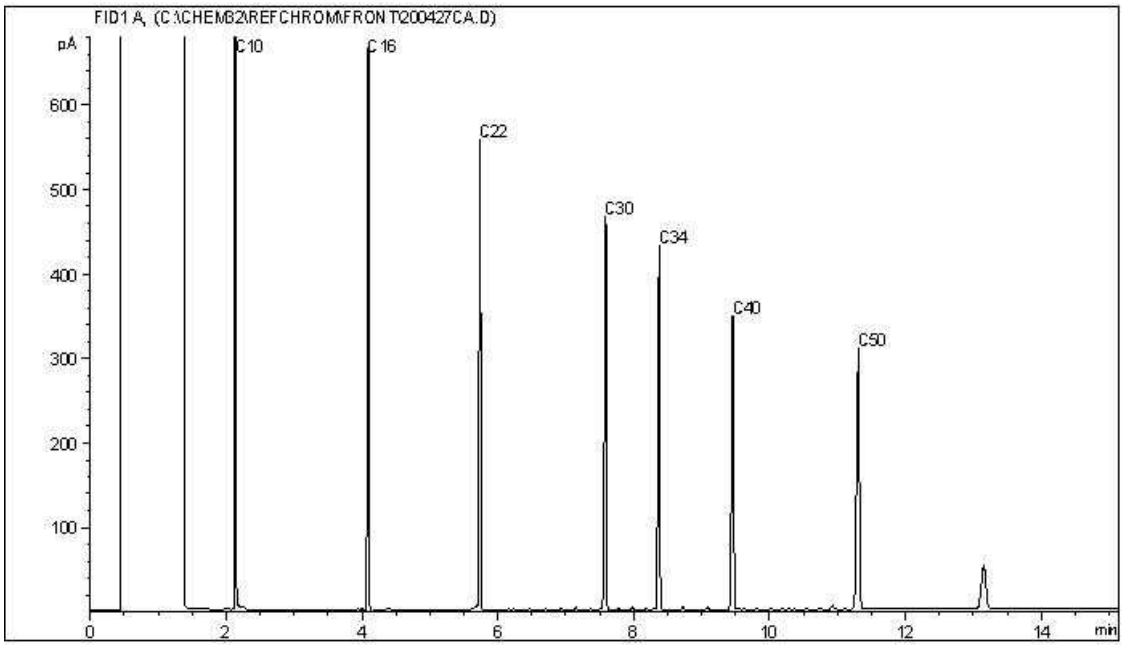
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: EX6

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M060241

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/10**
Report #: R2888746
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037882**
**Received: 2020/06/03, 14:00**

Sample Matrix: Ground Water
# Samples Received: 9

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/06/08 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 9 | N/A | 2020/06/10 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 9 | N/A | 2020/06/10 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 1 | N/A | 2020/06/09 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 1 | N/A | 2020/06/08 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 8 | 2020/06/09 | 2020/06/09 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 1 | 2020/06/09 | 2020/06/10 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 1 | N/A | 2020/06/10 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 1 | N/A | 2020/06/09 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 1 | N/A | 2020/06/10 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/06/10 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/06/09 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/06/09 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/06/07 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 1 | N/A | 2020/06/08 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 1 | N/A | 2020/06/10 | | Auto Calc |
| Total Trihalomethanes Calculation | 9 | N/A | 2020/06/10 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 8 | N/A | 2020/06/09 | AB SOP-00056 | EPA 5021a/8260d m |
| VOCs in Water by HS GC/MS (Std List) | 1 | N/A | 2020/06/10 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M060241

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/10**
Report #: R2888746
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037882**
**Received: 2020/06/03, 14:00**

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (GROUND WATER)

| **BV Labs ID** | | XW2898 | XW2898 | XW2899 | XW2900 | XW2901 | XW2902 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 10:00 | 2020/06/03 10:00 | 2020/06/03 11:00 | 2020/06/03 12:00 | 2020/06/03 13:00 | 2020/06/03 09:00 | | |
| **COC Number** | | M060241 | M060241 | M060241 | M060241 | M060241 | M060241 | | |
| | **UNITS** | **732** | **732 Lab-Dup** | **1942** | **1961** | **1963** | **1956** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9875823 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9878409 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9878409 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9878409 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9878409 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9878409 |
| Xylenes (Total) | mg/L | <0.00089 | N/A | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9875456 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9875456 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9878409 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 98 | 97 | 98 | 98 | 98 | N/A | 9878409 |
| 4-Bromofluorobenzene (sur.) | % | 98 | 97 | 96 | 95 | 97 | 94 | N/A | 9878409 |
| D4-1,2-Dichloroethane (sur.) | % | 85 | 86 | 86 | 84 | 86 | 85 | N/A | 9878409 |
| O-TERPHENYL (sur.) | % | 104 | N/A | 104 | 104 | 108 | 108 | N/A | 9875823 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (GROUND WATER)

| **BV Labs ID** | | XW2922 | XW2903 | XW2904 | XW2905 | | |
|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 11:00 | 2020/06/03 12:15 | 2020/06/03 10:00 | 2020/06/03 10:00 | | |
| **COC Number** | | M060241 | M060241 | M060241 | M060241 | | |
| | **UNITS** | **1952** | **1911** | **1921** | **9921** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | 0.10 | 0.12 | 0.10 | 9875823 |
| **Volatiles** | | | | | | | |
| Benzene | mg/L | <0.00040 | 0.0057 | 0.024 | 0.025 | 0.00040 | 9878409 |
| Toluene | mg/L | <0.00040 | <0.00040 | 0.0052 | 0.0054 | 0.00040 | 9878409 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | 0.027 | 0.028 | 0.00040 | 9878409 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | 0.0021 | 0.0023 | 0.00080 | 9878409 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | 0.0011 | 0.0011 | 0.00040 | 9878409 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | 0.0031 | 0.0033 | 0.00089 | 9875456 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | 0.78 | 0.68 | 0.10 | 9875456 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | 0.84 | 0.74 | 0.10 | 9878409 |
| **Surrogate Recovery (%)** | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 99 | 99 | 99 | N/A | 9878409 |
| 4-Bromofluorobenzene (sur.) | % | 95 | 96 | 95 | 96 | N/A | 9878409 |
| D4-1,2-Dichloroethane (sur.) | % | 84 | 84 | 89 | 87 | N/A | 9878409 |
| O-TERPHENYL (sur.) | % | 105 | 108 | 105 | 108 | N/A | 9875823 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (GROUND WATER)

| **BV Labs ID** | | XW2902 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 09:00 | | |
| **COC Number** | | M060241 | | |
| | **UNITS** | **1956** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 14 | N/A | 9875709 |
| Cation Sum | meq/L | 14 | N/A | 9875709 |
| Hardness (CaCO3) | mg/L | 590 | 0.50 | 9875477 |
| Ion Balance (% Difference) | % | 1.3 | N/A | 9875458 |
| Dissolved Nitrate (NO3) | mg/L | 77 | 0.22 | 9875685 |
| Nitrate plus Nitrite (N) | mg/L | 18 | 0.051 | 9875686 |
| Dissolved Nitrite (NO2) | mg/L | 0.30 | 0.033 | 9875685 |
| Calculated Total Dissolved Solids | mg/L | 760 | 10 | 9875718 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 1400 | 2.0 | 9877482 |
| pH | pH | 7.56 | N/A | 9877481 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9877479 |
| Alkalinity (Total as CaCO3) | mg/L | 480 | 1.0 | 9877479 |
| Bicarbonate (HCO3) | mg/L | 590 | 1.0 | 9877479 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9877479 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9877479 |
| Dissolved Chloride (Cl) | mg/L | 94 | 1.0 | 9878205 |
| Dissolved Sulphate (SO4) | mg/L | 43 | 1.0 | 9878205 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | 0.092 | 0.010 | 9876728 |
| Dissolved Nitrate (N) | mg/L | 17 (1) | 0.050 | 9876728 |
| **Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 140 | 0.30 | 9878675 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9878675 |
| Dissolved Magnesium (Mg) | mg/L | 60 | 0.20 | 9878675 |
| Dissolved Manganese (Mn) | mg/L | <0.0040 | 0.0040 | 9878675 |
| Dissolved Potassium (K) | mg/L | 5.6 | 0.30 | 9878675 |
| Dissolved Sodium (Na) | mg/L | 48 | 0.50 | 9878675 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.


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BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (GROUND WATER)

| **BV Labs ID** | | XW2898 | XW2898 | XW2899 | XW2900 | XW2901 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 10:00 | 2020/06/03 10:00 | 2020/06/03 11:00 | 2020/06/03 12:00 | 2020/06/03 13:00 | | |
| **COC Number** | | M060241 | M060241 | M060241 | M060241 | M060241 | | |
| | **UNITS** | **732** | **732 Lab-Dup** | **1942** | **1961** | **1963** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | 0.017 | N/A | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9875114 |
| Bromodichloromethane | mg/L | 0.0012 | 0.0013 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| Chloroform | mg/L | 0.016 | 0.016 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9878415 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (GROUND WATER)

| **BV Labs ID** | | XW2898 | XW2898 | XW2899 | XW2900 | XW2901 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 10:00 | 2020/06/03 10:00 | 2020/06/03 11:00 | 2020/06/03 12:00 | 2020/06/03 13:00 | | |
| **COC Number** | | M060241 | M060241 | M060241 | M060241 | M060241 | | |
| | **UNITS** | **732** | **732 Lab-Dup** | **1942** | **1961** | **1963** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 103 | 105 | 104 | 104 | N/A | 9878415 |
| 4-Bromofluorobenzene (sur.) | % | 88 | 87 | 88 | 88 | 87 | N/A | 9878415 |
| D4-1,2-Dichloroethane (sur.) | % | 99 | 101 | 104 | 110 | 100 | N/A | 9878415 |

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BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (GROUND WATER)

| **BV Labs ID** | | XW2902 | XW2922 | XW2903 | XW2904 | XW2905 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 09:00 | 2020/06/03 11:00 | 2020/06/03 12:15 | 2020/06/03 10:00 | 2020/06/03 10:00 | | |
| **COC Number** | | M060241 | M060241 | M060241 | M060241 | M060241 | | |
| | **UNITS** | **1956** | **1952** | **1911** | **1921** | **9921** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9875114 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9878415 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,2-dichloroethane | mg/L | 0.00062 | <0.00050 | 0.0028 | 0.058 | 0.056 | 0.00050 | 9878415 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9878415 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9878415 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (GROUND WATER)

| **BV Labs ID** | | XW2902 | XW2922 | XW2903 | XW2904 | XW2905 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/03 09:00 | 2020/06/03 11:00 | 2020/06/03 12:15 | 2020/06/03 10:00 | 2020/06/03 10:00 | | |
| **COC Number** | | M060241 | M060241 | M060241 | M060241 | M060241 | | |
| | **UNITS** | **1956** | **1952** | **1911** | **1921** | **9921** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00074 | 0.00073 | 0.00050 | 9878415 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9878415 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 103 | 104 | 104 | 104 | N/A | 9878415 |
| 4-Bromofluorobenzene (sur.) | % | 87 | 87 | 89 | 89 | 88 | N/A | 9878415 |
| D4-1,2-Dichloroethane (sur.) | % | 104 | 101 | 106 | 107 | 104 | N/A | 9878415 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 4.3°C |

Sample XW2902 [1956] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**Results relate only to the items tested.**



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BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9875823 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/06/09 | | 104 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/09 | | 93 | % | 60 - 140 |
| 9875823 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/09 | | 104 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/09 | | 87 | % | 60 - 140 |
| 9875823 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/09 | | 105 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/09 | <0.10 | | mg/L | |
| 9875823 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/09 | 2.6 | | % | 30 |
| 9876728 | KD9 | Matrix Spike | Dissolved Nitrite (N) | 2020/06/07 | | 103 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/07 | | 102 | % | 80 - 120 |
| 9876728 | KD9 | Spiked Blank | Dissolved Nitrite (N) | 2020/06/07 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/07 | | 102 | % | 80 - 120 |
| 9876728 | KD9 | Method Blank | Dissolved Nitrite (N) | 2020/06/07 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/07 | <0.010 | | mg/L | |
| 9876728 | KD9 | RPD | Dissolved Nitrite (N) | 2020/06/07 | 3.6 | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/07 | 2.7 | | % | 20 |
| 9877479 | CT6 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/08 | | 93 | % | 80 - 120 |
| 9877479 | CT6 | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/08 | <1.0 | | mg/L | |
| 9877479 | CT6 | RPD | Alkalinity (PP as CaCO3) | 2020/06/08 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/06/08 | 4.8 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/06/08 | 4.8 | | % | 20 |
| | | | Carbonate (CO3) | 2020/06/08 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/06/08 | NC | | % | 20 |
| 9877481 | CT6 | Spiked Blank | pH | 2020/06/08 | | 100 | % | 97 - 103 |
| 9877481 | CT6 | RPD | pH | 2020/06/08 | 0.31 | | % | N/A |
| 9877482 | CT6 | Spiked Blank | Conductivity | 2020/06/09 | | 102 | % | 90 - 110 |
| 9877482 | CT6 | Method Blank | Conductivity | 2020/06/09 | <2.0 | | uS/cm | |
| 9877482 | CT6 | RPD | Conductivity | 2020/06/08 | 0.39 | | % | 10 |
| 9878205 | STI | Matrix Spike | Dissolved Chloride (Cl) | 2020/06/09 | | 97 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | | NC | % | 80 - 120 |
| 9878205 | STI | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | | 108 | % | 80 - 120 |
| 9878205 | STI | Method Blank | Dissolved Chloride (Cl) | 2020/06/09 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | <1.0 | | mg/L | |
| 9878205 | STI | RPD | Dissolved Chloride (Cl) | 2020/06/09 | 1.9 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | 1.3 | | % | 20 |
| 9878409 | DO1 | Matrix Spike [XW2899-02] | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 83 | % | 50 - 140 |
| | | | Benzene | 2020/06/09 | | 76 | % | 50 - 140 |
| | | | Toluene | 2020/06/09 | | 77 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/09 | | 80 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/09 | | 81 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/09 | | 81 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/09 | | 71 | % | 60 - 140 |
| 9878409 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 99 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 84 | % | 50 - 140 |
| | | | Benzene | 2020/06/09 | | 73 | % | 60 - 130 |
| | | | Toluene | 2020/06/09 | | 74 | % | 60 - 130 |



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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Ethylbenzene | 2020/06/09 | | 77 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/09 | | 78 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/09 | | 78 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/09 | | 78 | % | 60 - 140 |
| 9878409 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/10 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/10 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/10 | | 86 | % | 50 - 140 |
| | | | Benzene | 2020/06/10 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/10 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/10 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/10 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/10 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/10 | <0.10 | | mg/L | |
| 9878409 | DO1 | RPD [XW2898-02] | Benzene | 2020/06/10 | NC | | % | 30 |
| | | | Toluene | 2020/06/10 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/10 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/06/10 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/10 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/10 | NC | | % | 30 |
| 9878415 | GP4 | Matrix Spike [XW2901-02] | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 108 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 117 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/09 | | 95 | % | 50 - 140 |
| | | | Bromoform | 2020/06/09 | | 107 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/09 | | 73 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/09 | | 89 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/09 | | 89 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/09 | | 105 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/09 | | 66 | % | 50 - 140 |
| | | | Chloroform | 2020/06/09 | | 83 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/09 | | 57 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/09 | | 88 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/09 | | 91 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/09 | | 86 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/09 | | 84 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/09 | | 78 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/09 | | 87 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/09 | | 74 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/09 | | 85 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/09 | | 70 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/09 | | 78 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/09 | | 82 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/09 | | 98 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/09 | | 112 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/09 | | 85 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | | 89 | % | 50 - 140 |
| | | | Styrene | 2020/06/09 | | 88 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | | 98 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | | 92 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/09 | | 83 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | | 92 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | | 87 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-trichloroethane | 2020/06/09 | | 89 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/09 | | 95 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/09 | | 91 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/09 | | 79 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | | 80 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | | 82 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/09 | | 58 | % | 50 - 140 |
| 9878415 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 109 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 110 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/09 | | 97 | % | 60 - 130 |
| | | | Bromoform | 2020/06/09 | | 104 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/09 | | 75 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/09 | | 96 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/09 | | 93 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/09 | | 105 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/09 | | 71 | % | 60 - 130 |
| | | | Chloroform | 2020/06/09 | | 86 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/09 | | 61 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/09 | | 85 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/09 | | 95 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/09 | | 91 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/09 | | 90 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/09 | | 82 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/09 | | 86 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/09 | | 81 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/09 | | 89 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/09 | | 74 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/09 | | 79 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/09 | | 84 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/09 | | 95 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/09 | | 108 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/09 | | 81 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | | 90 | % | 60 - 130 |
| | | | Styrene | 2020/06/09 | | 92 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | | 100 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | | 89 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/09 | | 89 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | | 94 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | | 92 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/09 | | 96 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/09 | | 94 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/09 | | 98 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/09 | | 86 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | | 87 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | | 89 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/09 | | 63 | % | 60 - 130 |
| 9878415 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 88 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 100 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/09 | <0.0020 | | mg/L | |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Carbon tetrachloride | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/09 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/09 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/09 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/09 | <0.00050 | | mg/L | |
| 9878415 | GP4 | RPD [XW2898-02] | Bromodichloromethane | 2020/06/09 | 4.8 | | % | 30 |
| | | | Bromoform | 2020/06/09 | NC | | % | 30 |
| | | | Bromomethane | 2020/06/09 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/06/09 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/06/09 | NC | | % | 30 |
| | | | Chloroethane | 2020/06/09 | NC | | % | 30 |
| | | | Chloroform | 2020/06/09 | 3.8 | | % | 30 |
| | | | Chloromethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/06/09 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/06/09 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/06/09 | NC | | % | 30 |
| | | | Dichloromethane | 2020/06/09 | NC | | % | 30 |



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Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dichloropropane | 2020/06/09 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/06/09 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/06/09 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/06/09 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | NC | | % | 30 |
| | | | Styrene | 2020/06/09 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/06/09 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/06/09 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/09 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/06/09 | NC | | % | 30 |
| 9878675 | LQ1 | Matrix Spike | Dissolved Calcium (Ca) | 2020/06/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | | 126 (1) | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | | 99 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | | 103 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | | NC | % | 80 - 120 |
| 9878675 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/06/09 | | 98 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | | 104 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | | 95 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | | 102 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/09 | | 101 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | | 98 | % | 80 - 120 |
| 9878675 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/06/09 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/06/09 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/06/09 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/06/09 | <0.50 | | mg/L | |
| 9878675 | LQ1 | RPD | Dissolved Calcium (Ca) | 2020/06/09 | 0.66 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | 8.5 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | 0.077 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | 1.4 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/06/09 | 0.027 | | % | 20 |



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Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Sodium (Na) | 2020/06/09 | 0.079 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037882
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

123

# CHAIN OF CUSTODY RECORD

M 060241

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave. NE Calgary, AB | Address: | | Project #: | CE2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 4 | 4 | 5 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

**Regulatory Criteria**

☑ AT1
☐ CCME
☐ Drinking Water
☐ D50 (Drilling Waste)
☐ Saskatchewan
☐ Other:

**Special Instructions**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 732 | | 2020/06/03 | 10:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1942 | | 2020/06/03 | 11:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 1961 | | 2020/06/03 | 12:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 1963 | | 2020/06/03 | 13:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | Trip Blank 11 | | 2020/06/03 | | W | 2 | ✓ | | | | | | | | | | |
| 6 | 1956 | | 2020/06/03 | 9:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | 1952 | | 2020/06/03 | 11:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 8 | 1911 | | 2020/06/03 | 12:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 9 | 1921 | | 2020/06/03 | 10:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 10 | 9921 | | 2020/06/03 | 10:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Bryn Gelowitz | 2020/06/03 | 15:00 | SARA BISCHOFF | 2020/06/03 | 14:00 | C037882 |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

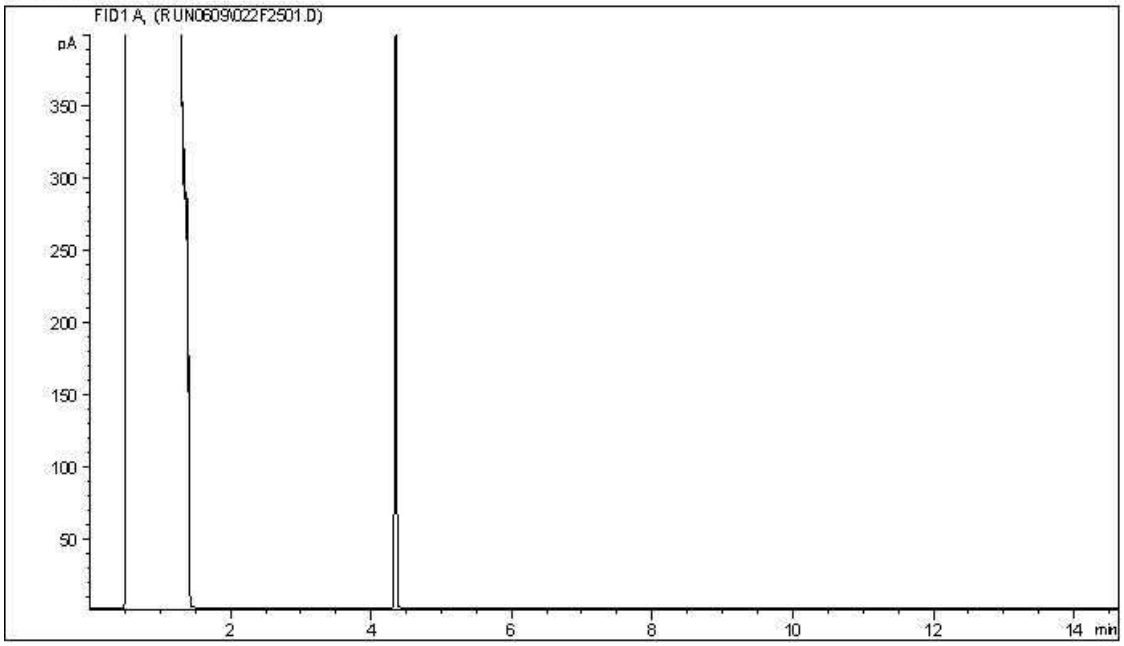
AB FCD-00331/7

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2898

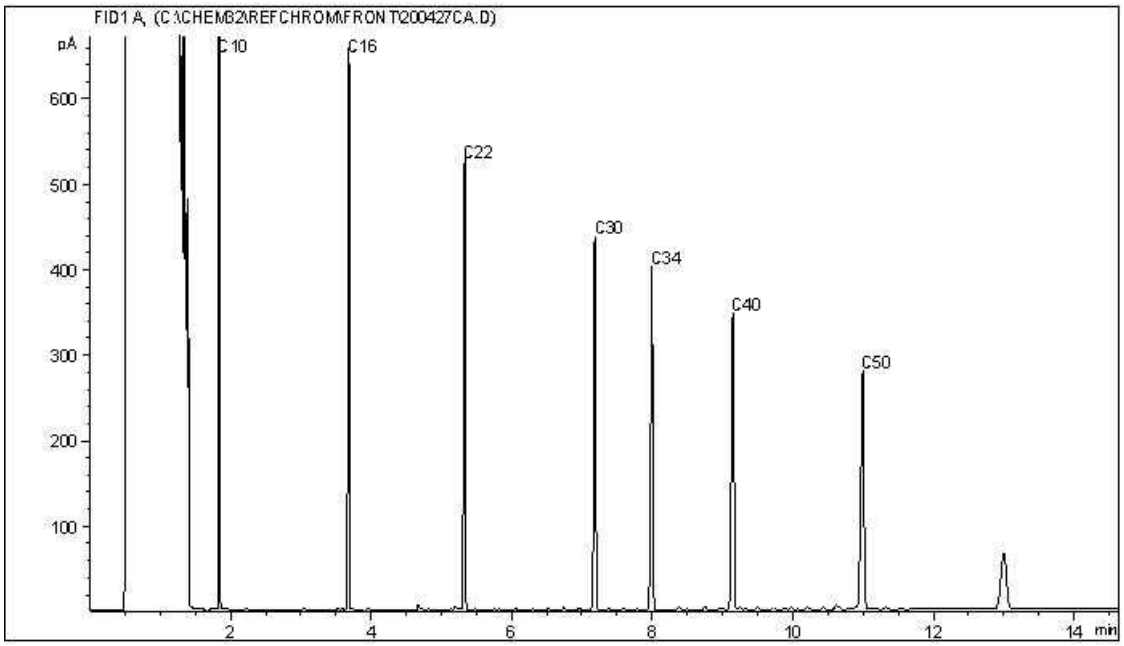
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 732

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



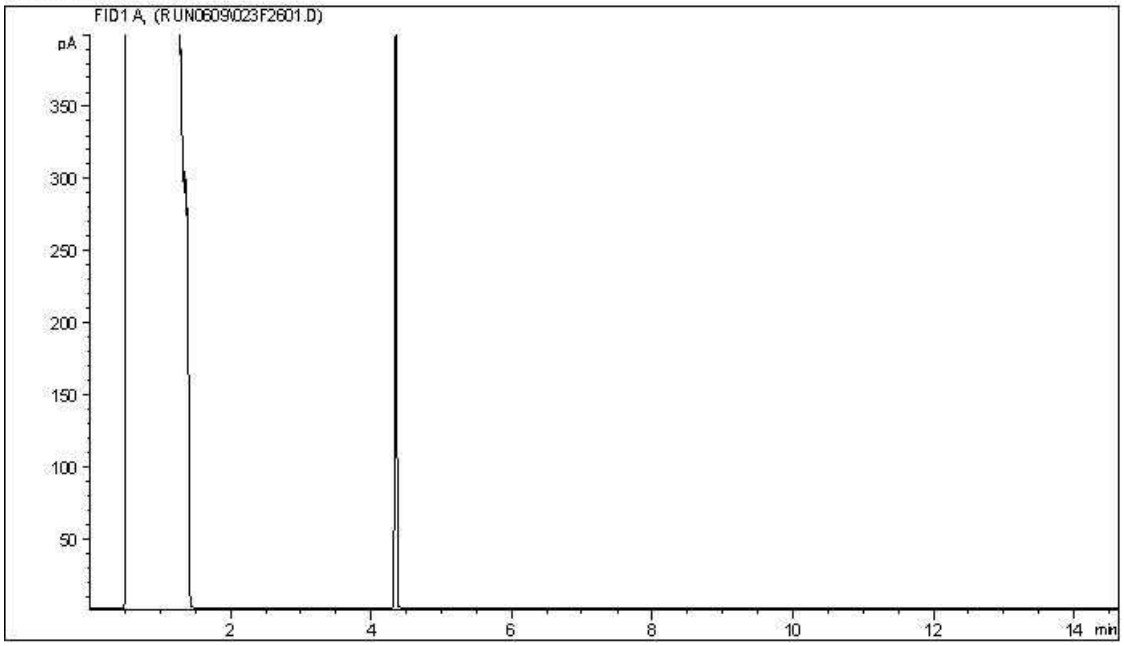

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

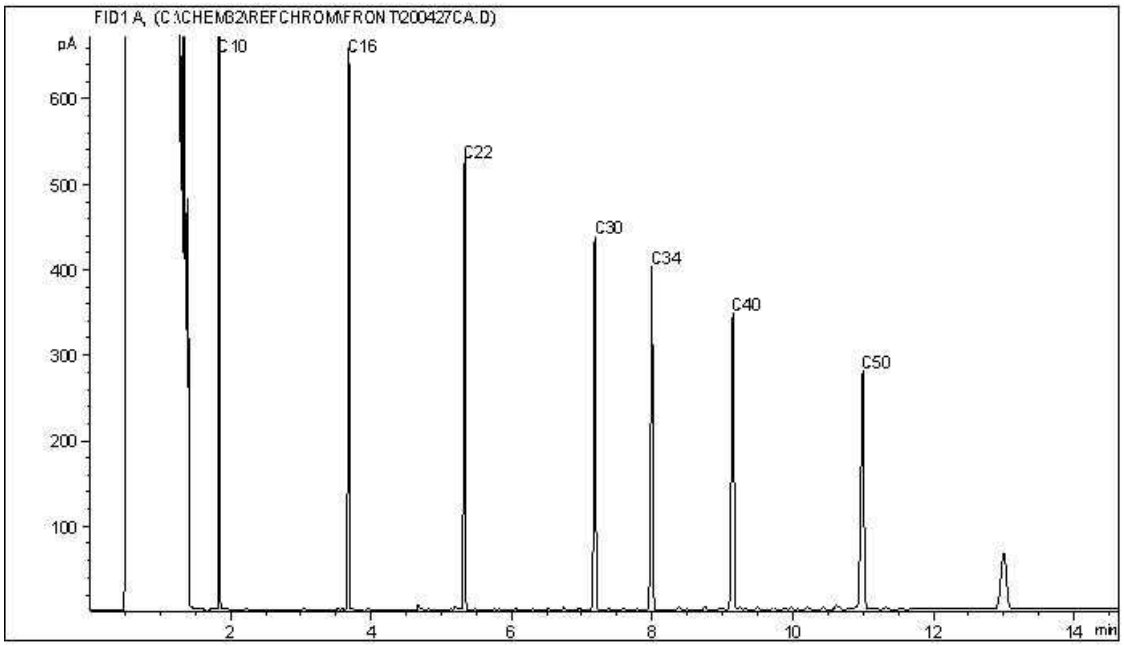
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

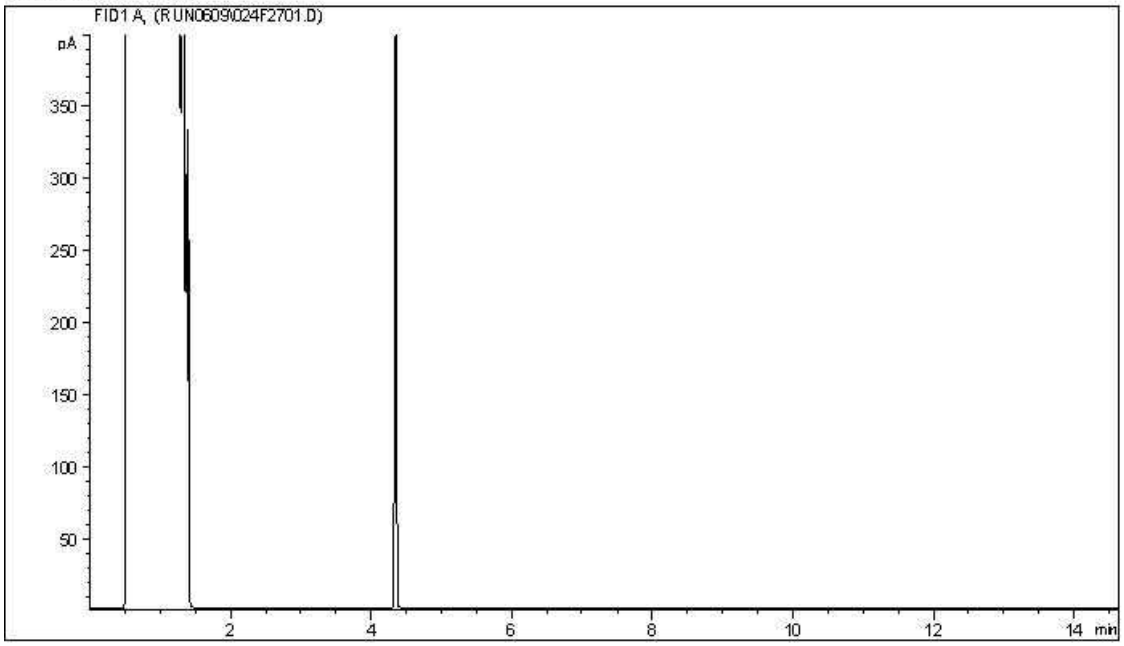
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2900

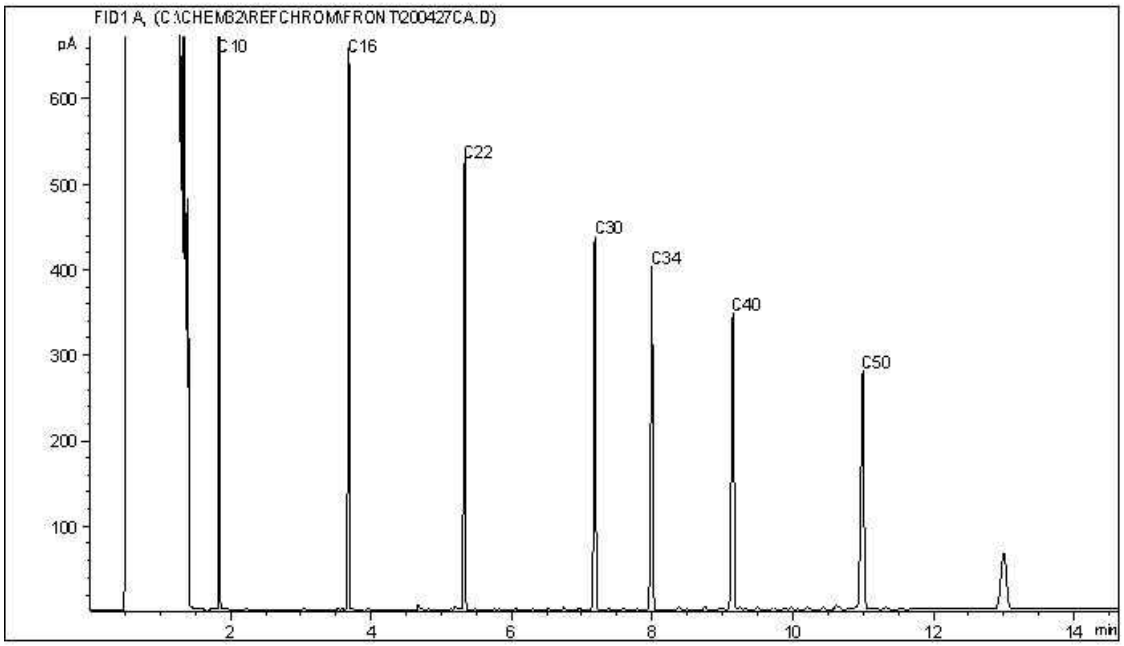
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1961

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

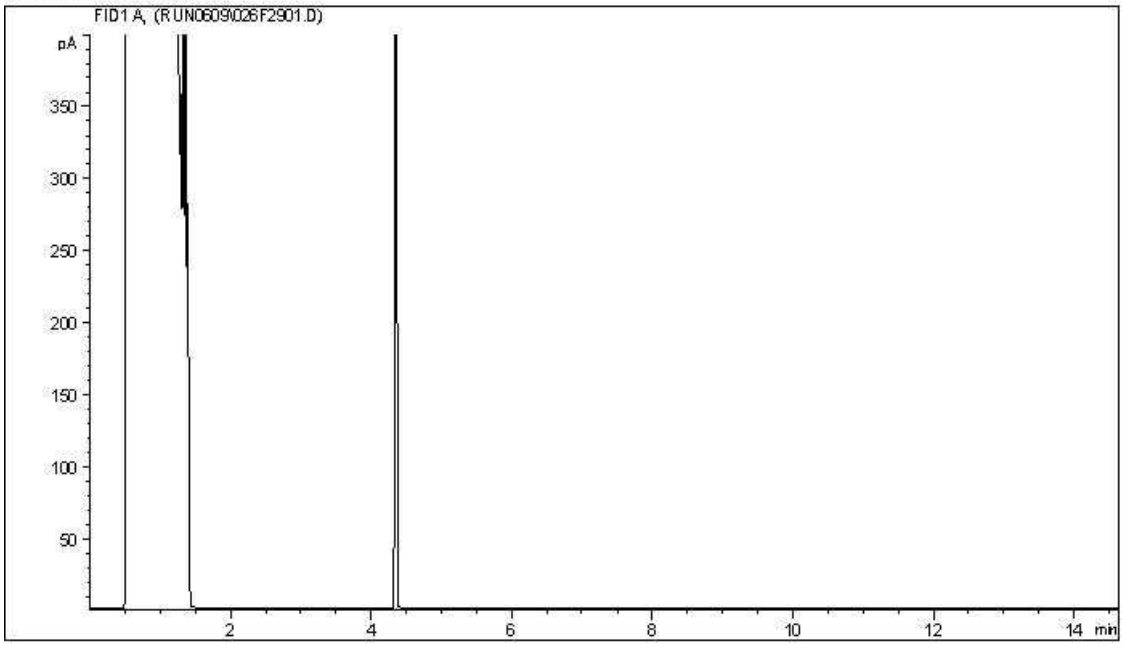
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2901

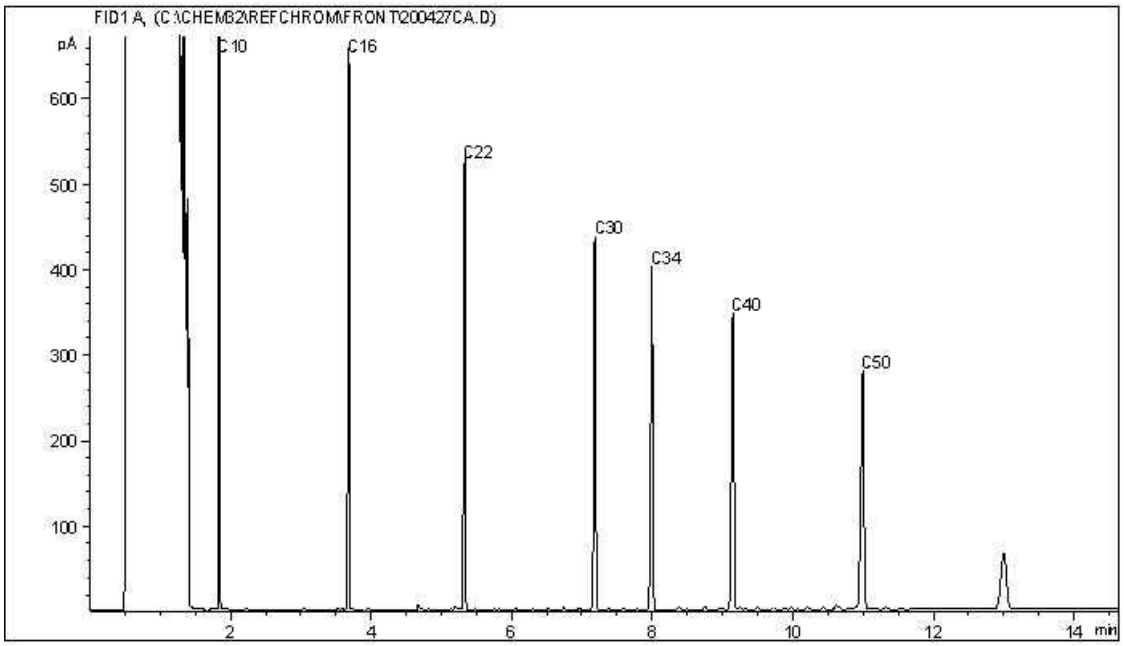
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1963

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

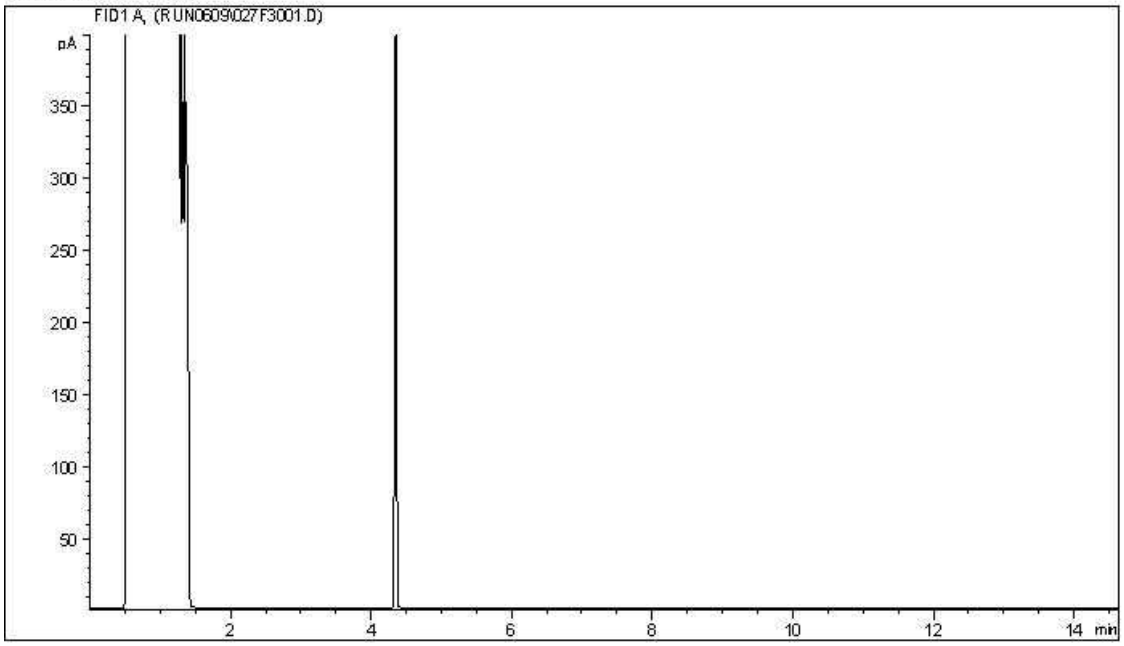
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2902

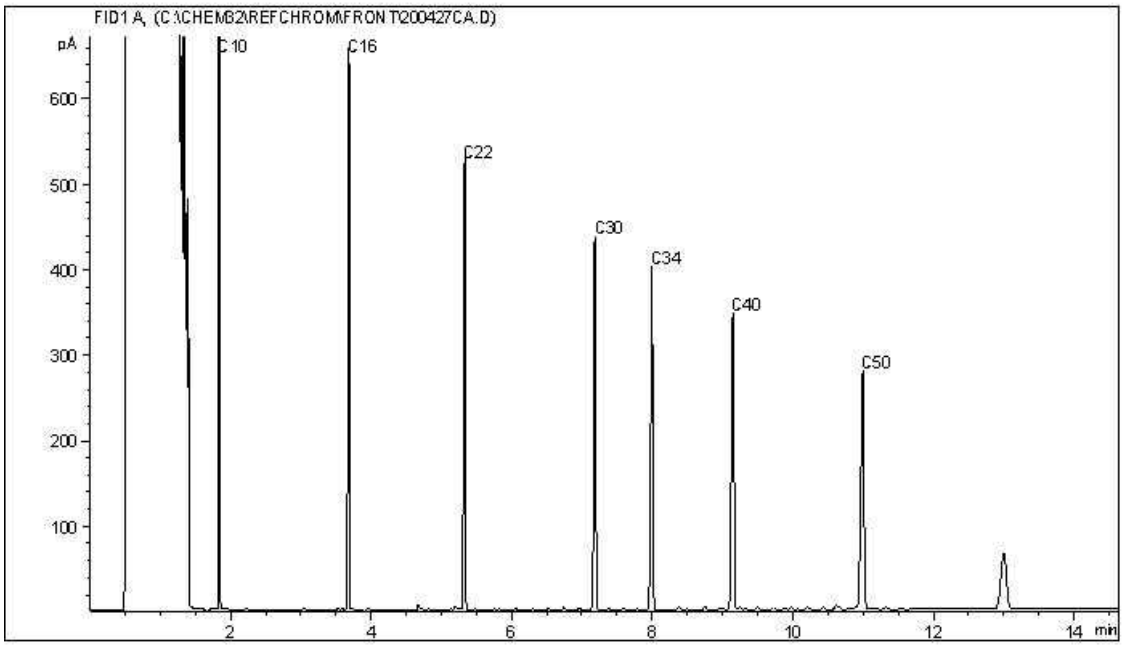
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1956

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

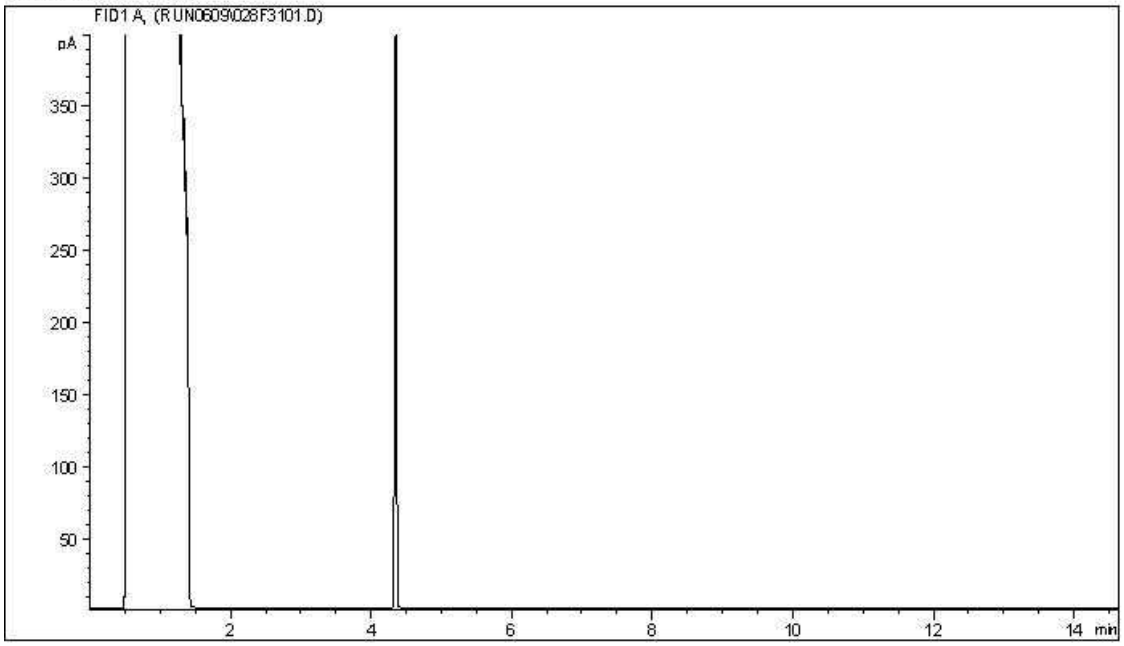
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2903

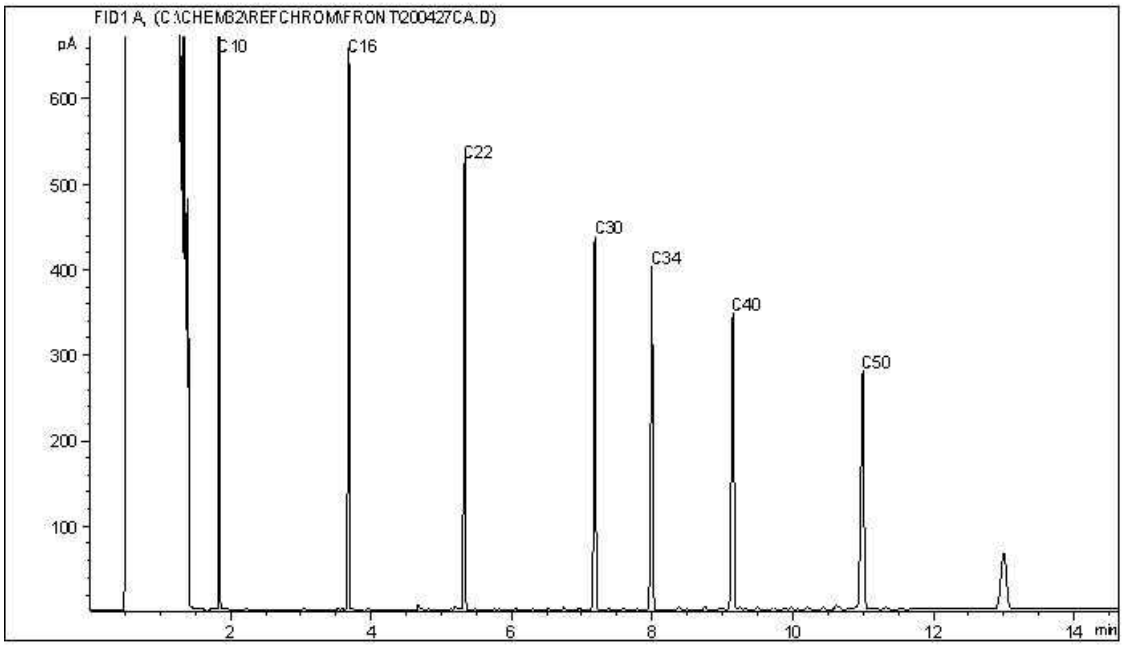
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1911

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

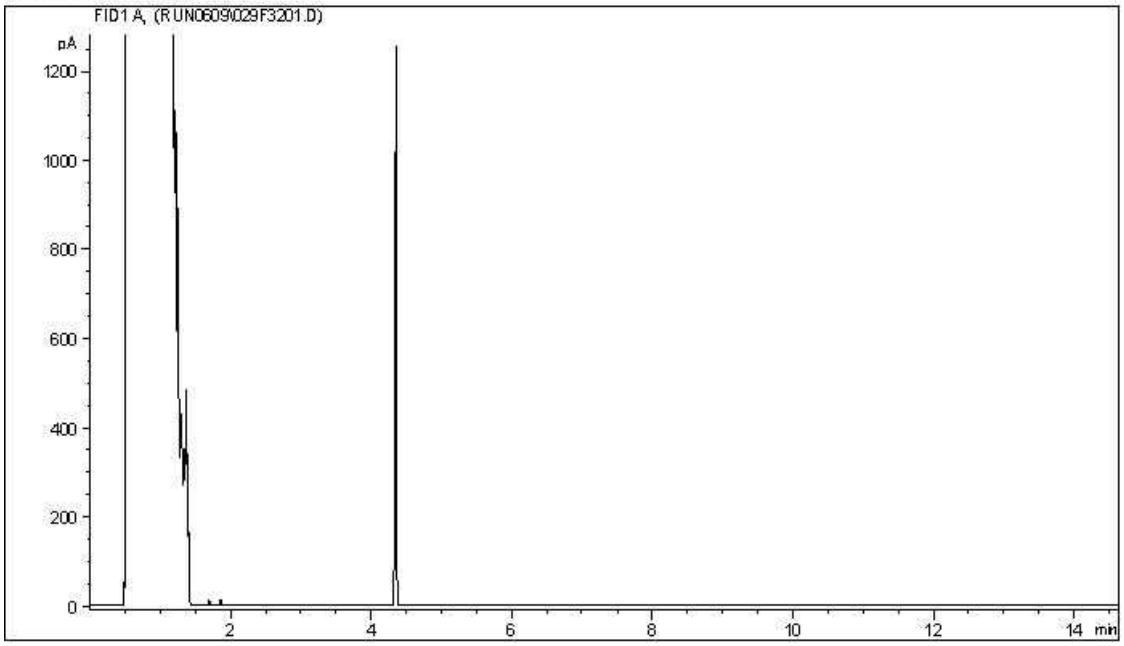
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2904

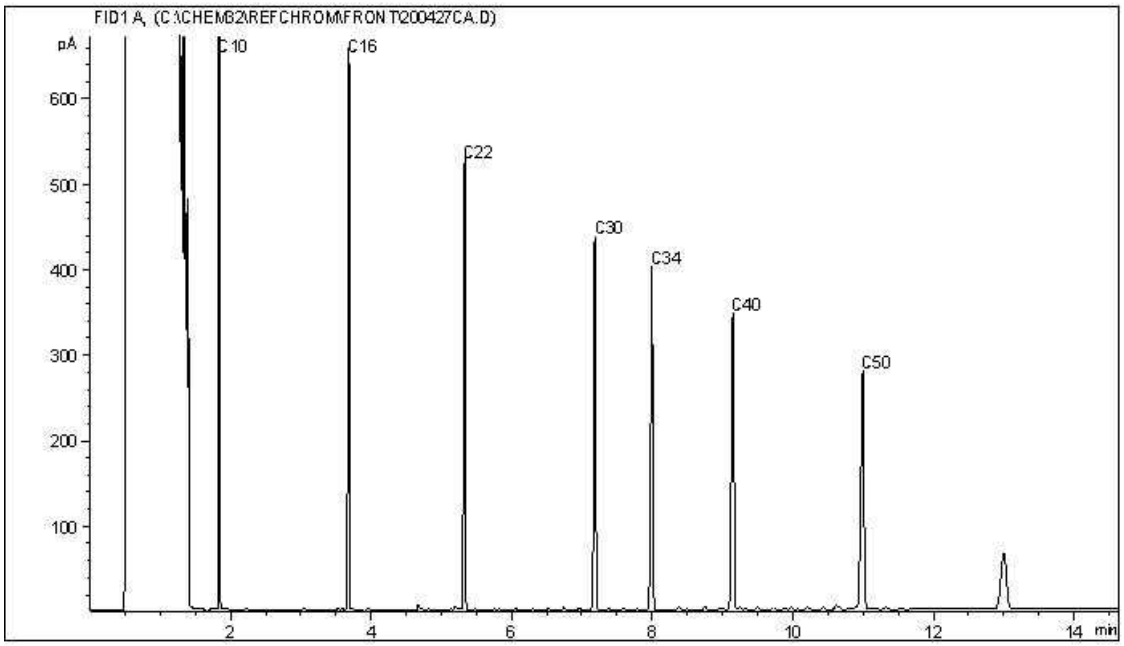
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1921

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

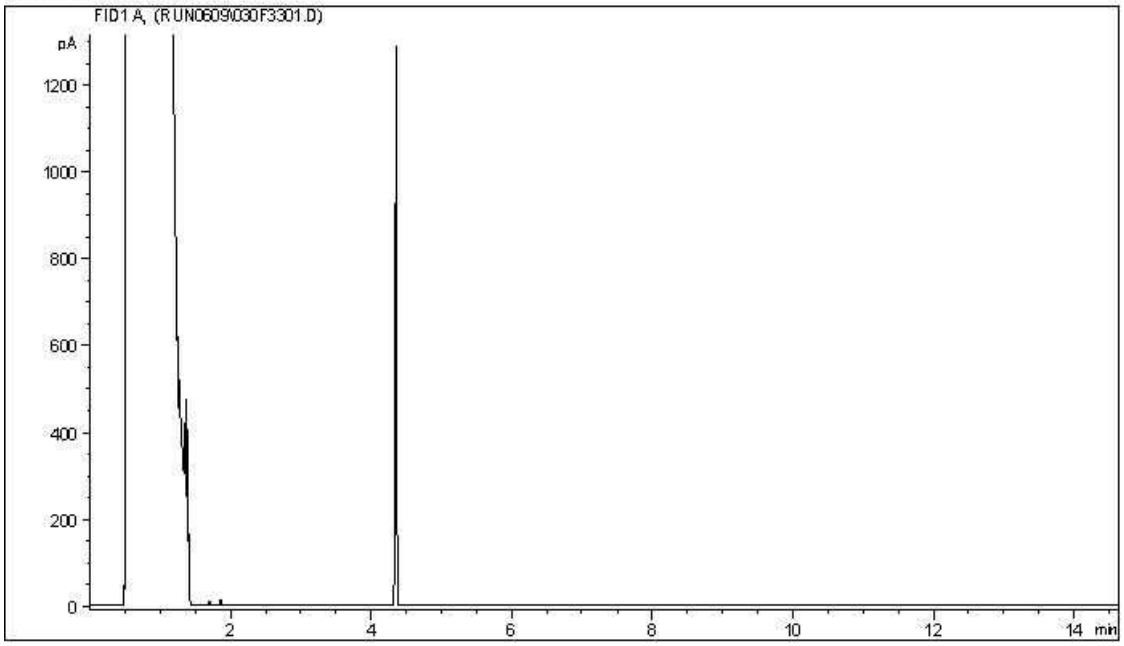
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037882
Report Date: 2020/06/10
BV Labs Sample: XW2905

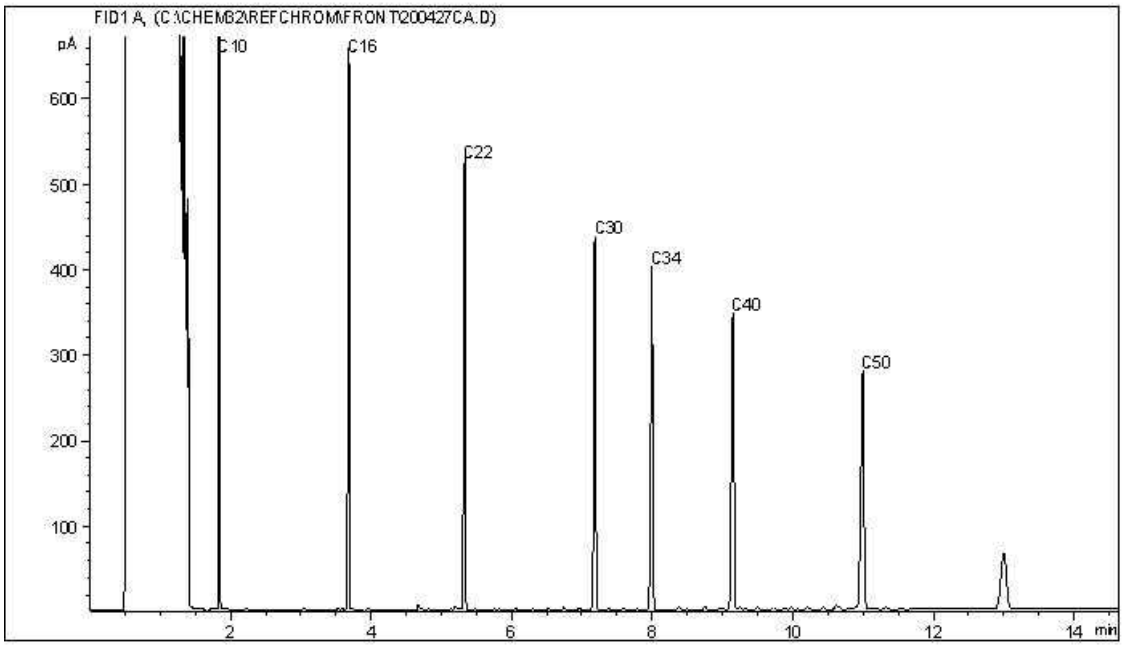
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 9921

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



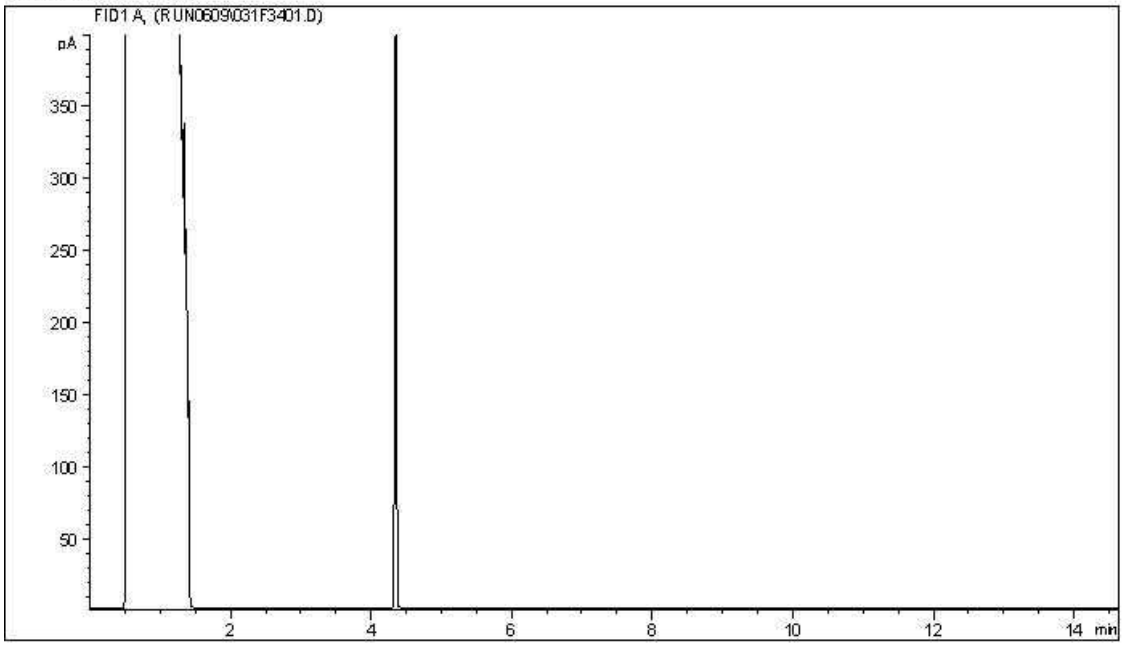

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

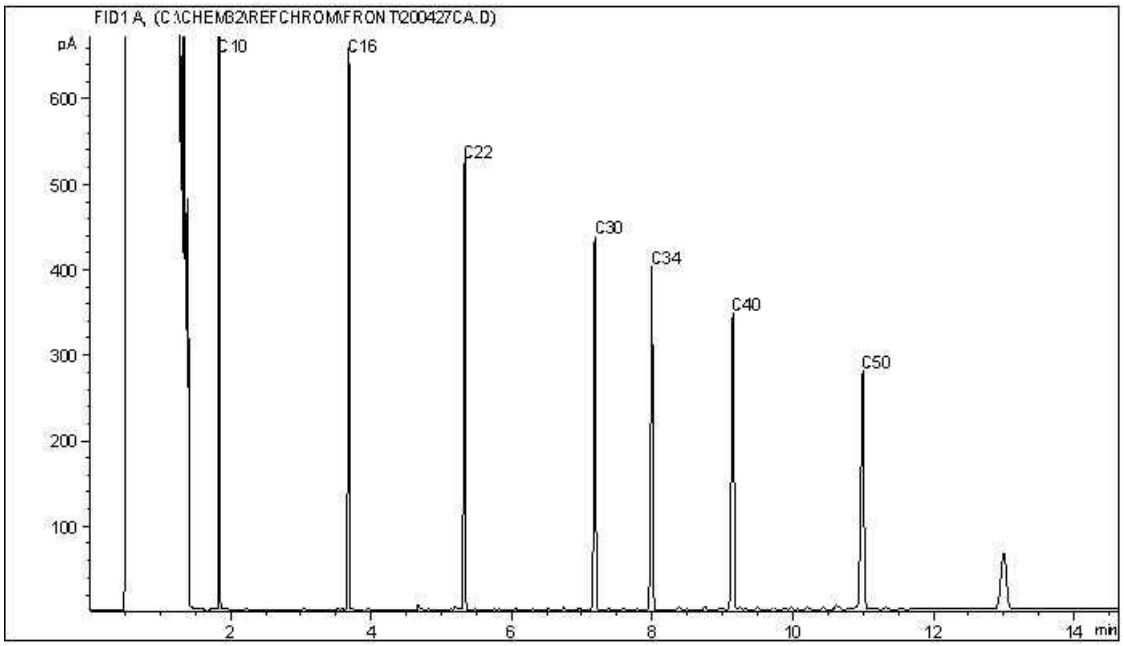
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M060243, M061032

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/12**
Report #: R2889701
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C038236**
**Received: 2020/06/04, 15:40**

Sample Matrix: Water
# Samples Received: 11

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 10 | N/A | 2020/06/12 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 10 | N/A | 2020/06/12 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 2 | 2020/06/09 | 2020/06/11 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 8 | 2020/06/09 | 2020/06/12 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 11 | N/A | 2020/06/12 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 11 | N/A | 2020/06/11 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M060243, M061032

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/12**
Report #: R2889701
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C038236**
**Received: 2020/06/04, 15:40**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW5235 | XW5235 | XW5236 | XW5237 | XW5238 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 13:30 | 2020/06/04 13:30 | 2020/06/04 09:30 | 2020/06/04 12:15 | 2020/06/04 12:45 | | |
| **COC Number** | | M060243 | M060243 | M060243 | M060243 | M060243 | | |
| | **UNITS** | **912** | **912 Lab-Dup** | **1933** | **1941** | **2002** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | 0.10 | 9876925 |
| **Volatiles** | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9881090 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| Xylenes (Total) | mg/L | <0.00089 | N/A | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9875792 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | 0.10 | 9875792 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9881090 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 98 | 99 | 99 | 99 | N/A | 9881090 |
| 4-Bromofluorobenzene (sur.) | % | 96 | 95 | 95 | 97 | 95 | N/A | 9881090 |
| D4-1,2-Dichloroethane (sur.) | % | 85 | 86 | 86 | 84 | 84 | N/A | 9881090 |
| O-TERPHENYL (sur.) | % | 110 | N/A | 113 | 110 | 109 | N/A | 9876925 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW5239 | XW5240 | XW5241 | XW5242 | XW5243 | XW5244 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 14:45 | 2020/06/04 14:00 | 2020/06/04 13:15 | 2020/06/04 12:15 | 2020/06/04 15:00 | 2020/06/04 10:00 | | |
| **COC Number** | | M060243 | M060243 | M060243 | M060243 | M060243 | M060243 | | |
| | **UNITS** | **1917** | **HYDRA 6** | **1919** | **1930** | **1972** | **1976** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9876925 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9881090 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9881090 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9875848 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9875848 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9881090 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 99 | 100 | 100 | 99 | 101 | N/A | 9881090 |
| 4-Bromofluorobenzene (sur.) | % | 95 | 98 | 98 | 96 | 94 | 96 | N/A | 9881090 |
| D4-1,2-Dichloroethane (sur.) | % | 87 | 86 | 86 | 85 | 85 | 84 | N/A | 9881090 |
| O-TERPHENYL (sur.) | % | 110 | 112 | 113 | 112 | 109 | 110 | N/A | 9876925 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW5235 | XW5236 | XW5237 | XW5238 | XW5239 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 13:30 | 2020/06/04 09:30 | 2020/06/04 12:15 | 2020/06/04 12:45 | 2020/06/04 14:45 | | |
| **COC Number** | | M060243 | M060243 | M060243 | M060243 | M060243 | | |
| | **UNITS** | **912** | **1933** | **1941** | **2002** | **1917** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9875114 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9881080 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW5235 | XW5236 | XW5237 | XW5238 | XW5239 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 13:30 | 2020/06/04 09:30 | 2020/06/04 12:15 | 2020/06/04 12:45 | 2020/06/04 14:45 | | |
| **COC Number** | | M060243 | M060243 | M060243 | M060243 | M060243 | | |
| | **UNITS** | **912** | **1933** | **1941** | **2002** | **1917** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 103 | 104 | 103 | 104 | N/A | 9881080 |
| 4-Bromofluorobenzene (sur.) | % | 87 | 86 | 86 | 86 | 86 | N/A | 9881080 |
| D4-1,2-Dichloroethane (sur.) | % | 97 | 96 | 95 | 100 | 94 | N/A | 9881080 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW5239 | XW5240 | | XW5241 | XW5242 | XW5243 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 14:45 | 2020/06/04 14:00 | | 2020/06/04 13:15 | 2020/06/04 12:15 | 2020/06/04 15:00 | | |
| **COC Number** | | M060243 | M060243 | | M060243 | M060243 | M060243 | | |
| | **UNITS** | **1917 Lab-Dup** | **HYDRA 6** | **QC Batch** | **1919** | **1930** | **1972** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | | |
| Total Trihalomethanes | mg/L | N/A | <0.0013 | 9875114 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9875855 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 9881080 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 9881080 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 9881080 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 9881080 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 9881080 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9881080 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 9881080 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Styrene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 9881080 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 9881080 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 9881080 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW5239 | XW5240 | | XW5241 | XW5242 | XW5243 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 14:45 | 2020/06/04 14:00 | | 2020/06/04 13:15 | 2020/06/04 12:15 | 2020/06/04 15:00 | | |
| **COC Number** | | M060243 | M060243 | | M060243 | M060243 | M060243 | | |
| | **UNITS** | **1917 Lab-Dup** | **HYDRA 6** | **QC Batch** | **1919** | **1930** | **1972** | **RDL** | **QC Batch** |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 9881080 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 9881080 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 102 | 9881080 | 104 | 104 | 105 | N/A | 9881080 |
| 4-Bromofluorobenzene (sur.) | % | 87 | 87 | 9881080 | 87 | 85 | 87 | N/A | 9881080 |
| D4-1,2-Dichloroethane (sur.) | % | 112 | 104 | 9881080 | 98 | 98 | 99 | N/A | 9881080 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW5244 | XW5245 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 10:00 | 2020/06/04 | | |
| **COC Number** | | M060243 | M061032 | | |
| | **UNITS** | **1976** | **TRIP BLANK 12** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | 0.0013 | 9875855 |
| Benzene | mg/L | N/A | <0.00040 | 0.00040 | 9881080 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00020 | 9881080 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Ethylbenzene | mg/L | N/A | <0.00040 | 0.00040 | 9881080 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9881080 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW5244 | XW5245 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/04 10:00 | 2020/06/04 | | |
| **COC Number** | | M060243 | M061032 | | |
| | **UNITS** | **1976** | **TRIP BLANK 12** | **RDL** | **QC Batch** |
| Toluene | mg/L | N/A | <0.00040 | 0.00040 | 9881080 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9881080 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9881080 |
| Xylenes (Total) | mg/L | N/A | <0.00080 | 0.00080 | 9881080 |
| m & p-Xylene | mg/L | N/A | <0.00080 | 0.00080 | 9881080 |
| o-Xylene | mg/L | N/A | <0.00040 | 0.00040 | 9881080 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 103 | N/A | 9881080 |
| 4-Bromofluorobenzene (sur.) | % | 87 | 88 | N/A | 9881080 |
| D4-1,2-Dichloroethane (sur.) | % | 99 | 97 | N/A | 9881080 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 5.7°C |

**Results relate only to the items tested.**



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9876925 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/06/11 | | 131 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/11 | | 131 | % | 60 - 140 |
| 9876925 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/11 | | 113 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/11 | | 106 | % | 60 - 140 |
| 9876925 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/11 | | 110 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/11 | <0.10 | | mg/L | |
| 9876925 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/11 | NC | | % | 30 |
| 9881080 | QW1 | Matrix Spike [XW5240-02] | 1,4-Difluorobenzene (sur.) | 2020/06/11 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/11 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/11 | | 91 | % | 50 - 140 |
| | | | Benzene | 2020/06/11 | | 86 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/11 | | 93 | % | 50 - 140 |
| | | | Bromoform | 2020/06/11 | | 110 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/11 | | 109 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/11 | | 106 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/11 | | 103 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/11 | | 111 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/11 | | 89 | % | 50 - 140 |
| | | | Chloroform | 2020/06/11 | | 88 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/11 | | 108 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/11 | | 95 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/11 | | 96 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/11 | | 95 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/11 | | 94 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/11 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/11 | | 88 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/11 | | 97 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/11 | | 94 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/11 | | 91 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/11 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/11 | | 83 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/11 | | 102 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/11 | | 115 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/11 | | 97 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/11 | | 83 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/11 | | 89 | % | 50 - 140 |
| | | | Styrene | 2020/06/11 | | 102 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/11 | | 104 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/11 | | 92 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/11 | | 111 | % | 50 - 140 |
| | | | Toluene | 2020/06/11 | | 94 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/11 | | 98 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/11 | | 98 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/11 | | 99 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/11 | | 100 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/11 | | 92 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/11 | | 107 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/11 | | 103 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/11 | | 92 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/11 | | 94 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/11 | | 94 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/11 | | 99 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/11 | | 96 | % | 50 - 140 |



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9881080 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/11 | | 108 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/11 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/11 | | 110 | % | 50 - 140 |
| | | | Benzene | 2020/06/11 | | 85 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/06/11 | | 96 | % | 60 - 130 |
| | | | Bromoform | 2020/06/11 | | 109 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/11 | | 96 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/11 | | 104 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/11 | | 102 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/11 | | 113 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/11 | | 85 | % | 60 - 130 |
| | | | Chloroform | 2020/06/11 | | 86 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/11 | | 95 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/11 | | 97 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/11 | | 97 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/11 | | 95 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/11 | | 94 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/11 | | 85 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/11 | | 91 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/11 | | 95 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/11 | | 93 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/11 | | 88 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/11 | | 84 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/11 | | 85 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/11 | | 102 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/11 | | 103 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/11 | | 96 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/11 | | 85 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/11 | | 88 | % | 60 - 130 |
| | | | Styrene | 2020/06/11 | | 101 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/11 | | 103 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/11 | | 92 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/11 | | 110 | % | 60 - 130 |
| | | | Toluene | 2020/06/11 | | 96 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/11 | | 99 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/11 | | 98 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/11 | | 98 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/11 | | 101 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/11 | | 93 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/11 | | 108 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/11 | | 99 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/11 | | 92 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/11 | | 93 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/11 | | 84 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/11 | | 96 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/11 | | 94 | % | 60 - 130 |
| 9881080 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/11 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/11 | | 87 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/11 | | 106 | % | 50 - 140 |
| | | | Benzene | 2020/06/11 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/11 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/11 | <0.00050 | | mg/L | |



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Chlorobenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/11 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/11 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/11 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/11 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/11 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/06/11 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/11 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/11 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/06/11 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/11 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/11 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/11 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/06/11 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/06/11 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/11 | <0.00040 | | mg/L | |
| 9881080 | QW1 | RPD [XW5239-02] | Bromodichloromethane | 2020/06/11 | NC | | % | 30 |
| | | | Bromoform | 2020/06/11 | NC | | % | 30 |
| | | | Bromomethane | 2020/06/11 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/06/11 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/06/11 | NC | | % | 30 |
| | | | Chloroethane | 2020/06/11 | NC | | % | 30 |
| | | | Chloroform | 2020/06/11 | NC | | % | 30 |
| | | | Chloromethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/11 | NC | | % | 30 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1-dichloroethene | 2020/06/11 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/06/11 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/06/11 | NC | | % | 30 |
| | | | Dichloromethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/06/11 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/06/11 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/06/11 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/06/11 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/11 | NC | | % | 30 |
| | | | Styrene | 2020/06/11 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/11 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/06/11 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/06/11 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/11 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/06/11 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/06/11 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/06/11 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/06/11 | NC | | % | 30 |
| 9881090 | GP4 | Matrix Spike [XW5236-02] | 1,4-Difluorobenzene (sur.) | 2020/06/12 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/12 | | 99 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/12 | | 88 | % | 50 - 140 |
| | | | Benzene | 2020/06/12 | | 86 | % | 50 - 140 |
| | | | Toluene | 2020/06/12 | | 84 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/12 | | 86 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/12 | | 87 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/12 | | 86 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/12 | | 73 | % | 60 - 140 |
| 9881090 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/12 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/12 | | 99 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/12 | | 83 | % | 50 - 140 |
| | | | Benzene | 2020/06/12 | | 85 | % | 60 - 130 |
| | | | Toluene | 2020/06/12 | | 83 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/12 | | 85 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/12 | | 87 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/12 | | 85 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/12 | | 77 | % | 60 - 140 |
| 9881090 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/12 | | 99 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/12 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/12 | | 86 | % | 50 - 140 |
| | | | Benzene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/12 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/12 | <0.10 | | mg/L | |
| 9881090 | GP4 | RPD [XW5235-02] | Benzene | 2020/06/12 | NC | | % | 30 |
| | | | Toluene | 2020/06/12 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/12 | NC | | % | 30 |



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BV Labs Job #: C038236
Report Date: 2020/06/12

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | m & p-Xylene | 2020/06/12 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/12 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/12 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

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# CHAIN OF CUSTODY RECORD

M 060243



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave. NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 7 | 4 | 6 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 912 | | 2020/06/04 | 13:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1933 | | | 9:30 | | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 1941 | | | 12:15 | | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 2002 | | | 12:45 | | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | 1917 | | | 14:45 | | 6 | ✓ | ✓ | | | | | | | | | |
| 6 | Hydra 6 | | | 14:00 | | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | 1919 | | | 13:15 | | 6 | ✓ | ✓ | | | | | | | | | |
| 8 | 1930 | | | 12:15 | | 6 | ✓ | ✓ | | | | | | | | | |
| 9 | 1972 | | | 15:00 | | 6 | ✓ | ✓ | | | | | | | | | |
| 10 | 1976 | | 2020/06/04 | 10:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/06/04 | 15:25 | [illegible] KHO GW | 2020/06/04 | 15:40 |
| | | | | | |

04-Jun-20 15:40
Linsay Sunderman
C038236
JK4 INS-0136

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxx

AB FCD-00331/7

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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

199

# CHAIN OF CUSTODY RECORD

M 061032



| Invoice Information | Report Information (if differs from invoice) | Project Information | Turnaround Time (TAT) Required |
|---|---|---|---|
| Company: Clifton | Company: | Quotation #: | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: Stephen d'Abadie | Contact Name: | P.O. #/ AFE#: | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: 2222-30 Ave NE Calgary AB | Address: | Project #: CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: 403-701-8826 | Phone: | Site Location: | Date Required: |
| Email: Stephen.dabadie@clifton.ca | Email: | Site #: | Rush Confirmation #: |
| Copies: | Copies: | Sampled By: Austin / Bryn | |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCAC | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 7 | 4 | 6 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☑ VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Trip Blank 12 | | 2020/06/04 | | W | 2 | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/06/04 | 15:25 | [signature] | 2020/06/04 | 15:40 |
| | | | | | |

04-Jun-20 15:40
Linsay Sunderman
C038236
JK4 INS-0136

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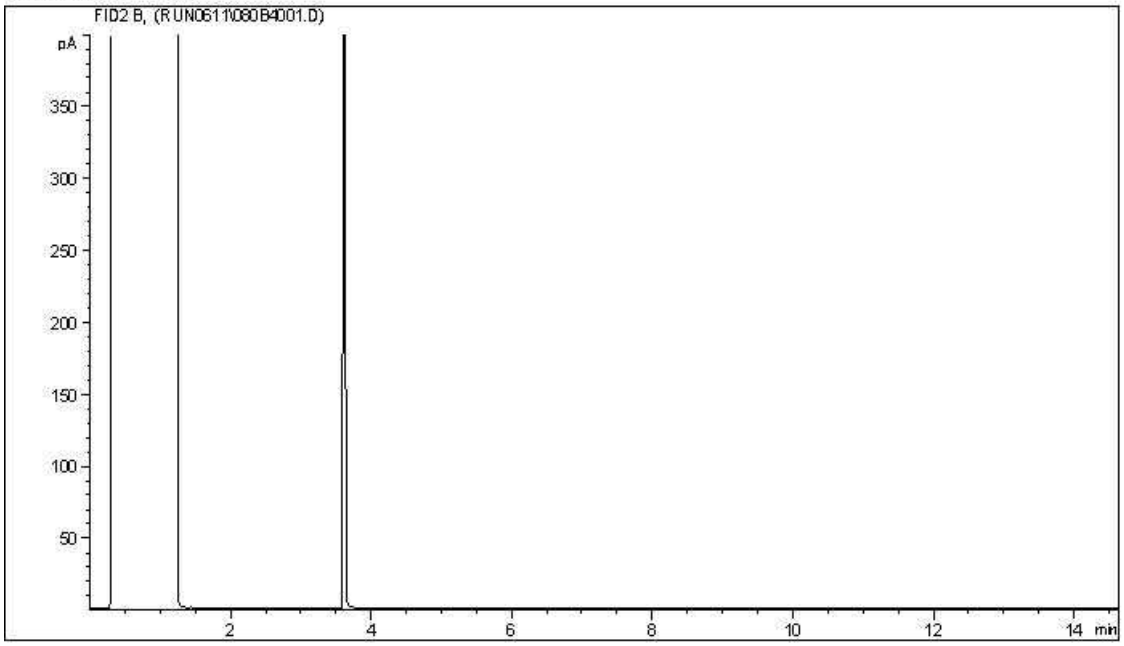
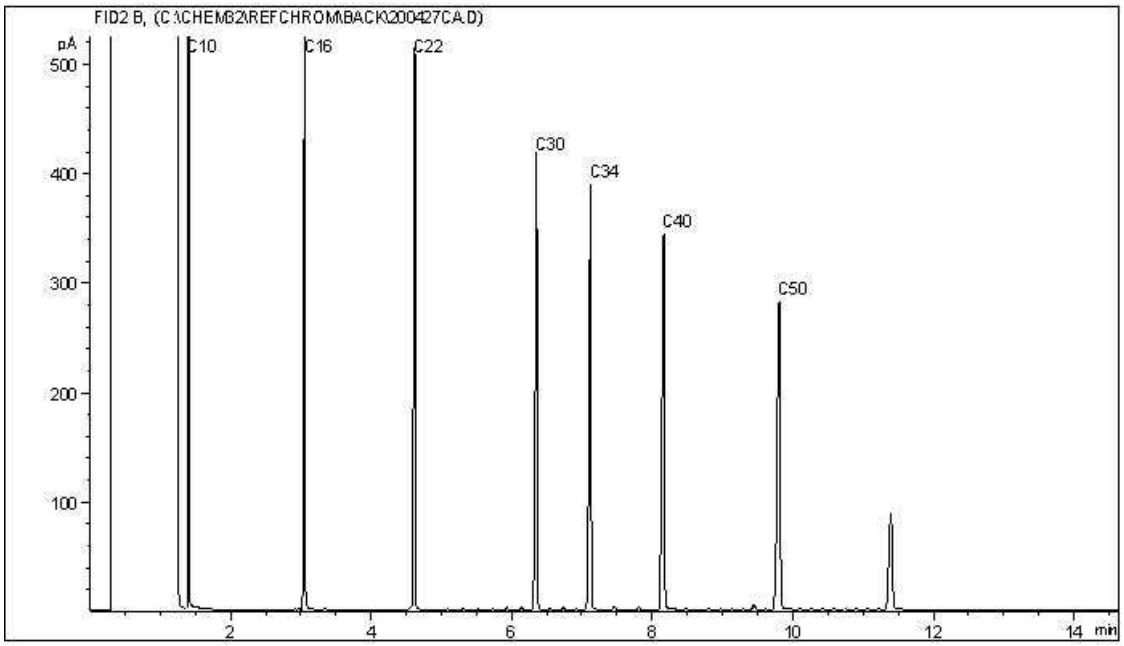
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



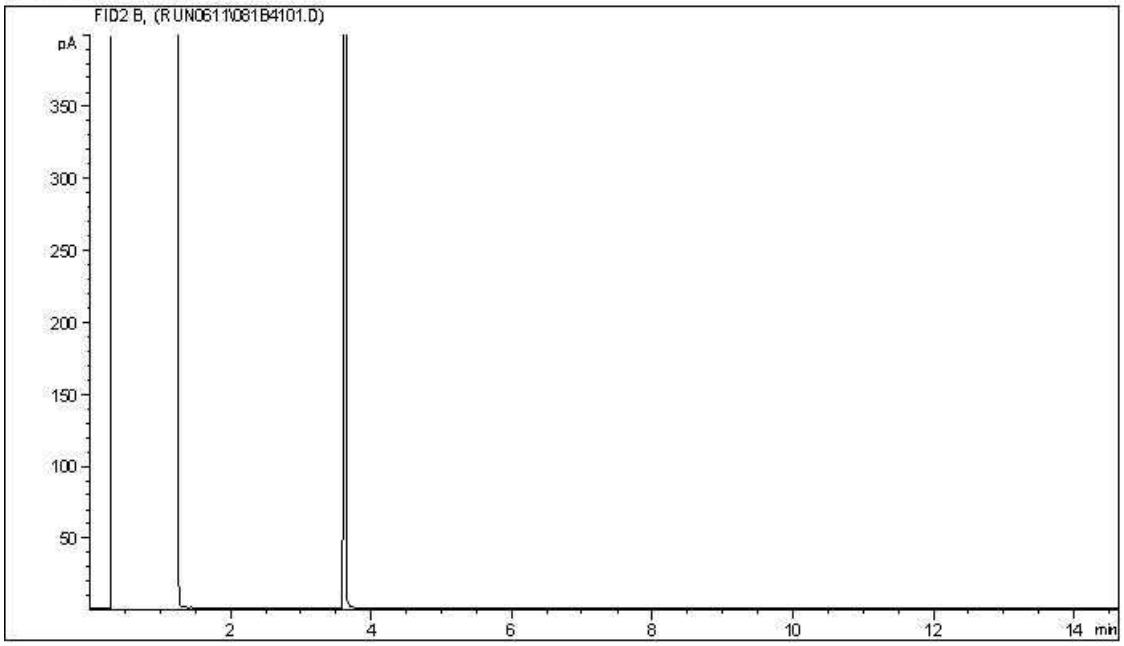

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

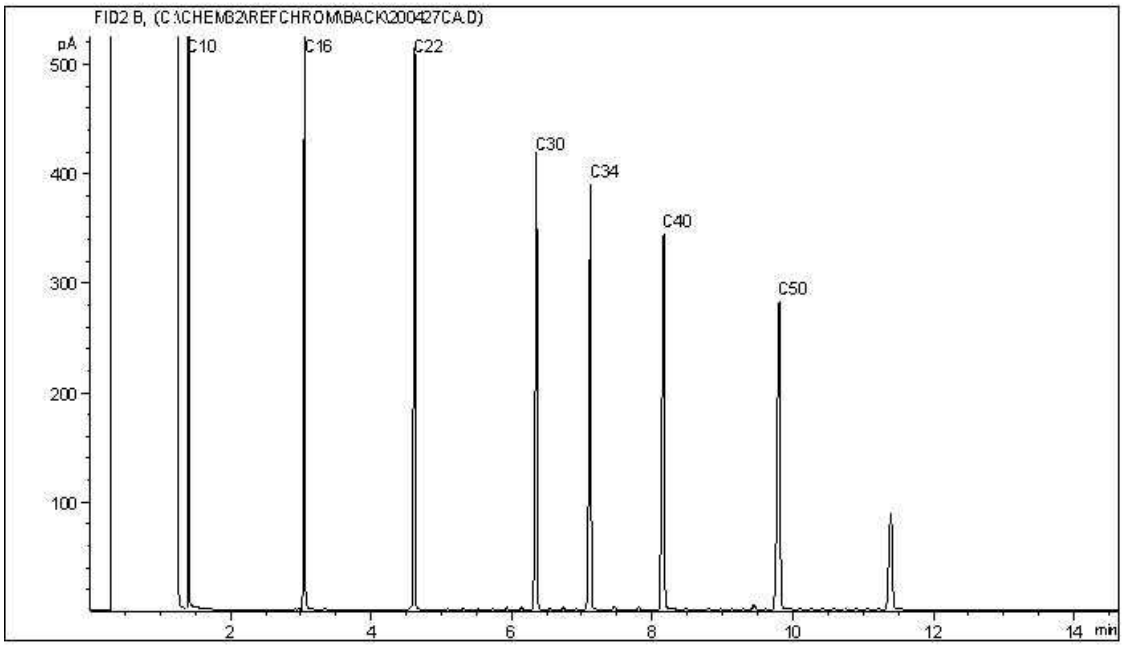
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



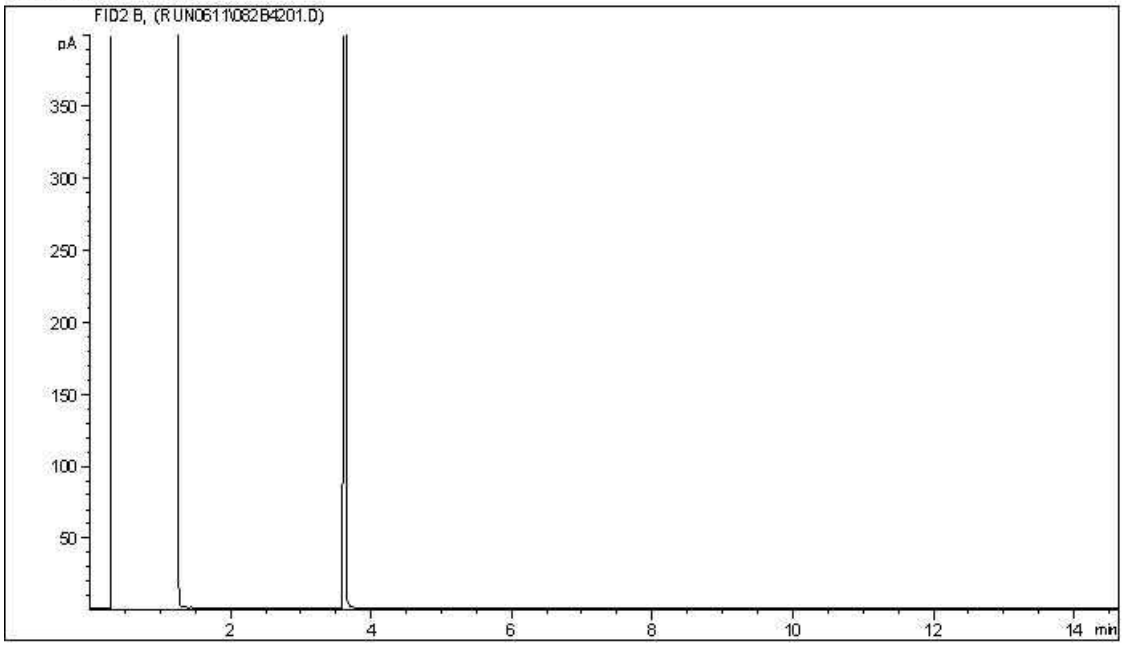

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

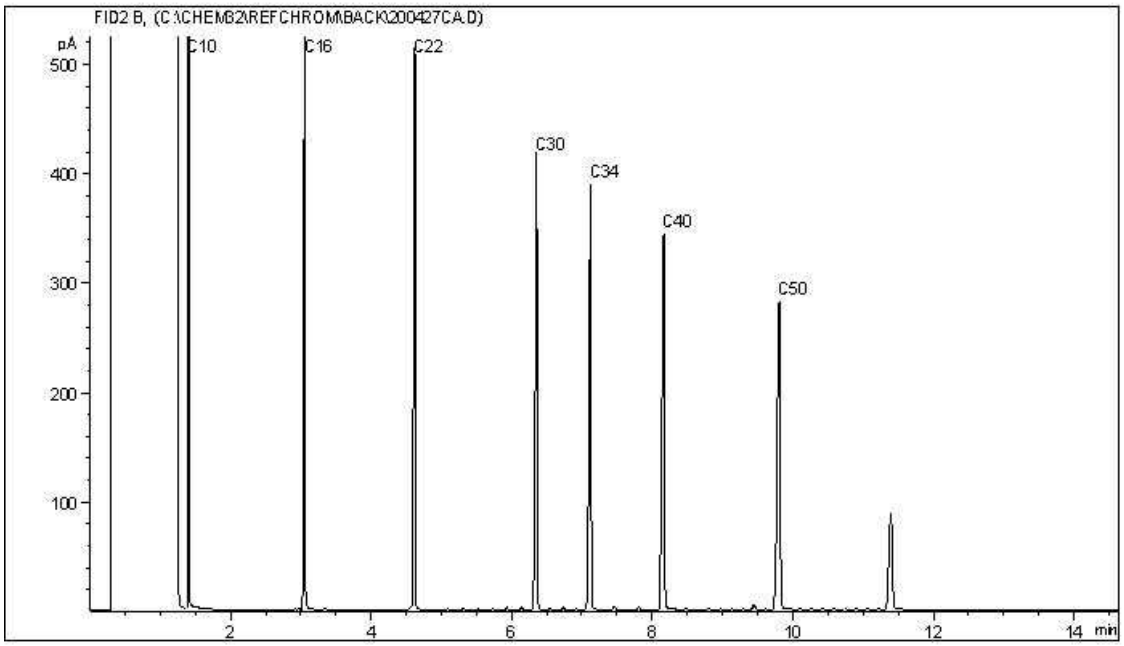
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



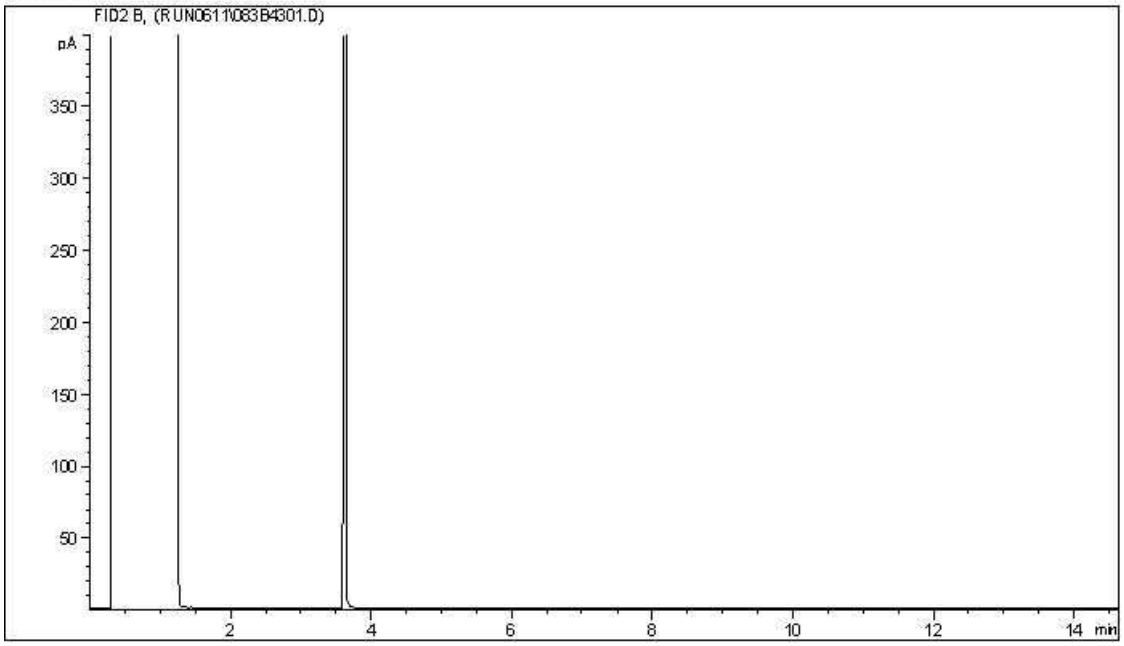

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

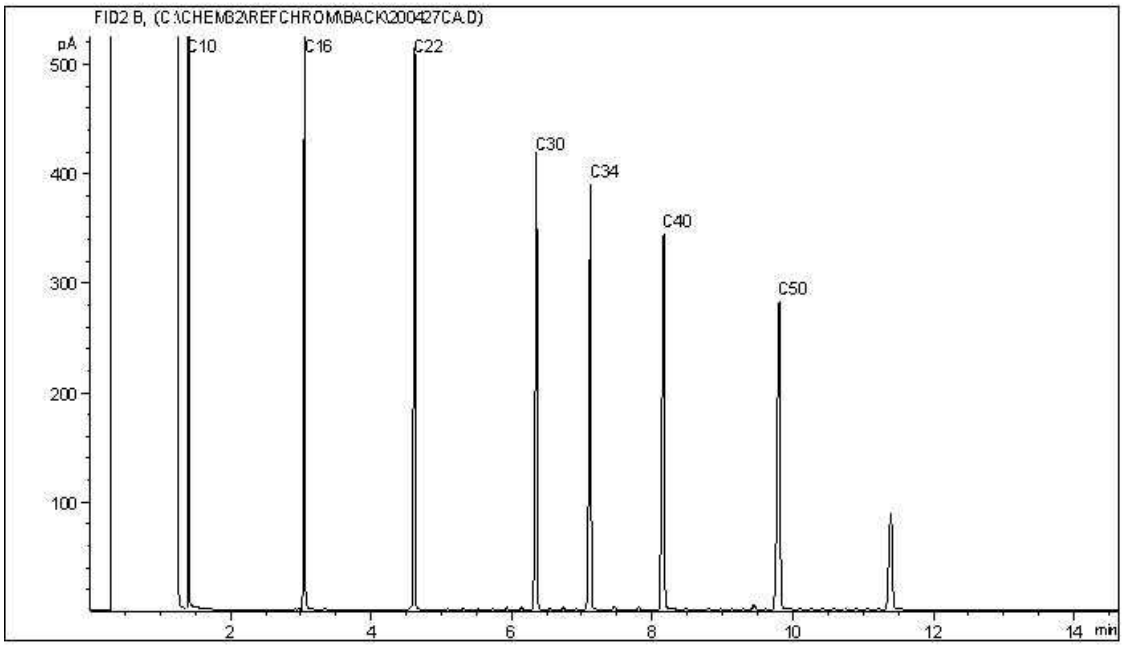
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

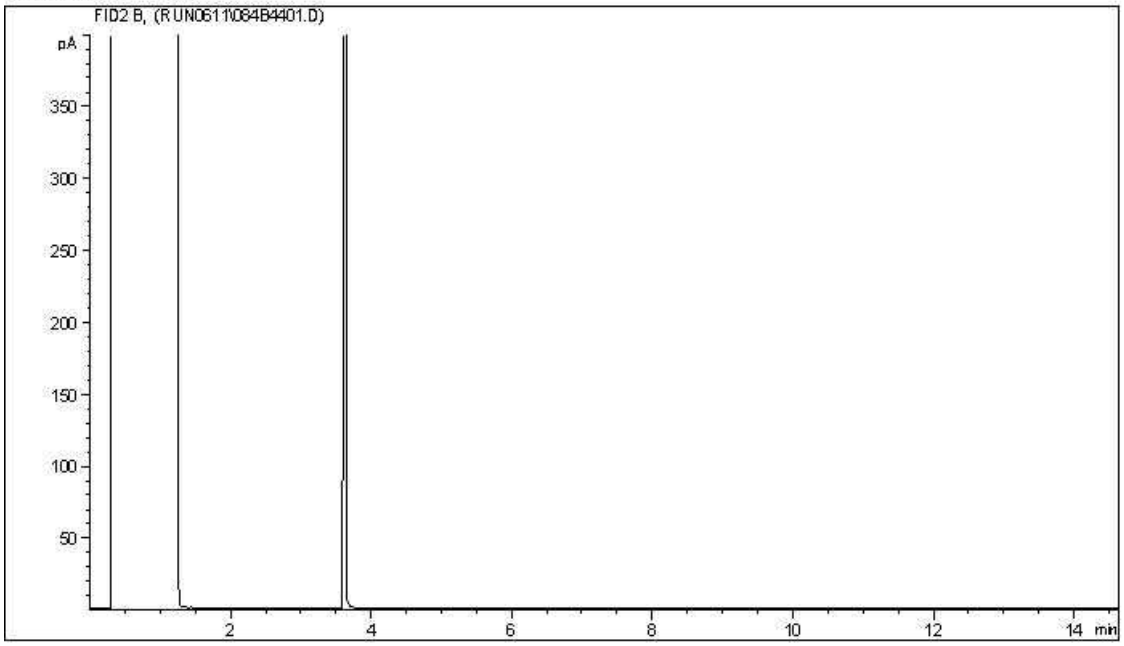
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C038236
Report Date: 2020/06/12
BV Labs Sample: XW5239

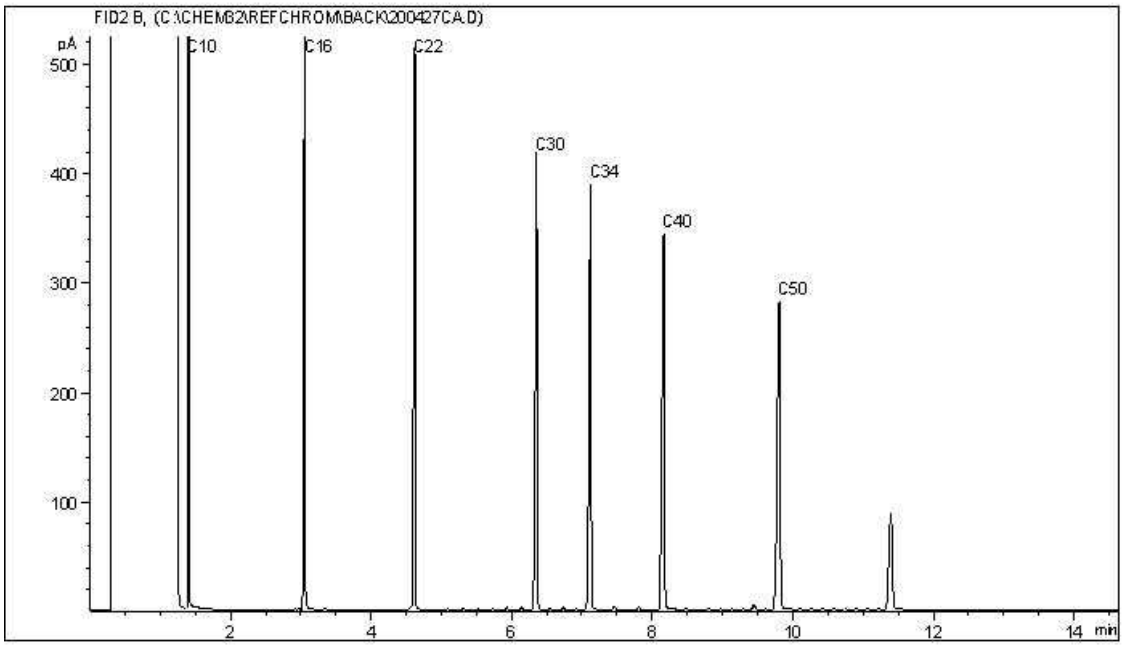
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1917

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



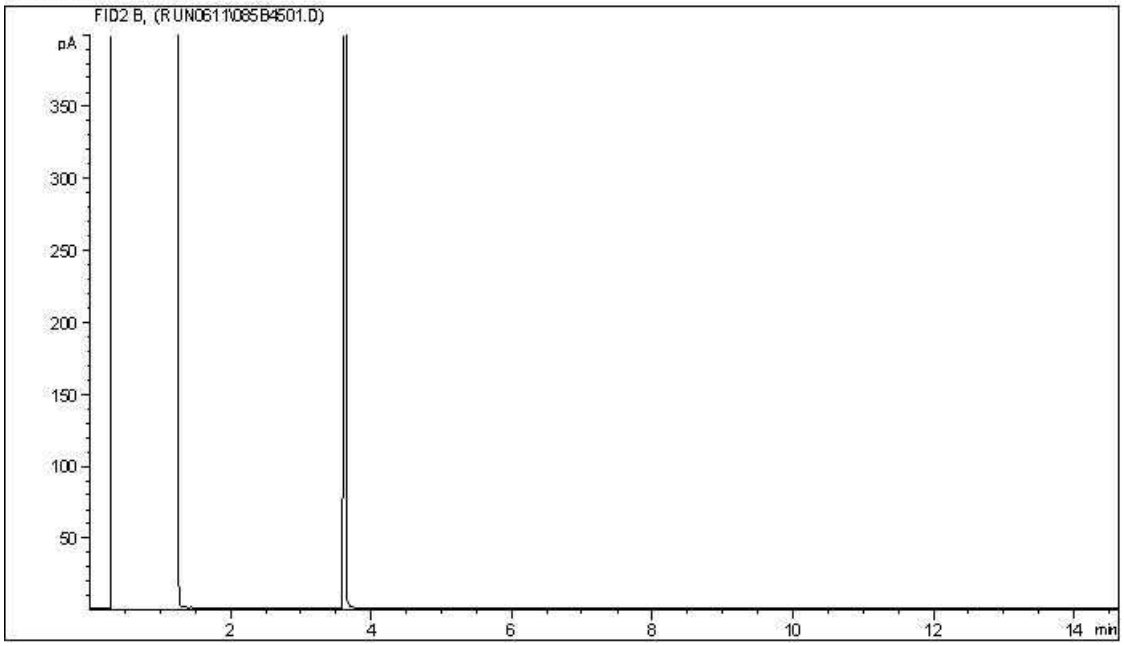

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

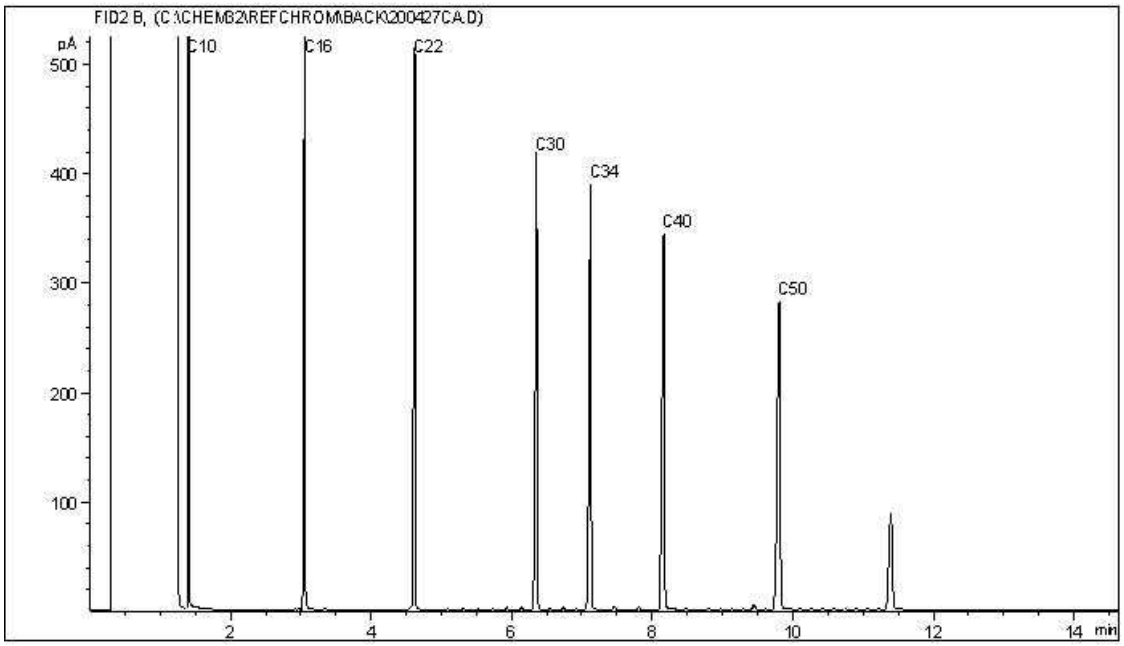
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

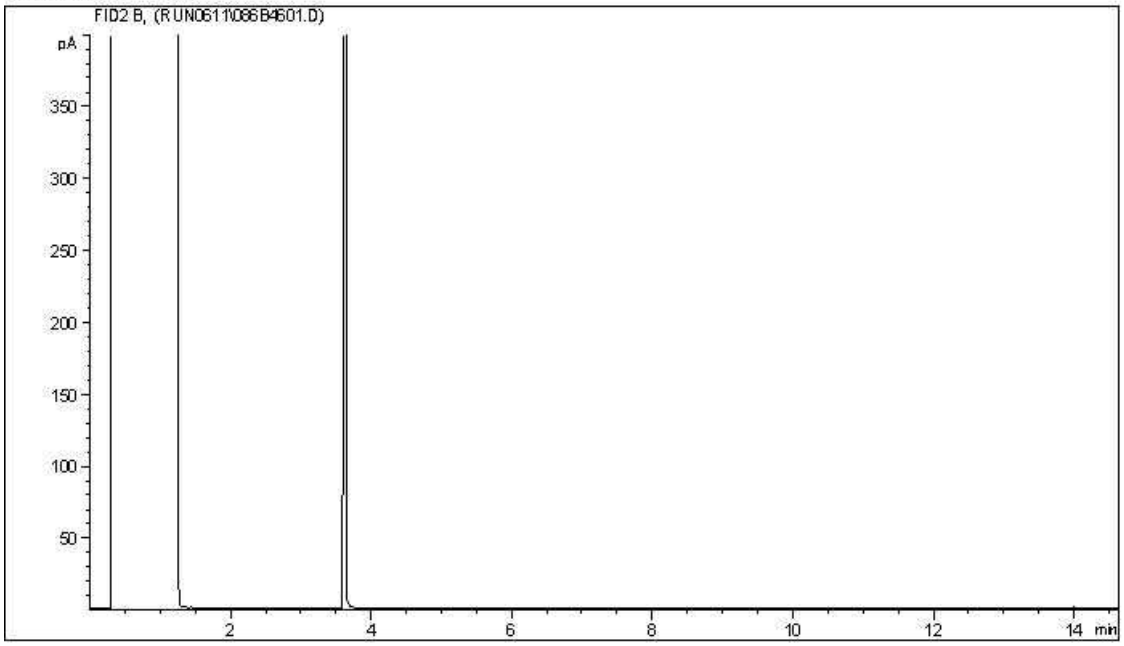
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C038236
Report Date: 2020/06/12
BV Labs Sample: XW5241

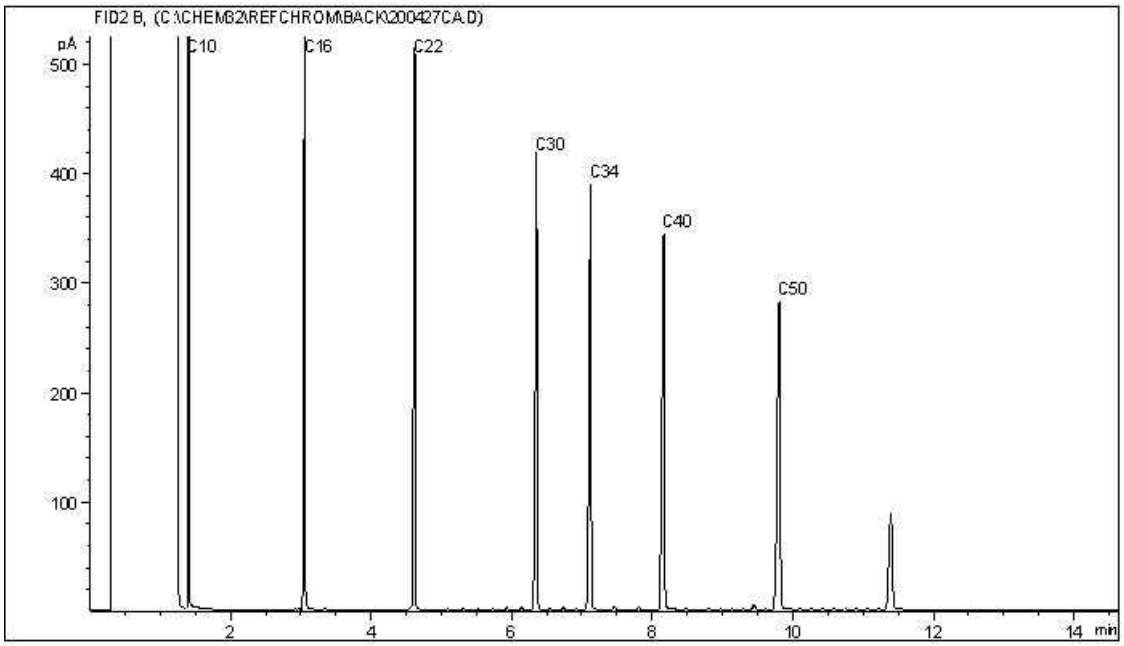
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1919

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

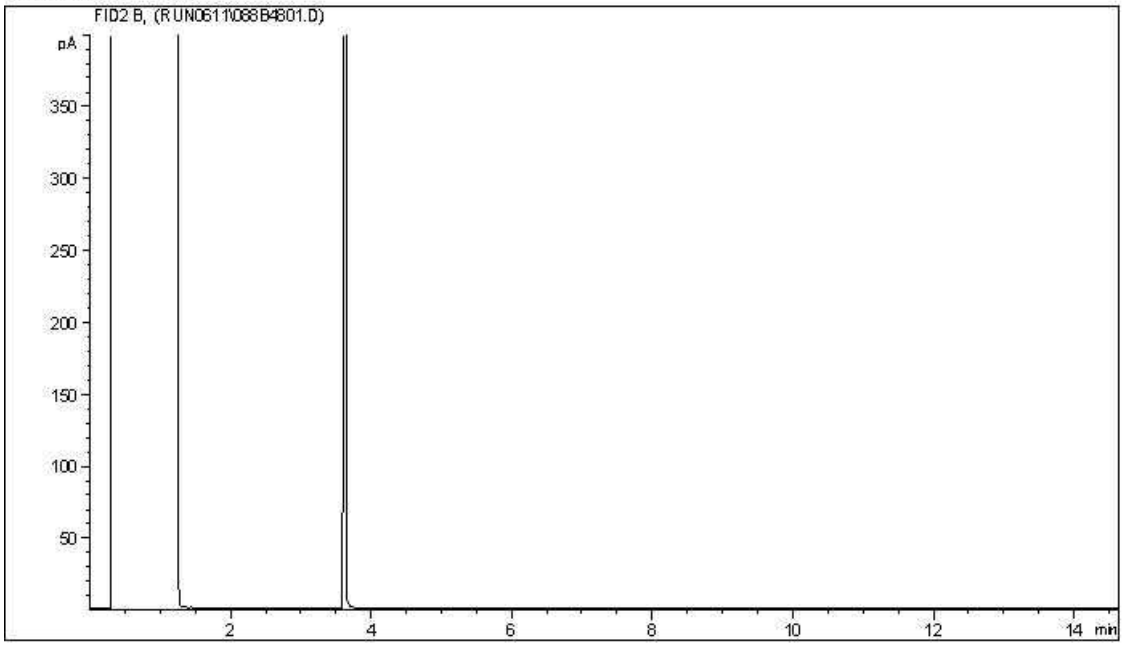
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C038236
Report Date: 2020/06/12
BV Labs Sample: XW5242

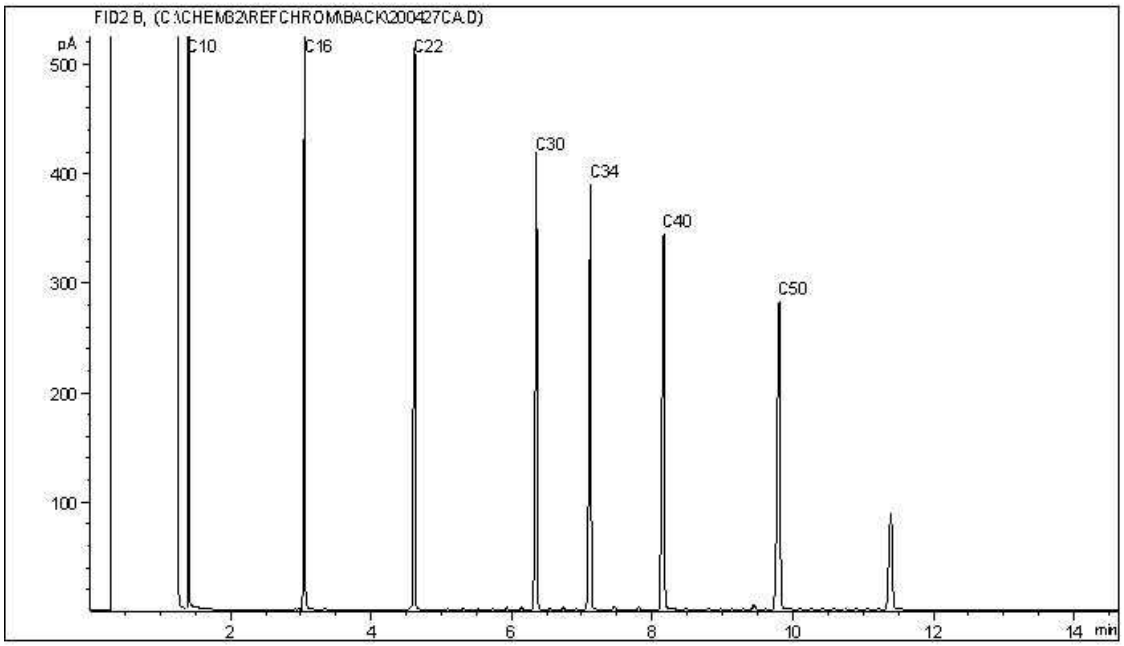
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1930

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



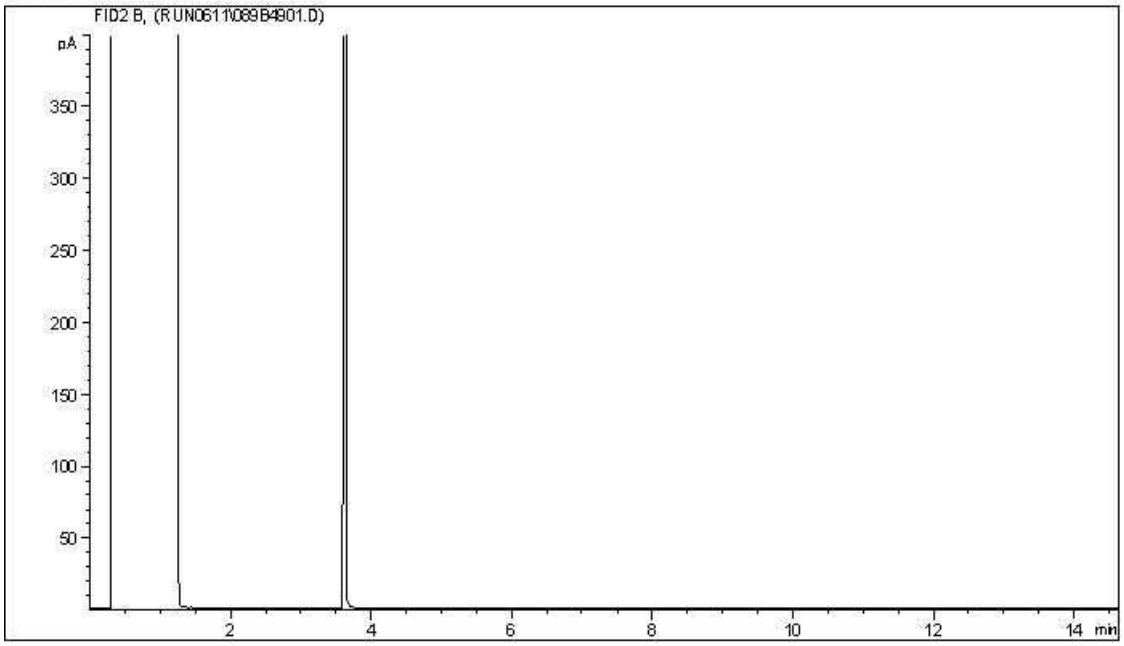

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

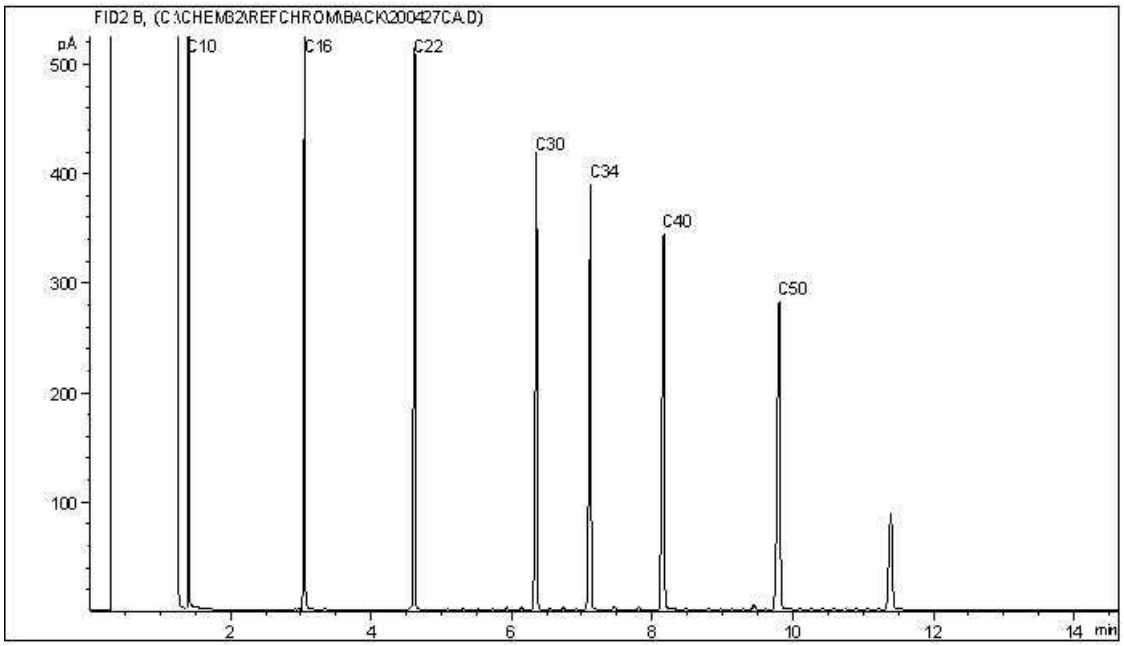
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



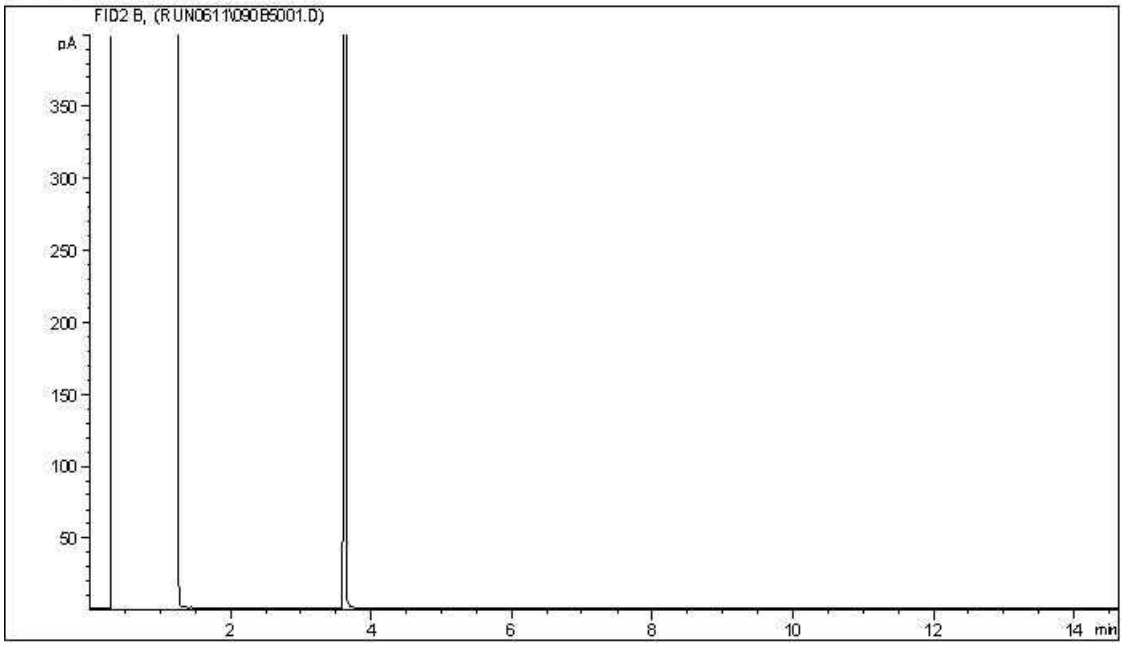

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

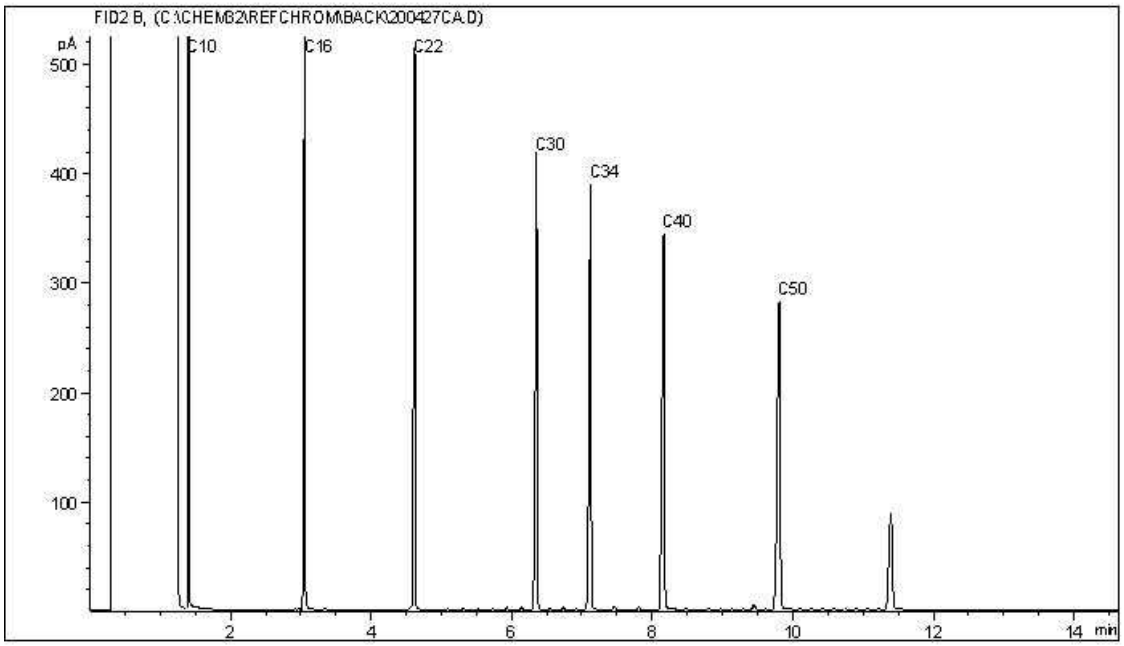
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061074

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/27**
Report #: R2883205
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C034234**
**Received: 2020/05/21, 15:32**

Sample Matrix: Water
# Samples Received: 7

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 1 | N/A | 2020/05/23 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| BTEX/F1 in Water by HS GC/MS/FID | 5 | N/A | 2020/05/24 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 6 | N/A | 2020/05/24 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 1 | 2020/05/25 | 2020/05/25 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 5 | 2020/05/25 | 2020/05/26 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 7 | N/A | 2020/05/26 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 7 | N/A | 2020/05/26 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061074

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/27**
Report #: R2883205
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C034234**
**Received: 2020/05/21, 15:32**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU5331 | XU5332 | | XU5333 | XU5334 | | XU5335 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/21 13:45 | 2020/05/21 13:45 | | 2020/05/21 12:00 | 2020/05/21 12:00 | | 2020/05/21 11:00 | | |
| **COC Number** | | M061074 | M061074 | | M061074 | M061074 | | M061074 | | |
| | **UNITS** | **9971** | **1971** | **RDL** | **EX95** | **EX5** | **RDL** | **1102** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 0.17 | 0.17 | 0.10 | 0.61 | 0.63 | 0.10 | <0.10 | 0.10 | 9858697 |
| **Volatiles** | | | | | | | | | | |
| Benzene | mg/L | 0.0096 | 0.0099 | 0.00040 | 2.4 (1) | 2.5 (1) | 0.020 | <0.00040 | 0.00040 | 9858563 |
| Toluene | mg/L | 0.00094 | 0.00098 | 0.00040 | 5.0 (1) | 5.2 (1) | 0.020 | <0.00040 | 0.00040 | 9858563 |
| Ethylbenzene | mg/L | 0.044 | 0.046 | 0.00040 | 1.2 (1) | 1.2 (1) | 0.020 | <0.00040 | 0.00040 | 9858563 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | 0.00080 | 2.7 (1) | 2.8 (1) | 0.040 | <0.00080 | 0.00080 | 9858563 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | 0.00040 | 0.23 | 0.23 | 0.00040 | <0.00040 | 0.00040 | 9858563 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | 0.00089 | 3.0 | 3.1 | 0.040 | <0.00089 | 0.00089 | 9858024 |
| F1 (C6-C10) - BTEX | mg/L | 1.3 | 1.2 | 0.10 | 7.0 | 7.1 | 5.0 | <0.10 | 0.10 | 9858024 |
| F1 (C6-C10) | mg/L | 1.3 | 1.2 | 0.10 | 18 (1) | 19 (1) | 5.0 | <0.10 | 0.10 | 9858563 |
| **Surrogate Recovery (%)** | | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 102 | N/A | 104 | 104 | N/A | 101 | N/A | 9858563 |
| 4-Bromofluorobenzene (sur.) | % | 91 | 95 | N/A | 99 | 100 | N/A | 93 | N/A | 9858563 |
| D4-1,2-Dichloroethane (sur.) | % | 125 | 129 | N/A | 89 | 99 | N/A | 98 | N/A | 9858563 |
| O-TERPHENYL (sur.) | % | 111 | 111 | N/A | 109 | 112 | N/A | 110 | N/A | 9858697 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU5336 | XU5336 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/21 09:45 | 2020/05/21 09:45 | | |
| **COC Number** | | M061074 | M061074 | | |
| | **UNITS** | **1923** | **1923 Lab-Dup** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | 0.10 | 9858697 |
| **Volatiles** | | | | | |
| Benzene | mg/L | <0.00040 | N/A | 0.00040 | 9858563 |
| Toluene | mg/L | <0.00040 | N/A | 0.00040 | 9858563 |
| Ethylbenzene | mg/L | <0.00040 | N/A | 0.00040 | 9858563 |
| m & p-Xylene | mg/L | <0.00080 | N/A | 0.00080 | 9858563 |
| o-Xylene | mg/L | <0.00040 | N/A | 0.00040 | 9858563 |
| Xylenes (Total) | mg/L | <0.00089 | N/A | 0.00089 | 9858024 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | N/A | 0.10 | 9858024 |
| F1 (C6-C10) | mg/L | <0.10 | N/A | 0.10 | 9858563 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | N/A | N/A | 9858563 |
| 4-Bromofluorobenzene (sur.) | % | 93 | N/A | N/A | 9858563 |
| D4-1,2-Dichloroethane (sur.) | % | 98 | N/A | N/A | 9858563 |
| O-TERPHENYL (sur.) | % | 111 | 111 | N/A | 9858697 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU5331 | XU5332 | XU5333 | XU5334 | XU5335 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/21 13:45 | 2020/05/21 13:45 | 2020/05/21 12:00 | 2020/05/21 12:00 | 2020/05/21 11:00 | | |
| **COC Number** | | M061074 | M061074 | M061074 | M061074 | M061074 | | |
| | **UNITS** | **9971** | **1971** | **EX95** | **EX5** | **1102** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9856617 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.010 | 0.010 | <0.0020 | 0.0020 | 9858569 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9858569 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.0010 (1) | 0.00099 (1) | <0.00050 | 0.00050 | 9858569 |
| 1,2-dichloroethane | mg/L | 0.068 | 0.064 | 0.069 | 0.068 | <0.00050 | 0.00050 | 9858569 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00093 | 0.00093 | <0.00050 | 0.00050 | 9858569 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9858569 |

RDL = Reportable Detection Limit
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.


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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU5331 | XU5332 | XU5333 | XU5334 | XU5335 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/21 13:45 | 2020/05/21 13:45 | 2020/05/21 12:00 | 2020/05/21 12:00 | 2020/05/21 11:00 | | |
| **COC Number** | | M061074 | M061074 | M061074 | M061074 | M061074 | | |
| | **UNITS** | **9971** | **1971** | **EX95** | **EX5** | **1102** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.23 | 0.22 | <0.00050 | 0.00050 | 9858569 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.14 | 0.14 | <0.00050 | 0.00050 | 9858569 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 103 | 105 | 106 | 101 | N/A | 9858569 |
| 4-Bromofluorobenzene (sur.) | % | 93 | 92 | 94 | 93 | 91 | N/A | 9858569 |
| D4-1,2-Dichloroethane (sur.) | % | 95 | 95 | 107 | 105 | 95 | N/A | 9858569 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU5336 | XU5337 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/21 09:45 | 2020/05/21 | | |
| **COC Number** | | M061074 | M061074 | | |
| | **UNITS** | **1923** | **TRIP BLANK 3** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | 0.0013 | 9856617 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00020 | 9858569 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9858569 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9858569 |
| RDL = Reportable Detection Limit | | | | | |



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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU5336 | XU5337 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/21 09:45 | 2020/05/21 | | |
| **COC Number** | | M061074 | M061074 | | |
| | **UNITS** | **1923** | **TRIP BLANK 3** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9858569 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 102 | N/A | 9858569 |
| 4-Bromofluorobenzene (sur.) | % | 91 | 91 | N/A | 9858569 |
| D4-1,2-Dichloroethane (sur.) | % | 92 | 93 | N/A | 9858569 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 2.3°C |

**Results relate only to the items tested.**



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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9858563 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/23 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/23 | | 92 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/23 | | 103 | % | 50 - 140 |
| | | | Benzene | 2020/05/23 | | 83 | % | 50 - 140 |
| | | | Toluene | 2020/05/23 | | 85 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/23 | | 87 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/23 | | 88 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/23 | | 87 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/23 | | 61 | % | 60 - 140 |
| 9858563 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/23 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/23 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/23 | | 98 | % | 50 - 140 |
| | | | Benzene | 2020/05/23 | | 87 | % | 60 - 130 |
| | | | Toluene | 2020/05/23 | | 89 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/23 | | 92 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/23 | | 94 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/23 | | 92 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/23 | | 97 | % | 60 - 140 |
| 9858563 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/23 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/23 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/23 | | 100 | % | 50 - 140 |
| | | | Benzene | 2020/05/23 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/23 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/23 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/23 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/23 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/23 | <0.10 | | mg/L | |
| 9858563 | DO1 | RPD | Benzene | 2020/05/23 | 4.7 | | % | 30 |
| | | | Toluene | 2020/05/23 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/23 | 2.2 | | % | 30 |
| | | | m & p-Xylene | 2020/05/23 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/23 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/23 | 0.69 | | % | 30 |
| 9858569 | QW1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 99 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 111 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | Bromoform | 2020/05/26 | | 111 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/26 | | 75 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/26 | | 101 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/26 | | 112 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/26 | | 81 | % | 50 - 140 |
| | | | Chloroform | 2020/05/26 | | 84 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/26 | | 73 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/26 | | 101 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/26 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/26 | | 88 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/26 | | 86 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/26 | | 80 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dichloromethane | 2020/05/26 | | 86 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/26 | | 79 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/26 | | 85 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | Styrene | 2020/05/26 | | 98 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | | 102 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | | 101 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | | 88 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/26 | | 96 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/26 | | 83 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/26 | | 71 | % | 50 - 140 |
| 9858569 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 108 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 108 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/26 | | 94 | % | 60 - 130 |
| | | | Bromoform | 2020/05/26 | | 105 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/26 | | 76 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/26 | | 95 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/26 | | 99 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/26 | | 107 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/26 | | 82 | % | 60 - 130 |
| | | | Chloroform | 2020/05/26 | | 84 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/26 | | 76 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/26 | | 94 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/26 | | 96 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/26 | | 92 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/26 | | 91 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/26 | | 87 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/26 | | 87 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/26 | | 92 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/26 | | 83 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/26 | | 84 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/26 | | 80 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/26 | | 82 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | Styrene | 2020/05/26 | | 98 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | | 98 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | | 95 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/26 | | 97 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | | 89 | % | 60 - 130 |



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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-trichloroethane | 2020/05/26 | | 94 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/26 | | 94 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/26 | | 101 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/26 | | 86 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | | 93 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/26 | | 73 | % | 60 - 130 |
| 9858569 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 93 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/26 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/26 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/26 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/26 | <0.00050 | | mg/L | |
| 9858569 | QW1 | RPD | 1,2-dibromoethane | 2020/05/26 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/26 | NC | | % | 30 |
| 9858697 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/25 | | 118 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/25 | | 98 | % | 60 - 140 |
| 9858697 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/25 | | 119 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/25 | | 97 | % | 60 - 140 |



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BV Labs Job #: C034234
Report Date: 2020/05/27

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: BG

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9858697 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/05/25 | | 114 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/25 | <0.10 | | mg/L | |
| 9858697 | LSH | RPD [XU5336-01] | F2 (C10-C16 Hydrocarbons) | 2020/05/25 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

809

# CHAIN OF CUSTODY RECORD

M 061074

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave NE Calgary, Ab | Address: | | Project #: | CG 2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | ~~Austin~~ Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 2 | 3 | 2 |
| Cooling Media | | ✓ | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☆ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9971 | | 2020/05/21 | 13:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 2 | 1971 | | 2020/05/21 | 13:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 3 | Ex95 | | 2020/05/21 | 12:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 4 | Ex5 | | 2020/05/21 | 12:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 5 | 1102 | | 2020/05/21 | 11:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 6 | 1923 | | 2020/05/21 | 09:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | Trip Blank 3 | | 2020/05/21 | | W | 2 | ✓ | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

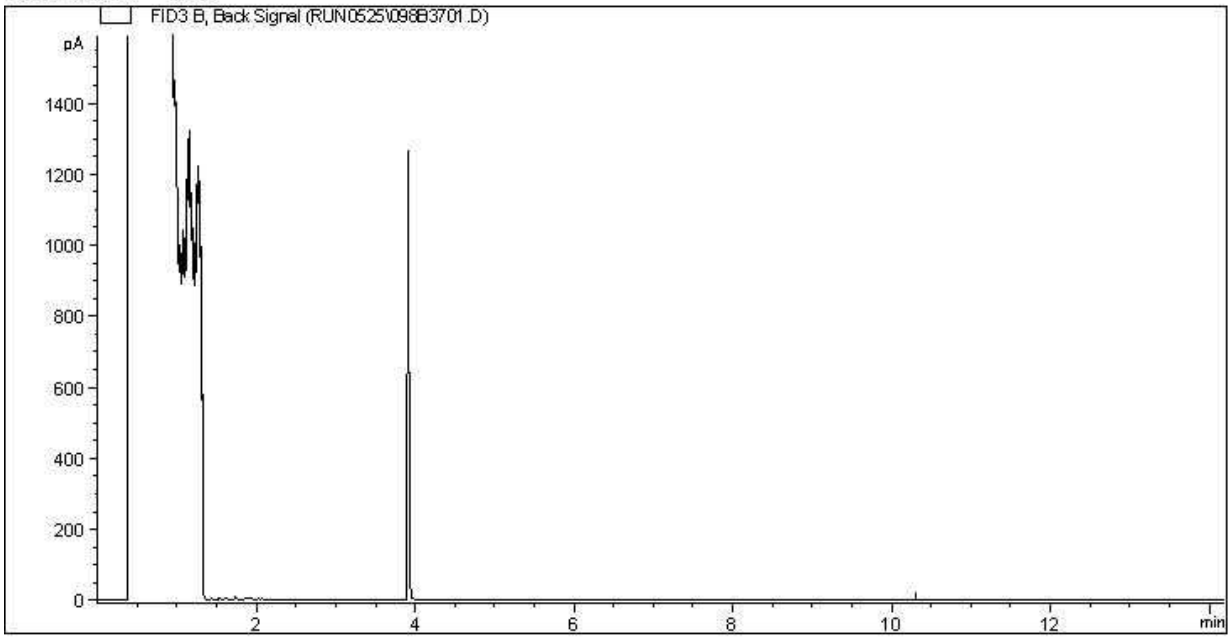
| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Bryn Golowitz | 2020/05/21 | 15:15 | SISHAKUMAR | 2020/05/21 | 15:37 | C034234 |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

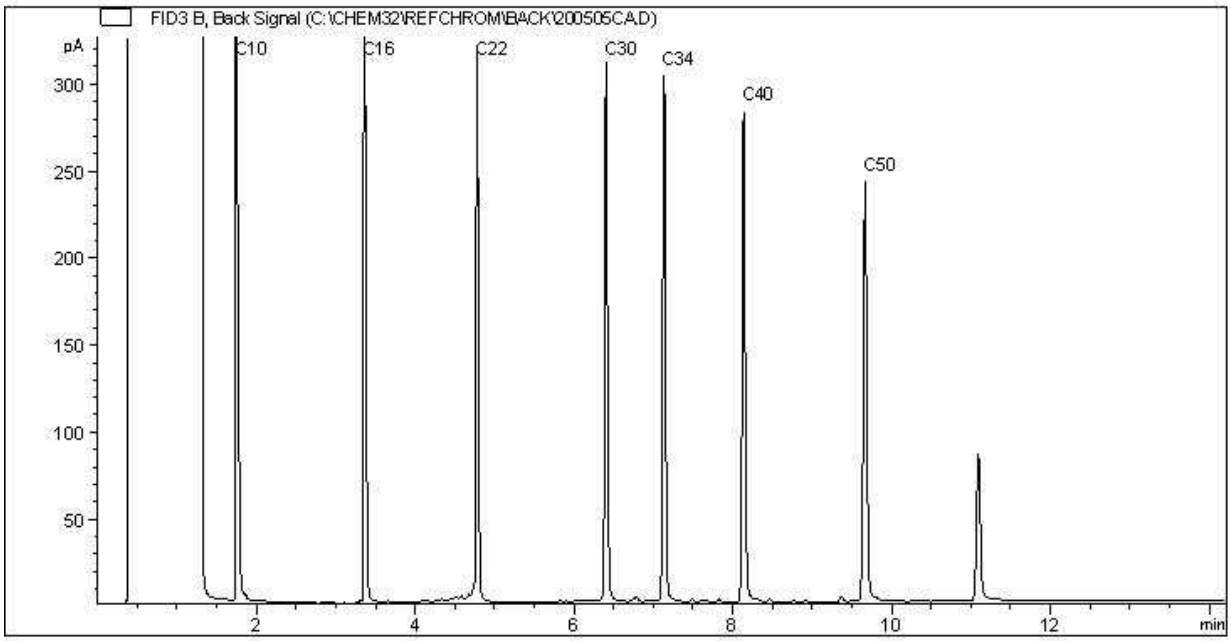
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



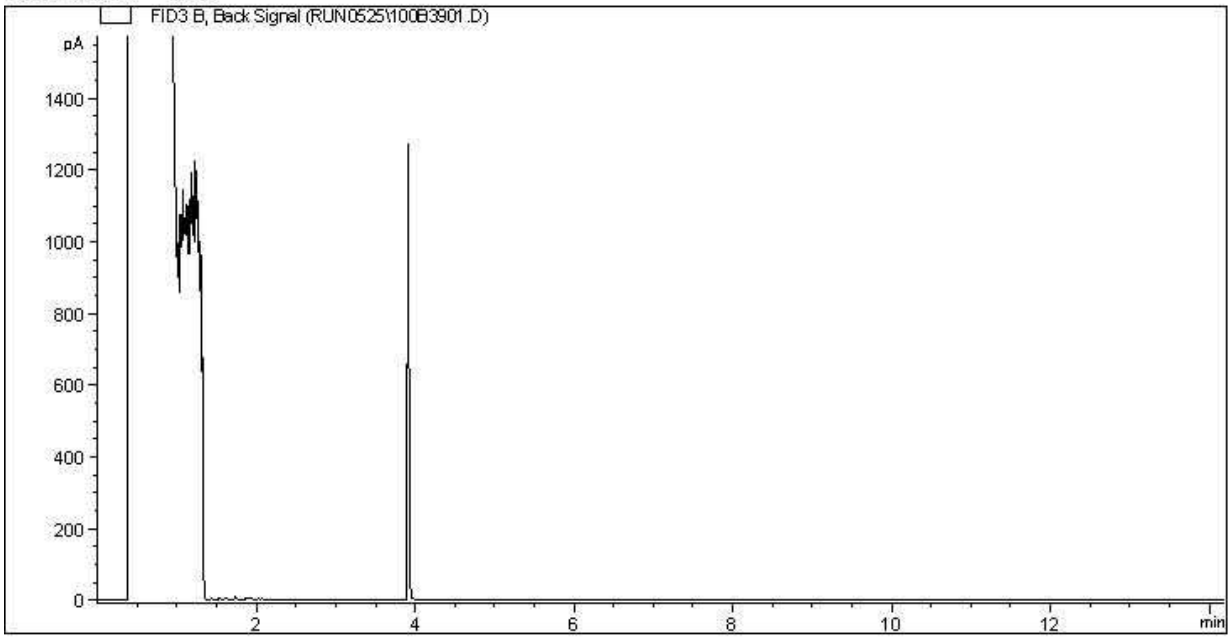

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

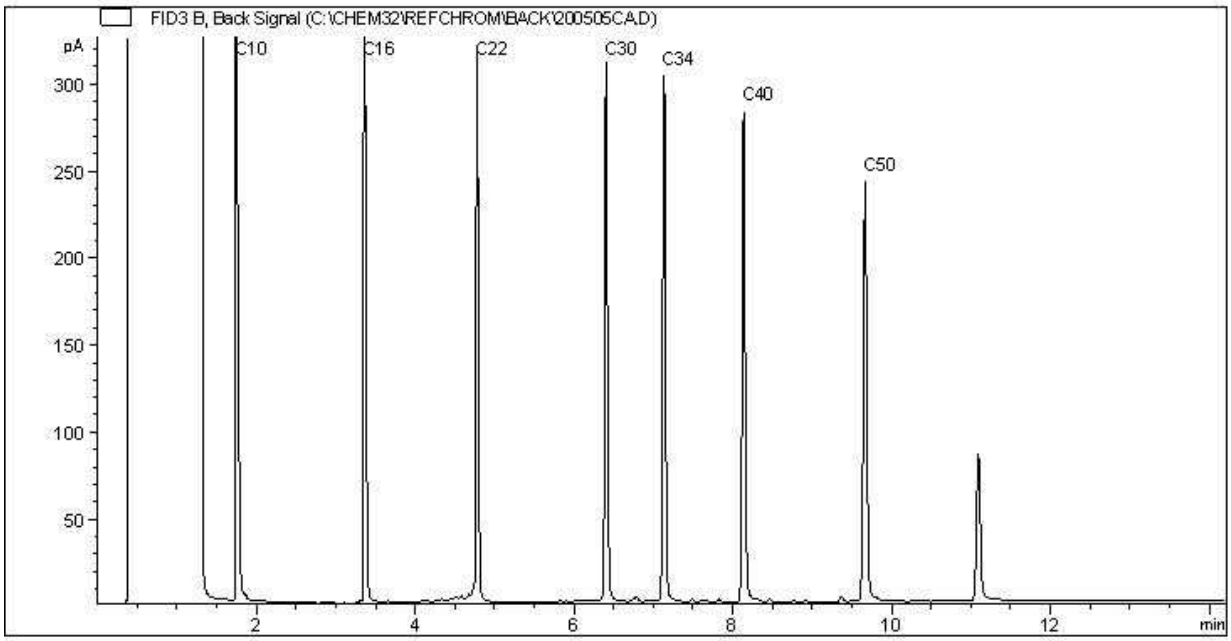
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

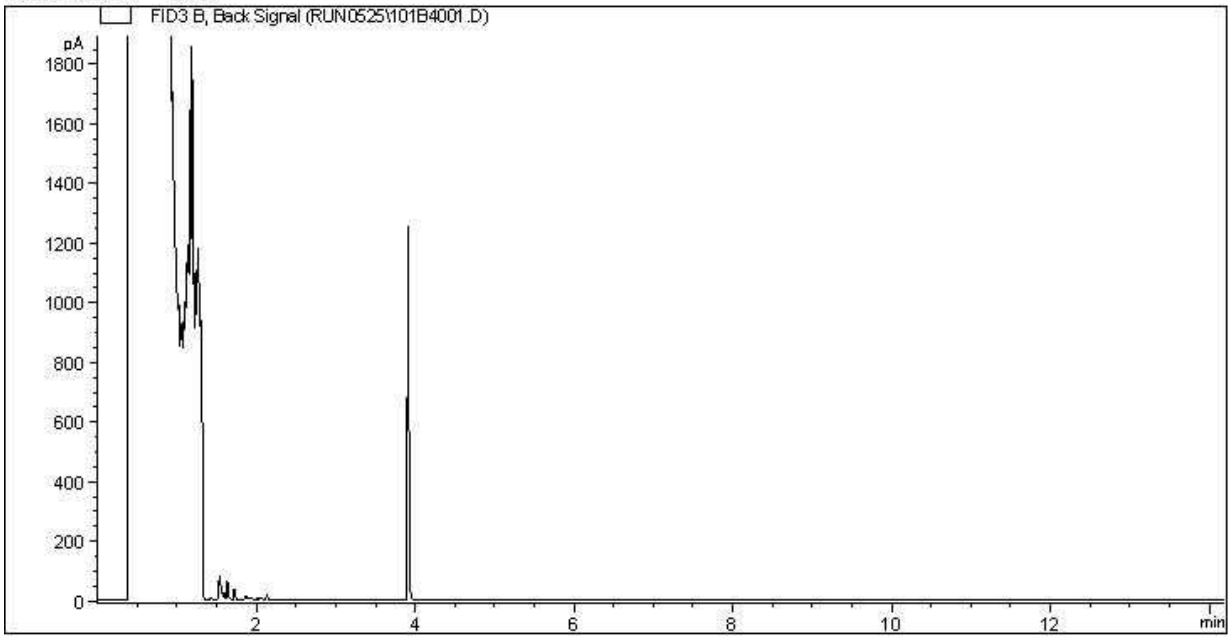
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C034234
Report Date: 2020/05/27
BV Labs Sample: XU5333

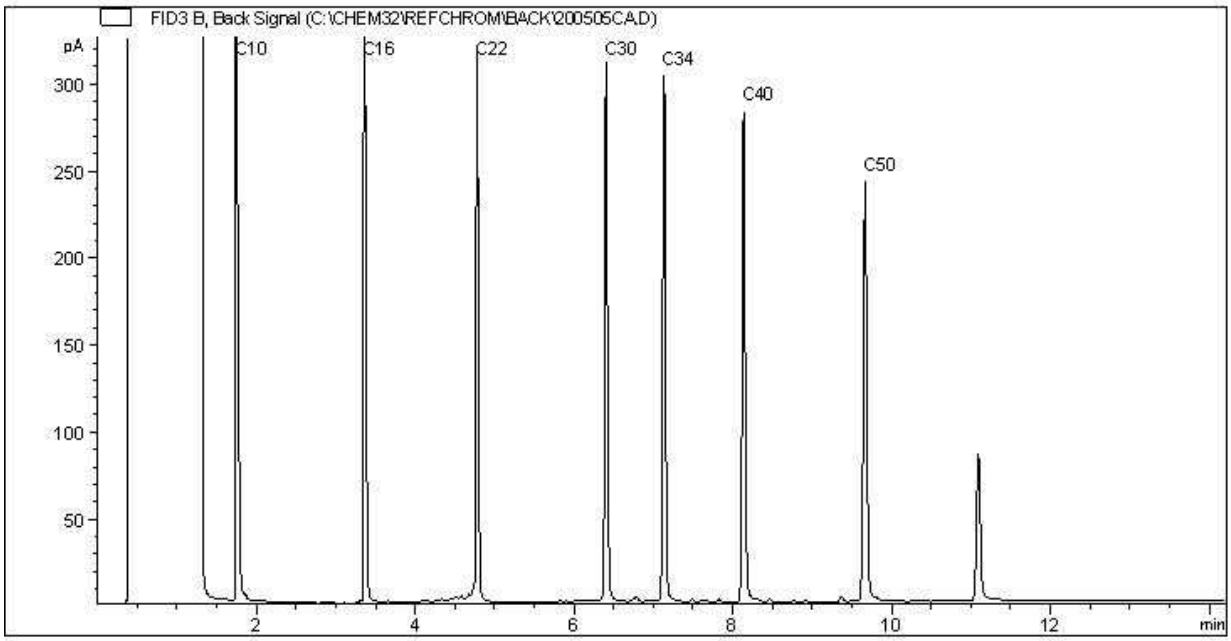
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: EX95

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



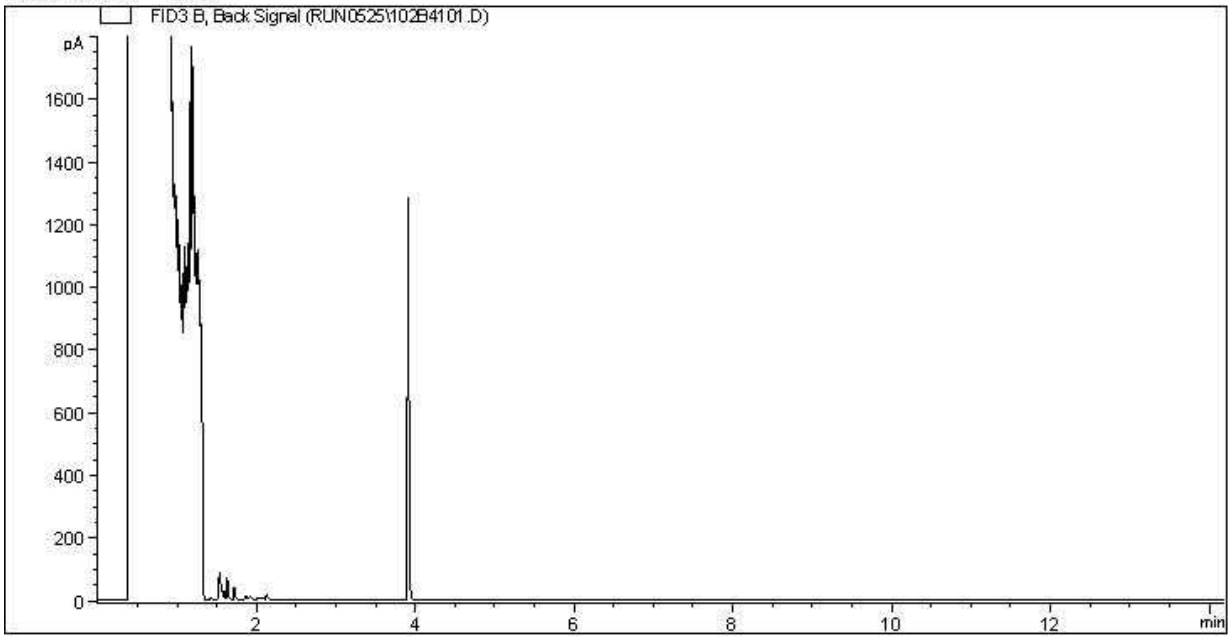

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

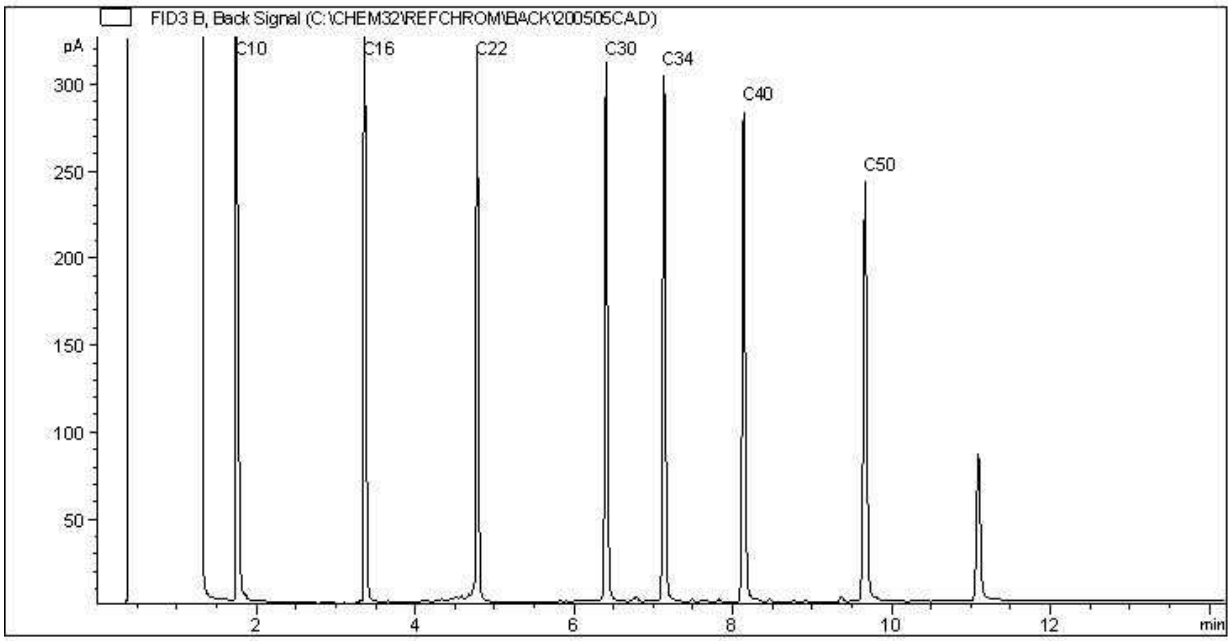
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



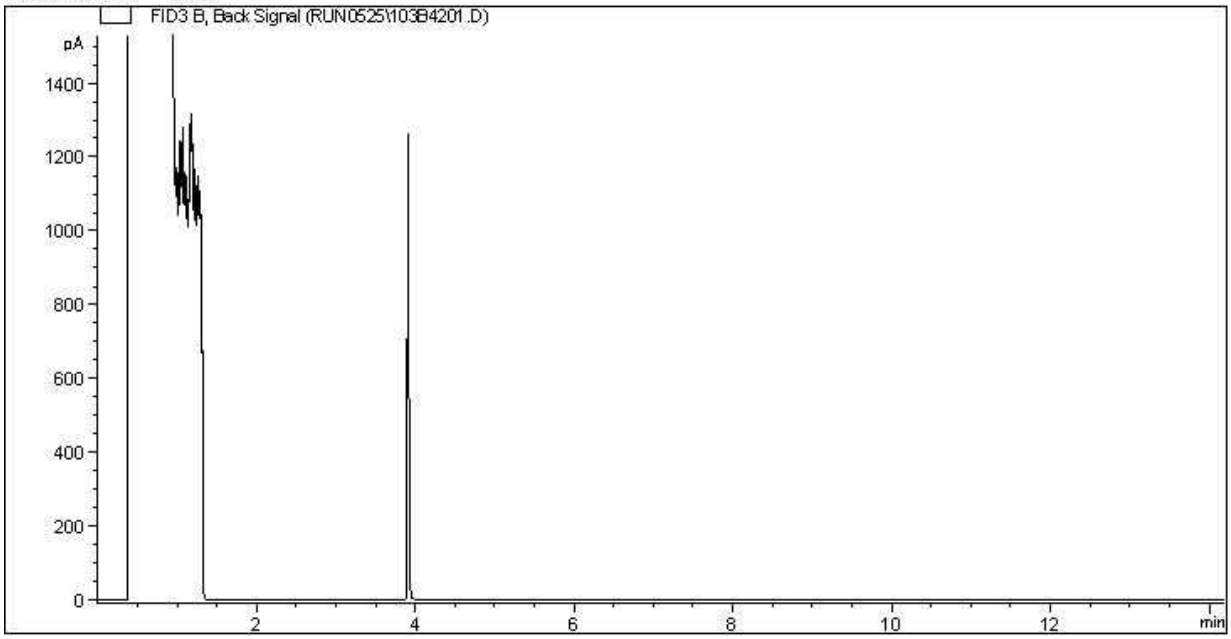

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

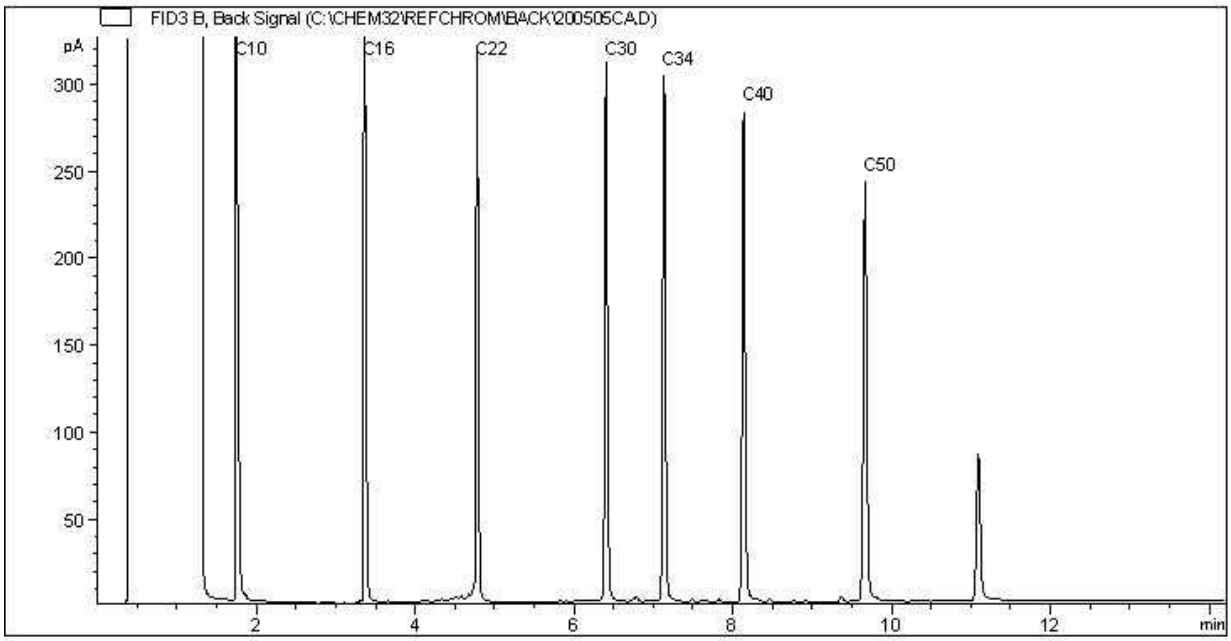
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



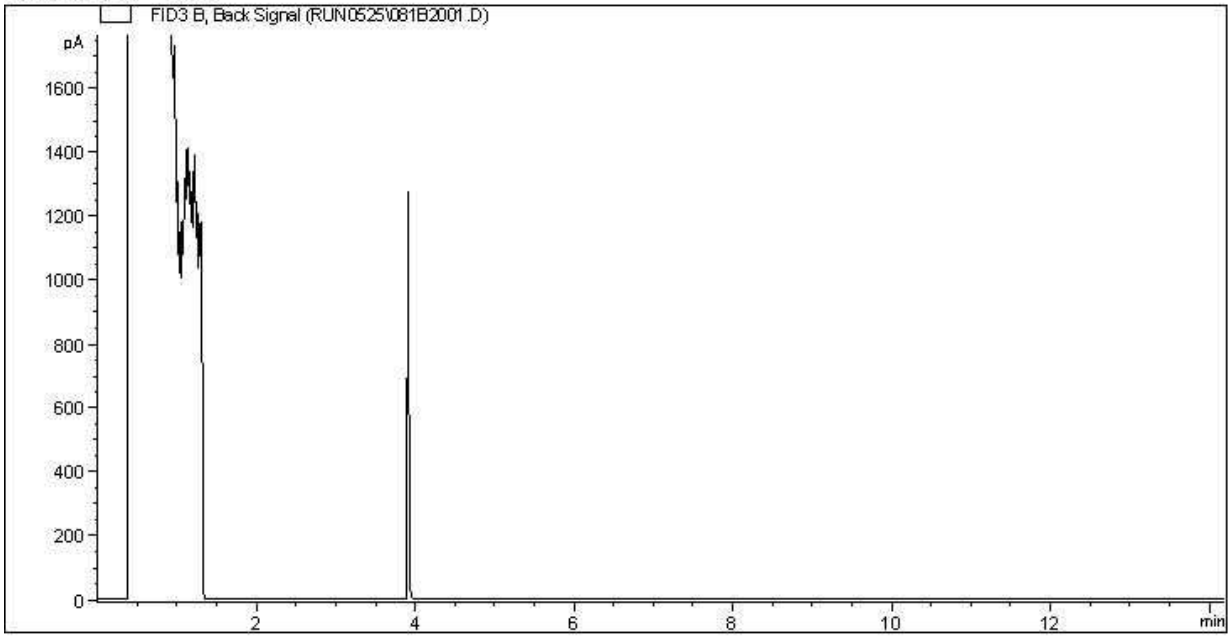

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

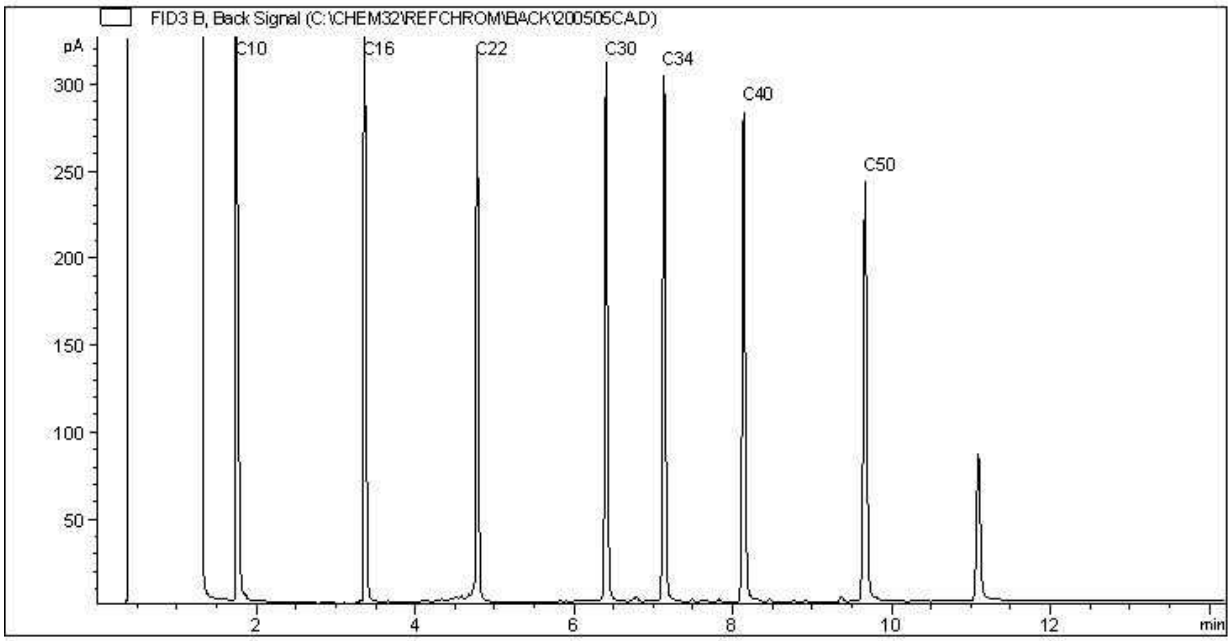
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

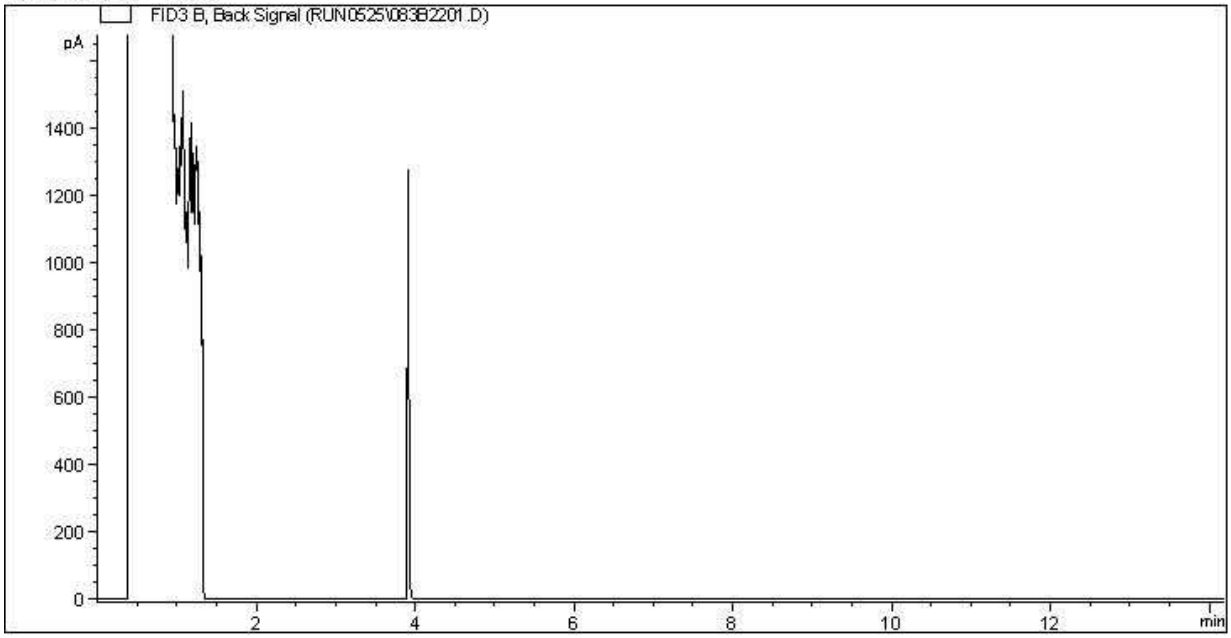
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C034234
Report Date: 2020/05/27
BV Labs Sample: XU5336 Lab-Dup

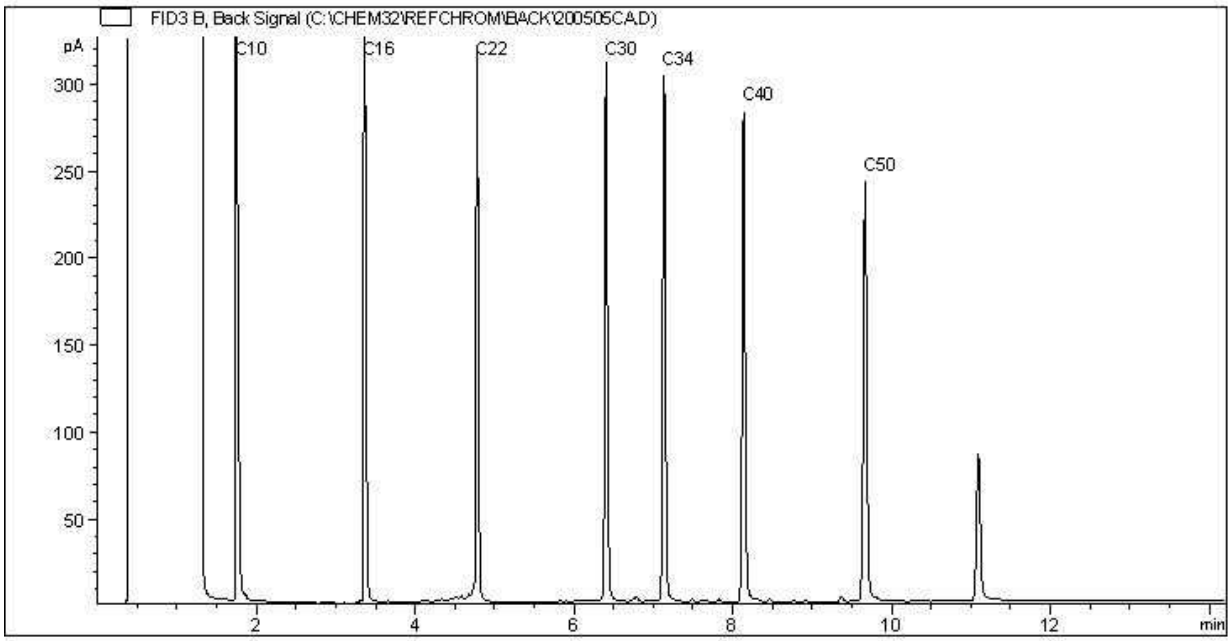
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1923

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061024, M061025

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/28**
Report #: R2883826
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C033917**
**Received: 2020/05/20, 15:40**

Sample Matrix: Water
# Samples Received: 19

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/05/22 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 18 | N/A | 2020/05/24 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 18 | N/A | 2020/05/25 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 1 | N/A | 2020/05/27 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 1 | N/A | 2020/05/22 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 9 | 2020/05/22 | 2020/05/22 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 9 | 2020/05/22 | 2020/05/23 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 1 | N/A | 2020/05/24 | | Auto Calc |
| Elements by ICP-Dissolved-Lab Filtered (2) | 1 | N/A | 2020/05/23 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 1 | N/A | 2020/05/28 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/05/24 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/05/23 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/05/23 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/05/22 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 1 | N/A | 2020/05/22 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 1 | N/A | 2020/05/28 | | Auto Calc |
| Total Trihalomethanes Calculation | 19 | N/A | 2020/05/25 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 19 | N/A | 2020/05/22 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061024, M061025

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/28**
Report #: R2883826
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C033917**
**Received: 2020/05/20, 15:40**

use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU3427 | XU3427 | XU3428 | XU3429 | XU3430 | XU3431 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 10:00 | 2020/05/20 10:00 | 2020/05/20 10:30 | 2020/05/20 09:40 | 2020/05/20 12:50 | 2020/05/20 12:30 | | |
| **COC Number** | | M061024 | M061024 | M061024 | M061024 | M061024 | M061024 | | |
| | **UNITS** | **1945** | **1945 Lab-Dup** | **1951** | **1978** | **3001A** | **3001B** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9857839 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9857168 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| Xylenes (Total) | mg/L | <0.00089 | N/A | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9856534 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9856534 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9857168 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 102 | 97 | 97 | 102 | 105 | N/A | 9857168 |
| 4-Bromofluorobenzene (sur.) | % | 88 | 91 | 91 | 84 | 90 | 92 | N/A | 9857168 |
| D4-1,2-Dichloroethane (sur.) | % | 93 | 92 | 90 | 90 | 94 | 96 | N/A | 9857168 |
| O-TERPHENYL (sur.) | % | 117 | N/A | 116 | 118 | 119 | 117 | N/A | 9857839 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU3432 | XU3433 | XU3434 | XU3435 | XU3436 | XU3438 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 13:15 | 2020/05/20 11:40 | 2020/05/20 12:10 | 2020/05/20 11:00 | 2020/05/20 11:30 | 2020/05/20 14:30 | | |
| **COC Number** | | M061024 | M061024 | M061024 | M061024 | M061024 | M061025 | | |
| | **UNITS** | **3001C** | **3002A** | **3002B** | **3003A** | **3003B** | **1701** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9857839 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9857168 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9857168 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9856534 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9856534 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9857168 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 104 | 101 | 103 | 102 | 103 | N/A | 9857168 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 88 | 87 | 89 | 89 | 90 | N/A | 9857168 |
| D4-1,2-Dichloroethane (sur.) | % | 94 | 91 | 88 | 94 | 93 | 96 | N/A | 9857168 |
| O-TERPHENYL (sur.) | % | 124 | 118 | 116 | 123 | 115 | 116 | N/A | 9857839 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU3439 | XU3440 | XU3441 | XU3442 | XU3443 | XU3444 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 10:30 | 2020/05/20 13:00 | 2020/05/20 11:15 | 2020/05/20 12:15 | 2020/05/20 12:30 | 2020/05/20 13:45 | | |
| **COC Number** | | M061025 | M061025 | M061025 | M061025 | M061025 | M061025 | | |
| | **UNITS** | **EX7** | **1967** | **2011** | **2008** | **1974** | **EX4** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 1.0 | 0.36 | <0.10 | <0.10 | <0.10 | 0.61 | 0.10 | 9857839 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | 1.0 | 0.073 | <0.00040 | <0.00040 | 0.00086 (1) | 0.29 | 0.00040 | 9857168 |
| Toluene | mg/L | 0.12 | 0.0061 | <0.00040 | <0.00040 | <0.00040 | 0.016 | 0.00040 | 9857168 |
| Ethylbenzene | mg/L | 0.42 | 0.12 | <0.00040 | <0.00040 | <0.00040 | 0.43 | 0.00040 | 9857168 |
| m & p-Xylene | mg/L | 0.54 | 0.0016 | <0.00080 | <0.00080 | 0.0019 | 1.1 | 0.00080 | 9857168 |
| o-Xylene | mg/L | 0.18 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.048 | 0.00040 | 9857168 |
| Xylenes (Total) | mg/L | 0.72 | 0.0016 | <0.00089 | <0.00089 | 0.0019 | 1.1 | 0.00089 | 9856534 |
| F1 (C6-C10) - BTEX | mg/L | 1.8 | 1.9 | <0.10 | <0.10 | 0.13 | 2.4 | 0.10 | 9856534 |
| F1 (C6-C10) | mg/L | 4.1 | 2.1 | <0.10 | <0.10 | 0.14 | 4.2 | 0.10 | 9857168 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 96 | 100 | 103 | 102 | 102 | N/A | 9857168 |
| 4-Bromofluorobenzene (sur.) | % | 87 | 81 | 88 | 89 | 93 | 94 | N/A | 9857168 |
| D4-1,2-Dichloroethane (sur.) | % | 108 | 102 | 95 | 93 | 101 | 106 | N/A | 9857168 |
| O-TERPHENYL (sur.) | % | 116 | 115 | 119 | 117 | 113 | 112 | N/A | 9857839 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU3445 | XU3445 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 13:20 | 2020/05/20 13:20 | | |
| **COC Number** | | M061025 | M061025 | | |
| | **UNITS** | **9967** | **9967 Lab-Dup** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 0.36 | 0.38 | 0.10 | 9857839 |
| **Volatiles** | | | | | |
| Benzene | mg/L | 0.11 | N/A | 0.00040 | 9857168 |
| Toluene | mg/L | 0.011 | N/A | 0.00040 | 9857168 |
| Ethylbenzene | mg/L | 0.15 | N/A | 0.00040 | 9857168 |
| m & p-Xylene | mg/L | 0.0029 | N/A | 0.00080 | 9857168 |
| o-Xylene | mg/L | 0.00053 | N/A | 0.00040 | 9857168 |
| Xylenes (Total) | mg/L | 0.0034 | N/A | 0.00089 | 9856534 |
| F1 (C6-C10) - BTEX | mg/L | 3.6 | N/A | 0.10 | 9856534 |
| F1 (C6-C10) | mg/L | 3.9 | N/A | 0.10 | 9857168 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | N/A | N/A | 9857168 |
| 4-Bromofluorobenzene (sur.) | % | 89 | N/A | N/A | 9857168 |
| D4-1,2-Dichloroethane (sur.) | % | 119 | N/A | N/A | 9857168 |
| O-TERPHENYL (sur.) | % | 115 | 120 | N/A | 9857839 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C033917
Report Date: 2020/05/28

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER -LAB FILTERED (WATER)

| **BV Labs ID** | | XU3430 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 12:50 | | |
| **COC Number** | | M061024 | | |
| | **UNITS** | **3001A** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 17 | N/A | 9856613 |
| Cation Sum | meq/L | 18 | N/A | 9856613 |
| Hardness (CaCO3) | mg/L | 780 | 0.50 | 9856553 |
| Ion Balance (% Difference) | % | 3.7 | N/A | 9856612 |
| Dissolved Nitrate (NO3) | mg/L | 2.1 | 0.044 | 9856614 |
| Nitrate plus Nitrite (N) | mg/L | 0.48 | 0.014 | 9856615 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 0.033 | 9856614 |
| Calculated Total Dissolved Solids | mg/L | 850 | 10 | 9856616 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 1500 | 2.0 | 9858228 |
| pH | pH | 7.88 | N/A | 9858227 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9858226 |
| Alkalinity (Total as CaCO3) | mg/L | 520 | 1.0 | 9858226 |
| Bicarbonate (HCO3) | mg/L | 640 | 1.0 | 9858226 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9858226 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9858226 |
| Dissolved Chloride (Cl) | mg/L | 190 | 1.0 | 9862167 |
| Dissolved Sulphate (SO4) | mg/L | 50 | 1.0 | 9862167 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 0.010 | 9857258 |
| Dissolved Nitrate (N) | mg/L | 0.48 | 0.010 | 9857258 |
| **Lab Filtered Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 140 | 0.30 | 9859597 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9859597 |
| Dissolved Magnesium (Mg) | mg/L | 110 | 0.20 | 9859597 |
| Dissolved Manganese (Mn) | mg/L | <0.0040 | 0.0040 | 9859597 |
| Dissolved Potassium (K) | mg/L | 4.9 | 0.30 | 9859597 |
| Dissolved Sodium (Na) | mg/L | 53 | 0.50 | 9859597 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C033917
Report Date: 2020/05/28

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3427 | XU3428 | XU3429 | XU3430 | XU3431 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 10:00 | 2020/05/20 10:30 | 2020/05/20 09:40 | 2020/05/20 12:50 | 2020/05/20 12:30 | | |
| **COC Number** | | M061024 | M061024 | M061024 | M061024 | M061024 | | |
| | **UNITS** | **1945** | **1951** | **1978** | **3001A** | **3001B** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9856617 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9857177 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3427 | XU3428 | XU3429 | XU3430 | XU3431 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 10:00 | 2020/05/20 10:30 | 2020/05/20 09:40 | 2020/05/20 12:50 | 2020/05/20 12:30 | | |
| **COC Number** | | M061024 | M061024 | M061024 | M061024 | M061024 | | |
| | **UNITS** | **1945** | **1951** | **1978** | **3001A** | **3001B** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 100 | 98 | 98 | 100 | N/A | 9857177 |
| 4-Bromofluorobenzene (sur.) | % | 109 | 106 | 107 | 107 | 101 | N/A | 9857177 |
| D4-1,2-Dichloroethane (sur.) | % | 114 | 110 | 108 | 113 | 112 | N/A | 9857177 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3432 | XU3433 | XU3434 | XU3435 | XU3436 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 13:15 | 2020/05/20 11:40 | 2020/05/20 12:10 | 2020/05/20 11:00 | 2020/05/20 11:30 | | |
| **COC Number** | | M061024 | M061024 | M061024 | M061024 | M061024 | | |
| | **UNITS** | **3001C** | **3002A** | **3002B** | **3003A** | **3003B** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9856617 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9857177 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.0057 | <0.00050 | 0.0018 | <0.00050 | 0.00050 | 9857177 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3432 | XU3433 | XU3434 | XU3435 | XU3436 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 13:15 | 2020/05/20 11:40 | 2020/05/20 12:10 | 2020/05/20 11:00 | 2020/05/20 11:30 | | |
| **COC Number** | | M061024 | M061024 | M061024 | M061024 | M061024 | | |
| | **UNITS** | **3001C** | **3002A** | **3002B** | **3003A** | **3003B** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 96 | 99 | 100 | 99 | 98 | N/A | 9857177 |
| 4-Bromofluorobenzene (sur.) | % | 123 | 104 | 107 | 106 | 106 | N/A | 9857177 |
| D4-1,2-Dichloroethane (sur.) | % | 139 | 110 | 109 | 125 | 109 | N/A | 9857177 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3437 | XU3438 | XU3438 | XU3439 | XU3440 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 | 2020/05/20 14:30 | 2020/05/20 14:30 | 2020/05/20 10:30 | 2020/05/20 13:00 | | |
| **COC Number** | | M061025 | M061025 | M061025 | M061025 | M061025 | | |
| | **UNITS** | **TRIP BLANK** | **1701** | **1701 Lab-Dup** | **EX7** | **1967** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | N/A | <0.0013 | <0.0013 | 0.0013 | 9856617 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0036 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9857177 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.14 | 0.023 | 0.00050 | 9857177 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3437 | XU3438 | XU3438 | XU3439 | XU3440 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 | 2020/05/20 14:30 | 2020/05/20 14:30 | 2020/05/20 10:30 | 2020/05/20 13:00 | | |
| **COC Number** | | M061025 | M061025 | M061025 | M061025 | M061025 | | |
| | **UNITS** | **TRIP BLANK** | **1701** | **1701 Lab-Dup** | **EX7** | **1967** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.27 | <0.00050 | 0.00050 | 9857177 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.15 | 0.0020 | 0.00050 | 9857177 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 99 | 99 | 98 | 98 | N/A | 9857177 |
| 4-Bromofluorobenzene (sur.) | % | 120 | 107 | 107 | 97 | 106 | N/A | 9857177 |
| D4-1,2-Dichloroethane (sur.) | % | 111 | 114 | 110 | 119 | 98 | N/A | 9857177 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3441 | XU3442 | XU3443 | XU3444 | XU3445 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 11:15 | 2020/05/20 12:15 | 2020/05/20 12:30 | 2020/05/20 13:45 | 2020/05/20 13:20 | | |
| **COC Number** | | M061025 | M061025 | M061025 | M061025 | M061025 | | |
| | **UNITS** | **2011** | **2008** | **1974** | **EX4** | **9967** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9856617 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9857177 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.024 | 0.014 | 0.025 | 0.00050 | 9857177 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9857177 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9857177 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU3441 | XU3442 | XU3443 | XU3444 | XU3445 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/20 11:15 | 2020/05/20 12:15 | 2020/05/20 12:30 | 2020/05/20 13:45 | 2020/05/20 13:20 | | |
| **COC Number** | | M061025 | M061025 | M061025 | M061025 | M061025 | | |
| | **UNITS** | **2011** | **2008** | **1974** | **EX4** | **9967** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00097 | 0.24 | <0.00050 | 0.00050 | 9857177 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.037 | 0.0028 | 0.00050 | 9857177 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9857177 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 99 | 99 | 98 | 98 | 98 | N/A | 9857177 |
| 4-Bromofluorobenzene (sur.) | % | 108 | 106 | 106 | 110 | 106 | N/A | 9857177 |
| D4-1,2-Dichloroethane (sur.) | % | 109 | 112 | 97 | 107 | 93 | N/A | 9857177 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 6.3°C |

**Results relate only to the items tested.**



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9857168 | DO1 | Matrix Spike [XU3428-02] | 1,4-Difluorobenzene (sur.) | 2020/05/24 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/24 | | 91 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/24 | | 93 | % | 50 - 140 |
| | | | Benzene | 2020/05/24 | | 90 | % | 50 - 140 |
| | | | Toluene | 2020/05/24 | | 87 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/24 | | 86 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/24 | | 88 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/24 | | 88 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/24 | | 76 | % | 60 - 140 |
| 9857168 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/24 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/24 | | 92 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/24 | | 88 | % | 50 - 140 |
| | | | Benzene | 2020/05/24 | | 91 | % | 60 - 130 |
| | | | Toluene | 2020/05/24 | | 88 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/24 | | 88 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/24 | | 91 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/24 | | 90 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/24 | | 76 | % | 60 - 140 |
| 9857168 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/24 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/24 | | 91 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/24 | | 92 | % | 50 - 140 |
| | | | Benzene | 2020/05/24 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/24 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/24 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/24 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/24 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/24 | <0.10 | | mg/L | |
| 9857168 | DO1 | RPD [XU3427-02] | Benzene | 2020/05/24 | NC | | % | 30 |
| | | | Toluene | 2020/05/24 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/24 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/05/24 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/24 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/24 | NC | | % | 30 |
| 9857177 | QW1 | Matrix Spike [XU3439-02] | 1,4-Difluorobenzene (sur.) | 2020/05/22 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/22 | | 110 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/22 | | 86 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/22 | | 103 | % | 50 - 140 |
| | | | Bromoform | 2020/05/22 | | 107 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/22 | | 74 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/22 | | 85 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/22 | | 97 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/22 | | 105 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/22 | | 78 | % | 50 - 140 |
| | | | Chloroform | 2020/05/22 | | 92 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/22 | | 72 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/22 | | 108 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/22 | | 99 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/22 | | 98 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/22 | | 93 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/22 | | 91 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/22 | | 94 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/22 | | 81 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/22 | | 90 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/22 | | 82 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dichloromethane | 2020/05/22 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/22 | | 98 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/22 | | 107 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/22 | | 111 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/22 | | 111 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/22 | | 96 | % | 50 - 140 |
| | | | Styrene | 2020/05/22 | | 110 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/22 | | 97 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/22 | | 106 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/22 | | 85 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/22 | | 101 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/22 | | 91 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/22 | | 91 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/22 | | 91 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/22 | | 99 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/22 | | 89 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/22 | | 71 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/22 | | NC | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/22 | | 93 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/22 | | 67 | % | 50 - 140 |
| 9857177 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/22 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/22 | | 110 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/22 | | 101 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/22 | | 93 | % | 60 - 130 |
| | | | Bromoform | 2020/05/22 | | 100 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/22 | | 73 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/22 | | 93 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/22 | | 94 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/22 | | 100 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/22 | | 82 | % | 60 - 130 |
| | | | Chloroform | 2020/05/22 | | 92 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/22 | | 73 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/22 | | 99 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/22 | | 97 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/22 | | 98 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/22 | | 94 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/22 | | 96 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/22 | | 101 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/22 | | 80 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/22 | | 94 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/22 | | 87 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/22 | | 82 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/22 | | 91 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/22 | | 96 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/22 | | 100 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/22 | | 103 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/22 | | 97 | % | 60 - 130 |
| | | | Styrene | 2020/05/22 | | 102 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/22 | | 94 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/22 | | 103 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/22 | | 86 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/22 | | 99 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/22 | | 97 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/22 | | 92 | % | 60 - 130 |



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BV Labs Job #: C033917
Report Date: 2020/05/28

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-trichloroethane | 2020/05/22 | | 95 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/22 | | 99 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/22 | | 84 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/22 | | 79 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/22 | | 105 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/22 | | 94 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/22 | | 73 | % | 60 - 130 |
| 9857177 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/22 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/22 | | 108 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/22 | | 107 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/22 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/22 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/22 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/22 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/22 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/22 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/22 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/22 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/22 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/22 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/22 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/22 | <0.00050 | | mg/L | |
| 9857177 | QW1 | RPD [XU3438-02] | Bromodichloromethane | 2020/05/22 | NC | | % | 30 |
| | | | Bromoform | 2020/05/22 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/22 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/22 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/22 | NC | | % | 30 |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Chloroethane | 2020/05/22 | NC | | % | 30 |
| | | | Chloroform | 2020/05/22 | NC | | % | 30 |
| | | | Chloromethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/22 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/22 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/22 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/22 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/22 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/22 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/22 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/22 | NC | | % | 30 |
| | | | Styrene | 2020/05/22 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/22 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/22 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/22 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/22 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/22 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/22 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/05/22 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/05/22 | NC | | % | 30 |
| 9857258 | KD9 | Matrix Spike | Dissolved Nitrite (N) | 2020/05/21 | | 97 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/21 | | 98 | % | 80 - 120 |
| 9857258 | KD9 | Spiked Blank | Dissolved Nitrite (N) | 2020/05/21 | | 99 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/21 | | 100 | % | 80 - 120 |
| 9857258 | KD9 | Method Blank | Dissolved Nitrite (N) | 2020/05/21 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/21 | <0.010 | | mg/L | |
| 9857258 | KD9 | RPD | Dissolved Nitrite (N) | 2020/05/21 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/21 | NC | | % | 20 |
| 9857839 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/22 | | 127 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/22 | | 122 | % | 60 - 140 |
| 9857839 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/22 | | 122 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/22 | | 114 | % | 60 - 140 |
| 9857839 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/05/22 | | 119 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/22 | <0.10 | | mg/L | |
| 9857839 | LSH | RPD [XU3445-01] | F2 (C10-C16 Hydrocarbons) | 2020/05/22 | 4.8 | | % | 30 |
| 9858226 | CT6 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/22 | | 95 | % | 80 - 120 |
| 9858226 | CT6 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/22 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/22 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/22 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/22 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/22 | <1.0 | | mg/L | |
| 9858226 | CT6 | RPD | Alkalinity (PP as CaCO3) | 2020/05/22 | NC | | % | 20 |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Alkalinity (Total as CaCO3) | 2020/05/22 | 0.67 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/22 | 0.67 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/22 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/22 | NC | | % | 20 |
| 9858227 | CT6 | Spiked Blank | pH | 2020/05/22 | | 100 | % | 97 - 103 |
| 9858227 | CT6 | RPD | pH | 2020/05/22 | 0.035 | | % | N/A |
| 9858228 | CT6 | Spiked Blank | Conductivity | 2020/05/22 | | 100 | % | 90 - 110 |
| 9858228 | CT6 | Method Blank | Conductivity | 2020/05/22 | <2.0 | | uS/cm | |
| 9858228 | CT6 | RPD | Conductivity | 2020/05/22 | 1.5 | | % | 10 |
| 9859597 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/23 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/23 | | 100 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/23 | | NC | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/23 | | NC | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/23 | | 93 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/23 | | 89 | % | 80 - 120 |
| 9859597 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/23 | | 97 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/23 | | 109 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/23 | | 97 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/23 | | 102 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/23 | | 101 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/23 | | 100 | % | 80 - 120 |
| 9859597 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/23 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/23 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/23 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/23 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/23 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/23 | <0.50 | | mg/L | |
| 9859597 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/23 | 3.8 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/23 | 3.6 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/23 | 6.0 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/23 | 4.3 | | % | 20 |
| 9862167 | CCQ | Matrix Spike | Dissolved Chloride (Cl) | 2020/05/28 | | 101 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/28 | | 118 | % | 80 - 120 |
| 9862167 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/05/28 | | 105 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/28 | | 108 | % | 80 - 120 |
| 9862167 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/05/28 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/05/28 | <1.0 | | mg/L | |
| 9862167 | CCQ | RPD | Dissolved Chloride (Cl) | 2020/05/28 | NC | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/05/28 | NC | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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BV Labs Job #: C033917
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

761

# CHAIN OF CUSTODY RECORD

M 061024



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave. NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCAL | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 5 | 7 | 7 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury ☐ Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1945 | | 2020/05/20 | 10:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1951 | | ↓ | 10:30 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 1978 | | ↓ | 9:40 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 3001 A | | ↓ | 12:50 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 5 | 3001 B | | ↓ | 12:30 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 6 | 3001 C | | ↓ | 13:15 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 7 | 3002 A | | ↓ | 11:40 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 8 | 3002 B | | ↓ | 12:10 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 9 | 3003 A | | ↓ | 11:00 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 10 | 3003 B | | 2020/05/20 | 11:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/20 | 14:30 | Fajran Jones | 2020/05/20 | 15:40 | C033917 |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

AB FCD-00331/7

Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

761

# CHAIN OF CUSTODY RECORD

M061025



| Invoice Information | Report Information (if differs from invoice) | Project Information | Turnaround Time (TAT) Required |
|---|---|---|---|
| Company: Clifton | Company: | Quotation #: | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: Stephen d'Abadie | Contact Name: | P.O. #/ AFE#: | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: 2222- 30 Ave NE Calgary Ab | Address: | Project #: CG 2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: 403 - 701 - 8226 | Phone: | Site Location: | |
| Email: stephen_dabadie@clifton.ca | Email: | Site #: | Date Required: |
| Copies: austin_mei@clifton.ca | Copies: | Sampled By: Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCAL | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 5 | 7 | 7 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☑ VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury ☐ Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Trip Blank 2 | | 2020/05/20 | | W | 2 | ✓ | | | | | | | | | | |
| 2 | 1701 | | 2020/05/20 | 14:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | Ex 7 | | 2020/05/20 | 10:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 1967 | | 2020/05/20 | 13:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | 2011 | | 2020/05/20 | 11:15 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 6 | 2008 | | 2020/05/20 | 12:15 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 7 | 1974 | | 2020/05/20 | 12:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 8 | Ex 4 | | 2020/05/20 | 13:45 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 9 | 9967 | | 2020/05/20 | 13:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/20 | 14:30 | Fagram Jones | 2020/05/20 | 15:40 | C033917 |
| | | | | | | |

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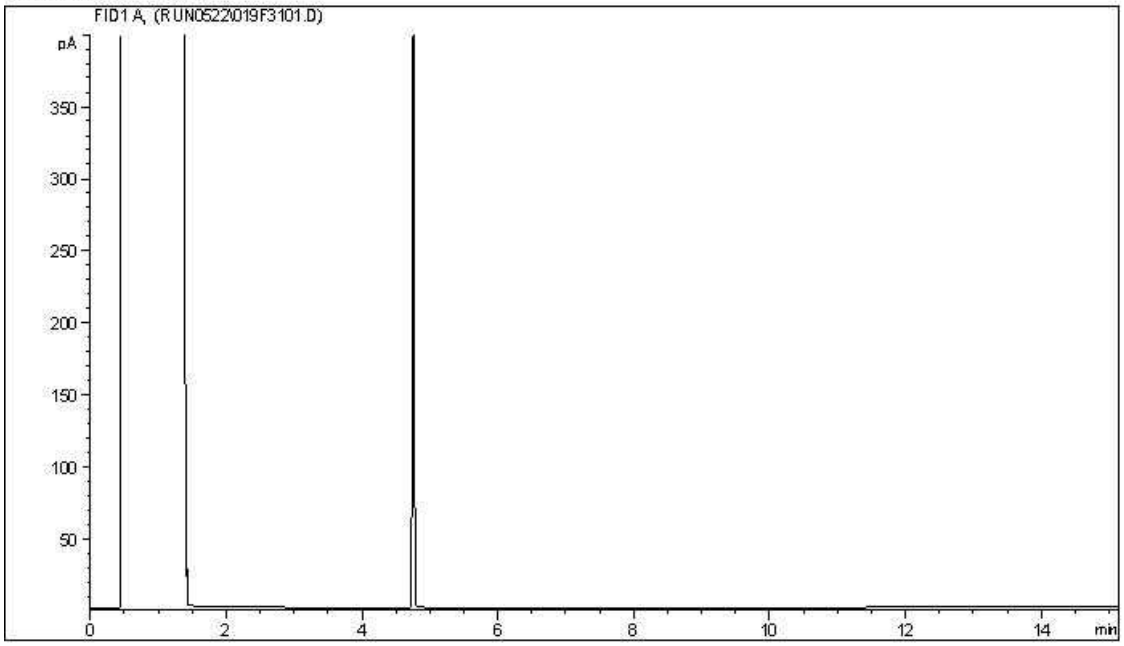
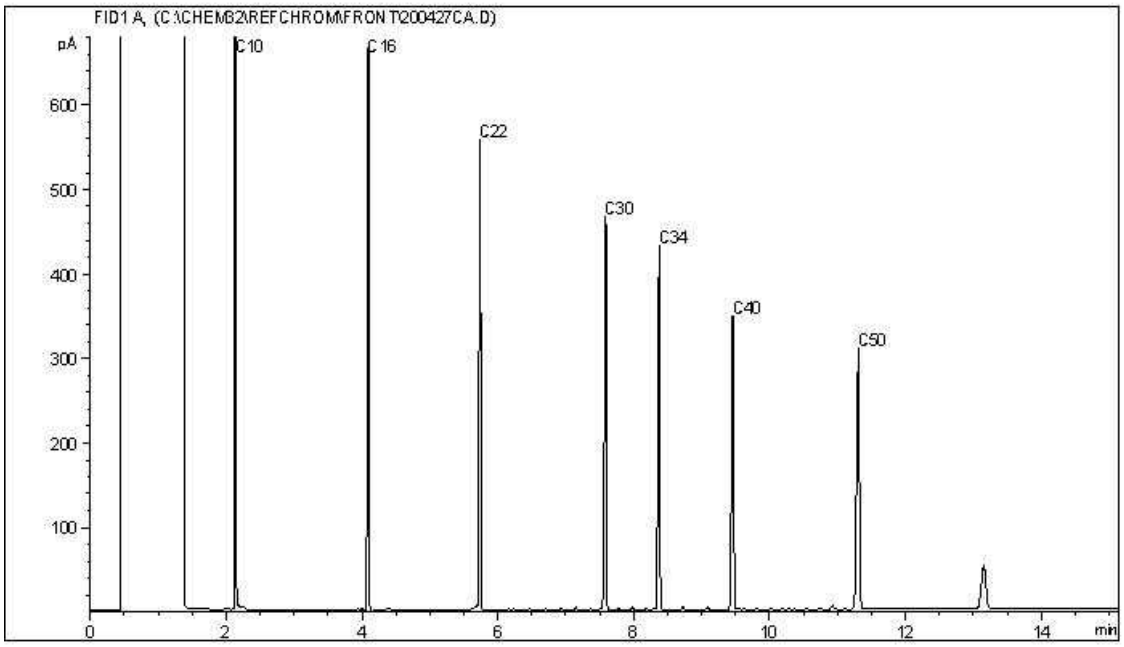
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

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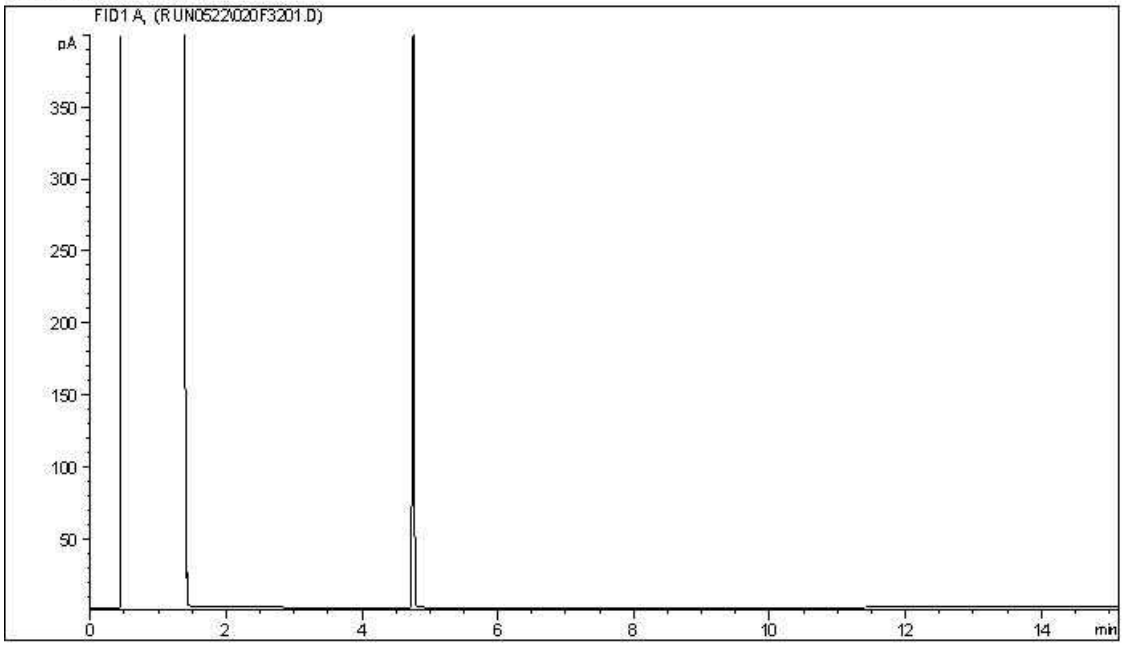
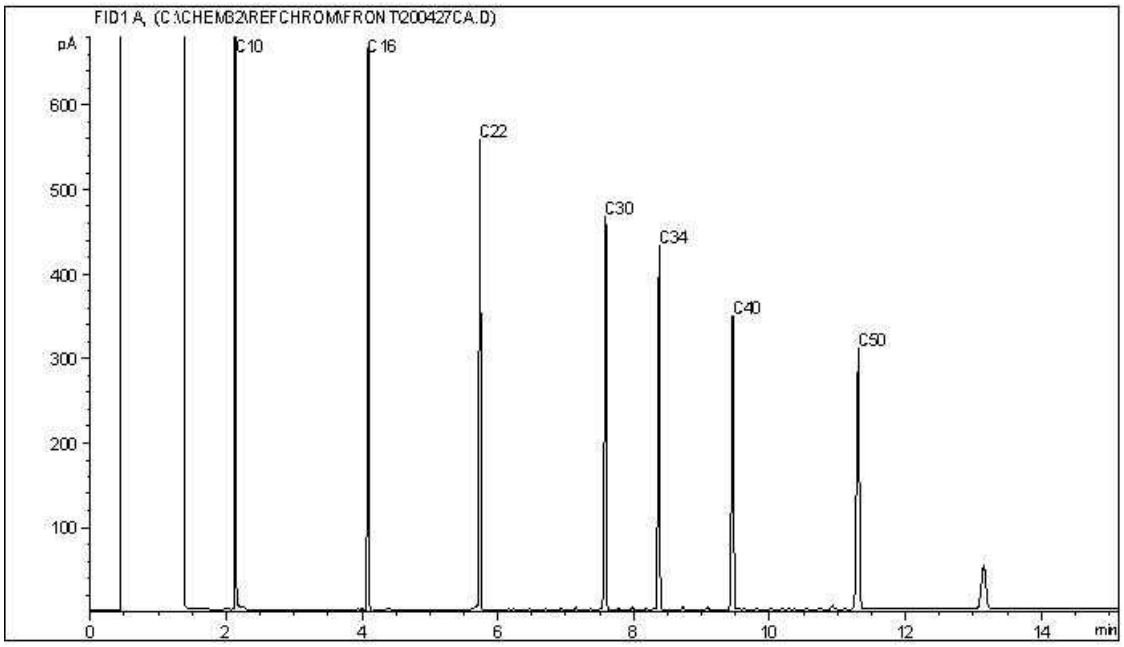



Carbon Range Distribution - Reference Chromatogram

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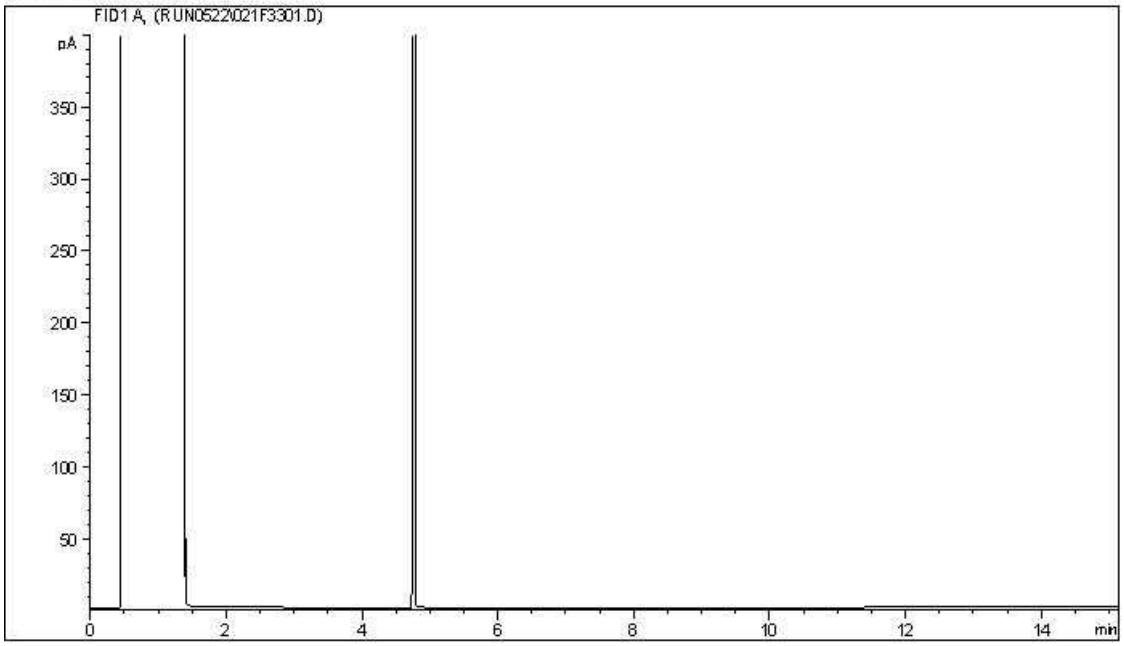


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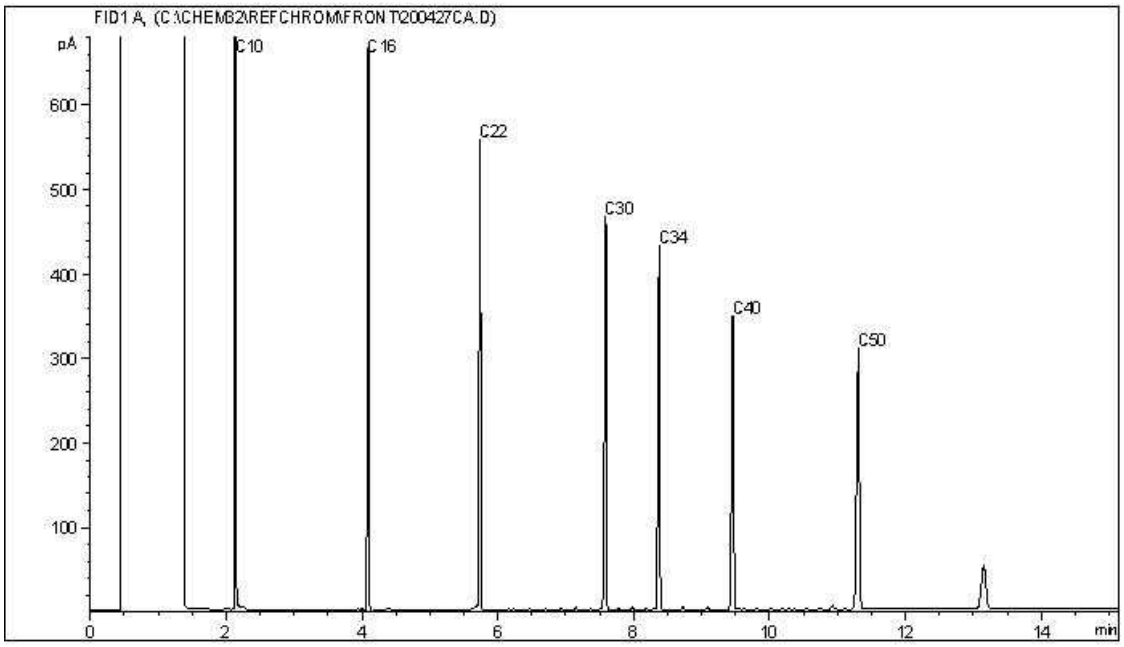


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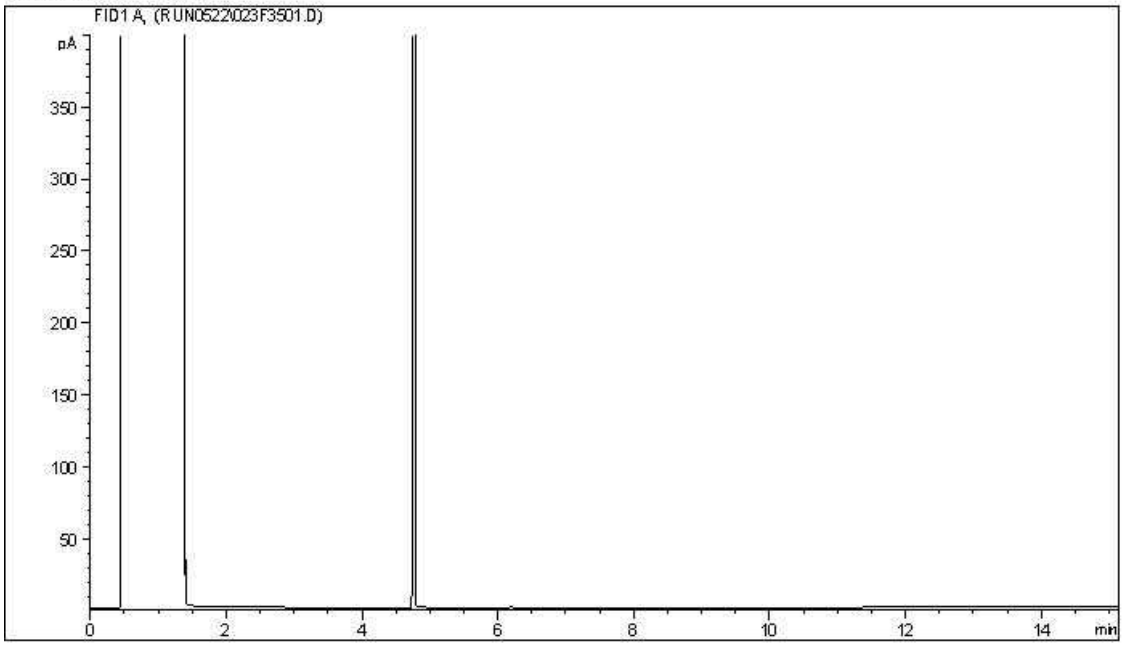


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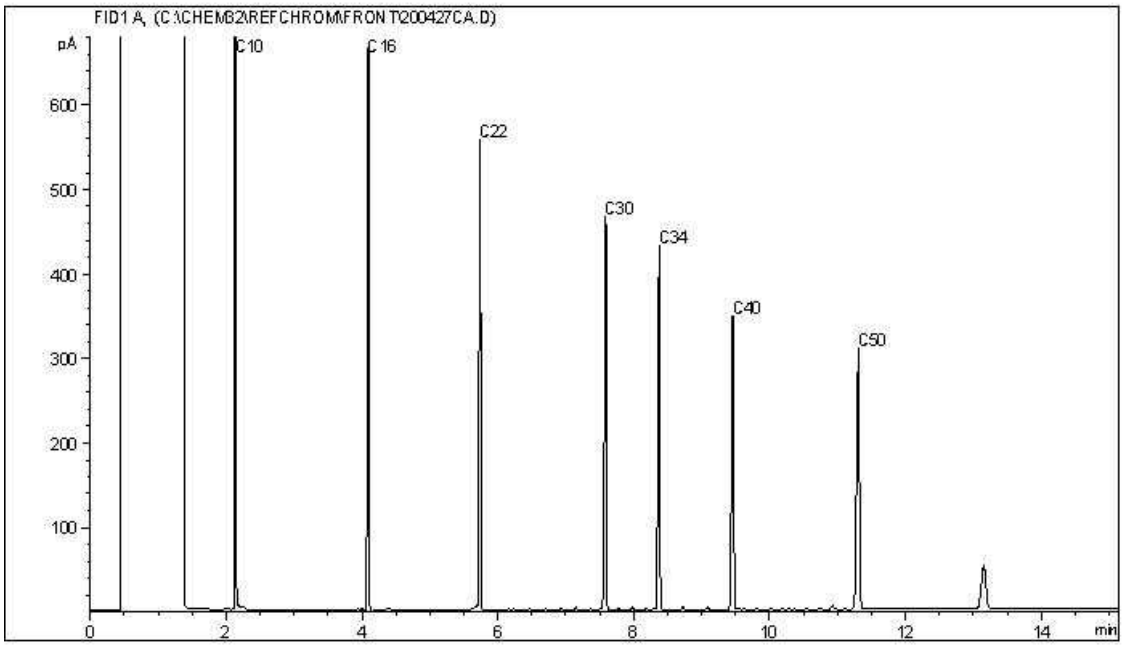


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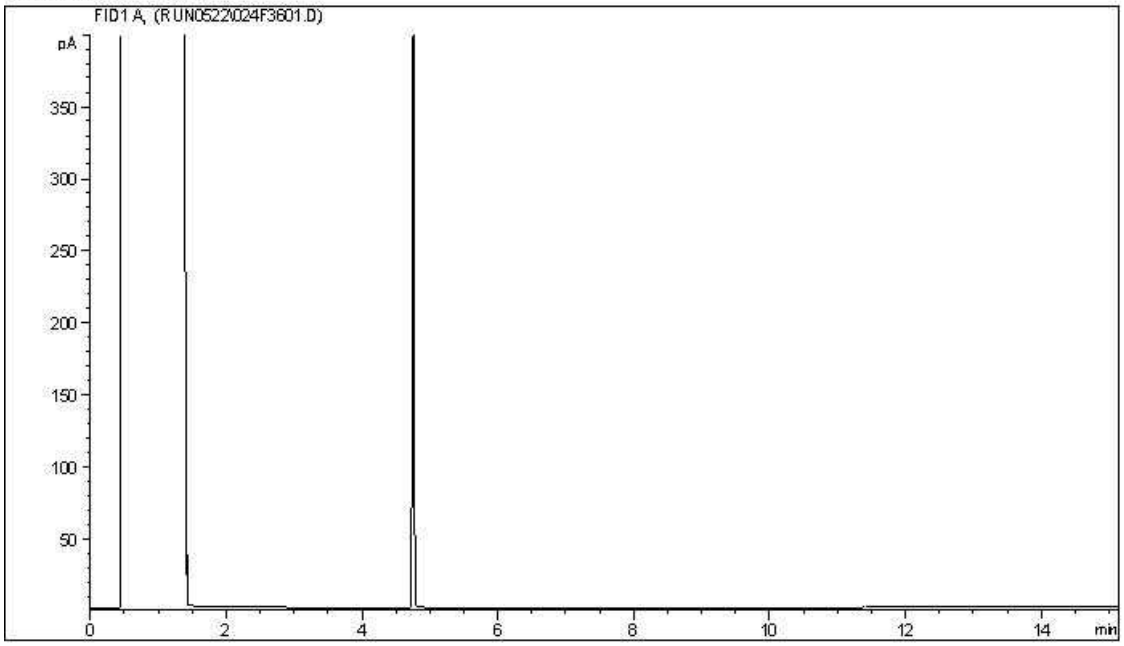
BV Labs Job #: C033917
Report Date: 2020/05/28
BV Labs Sample: XU3431

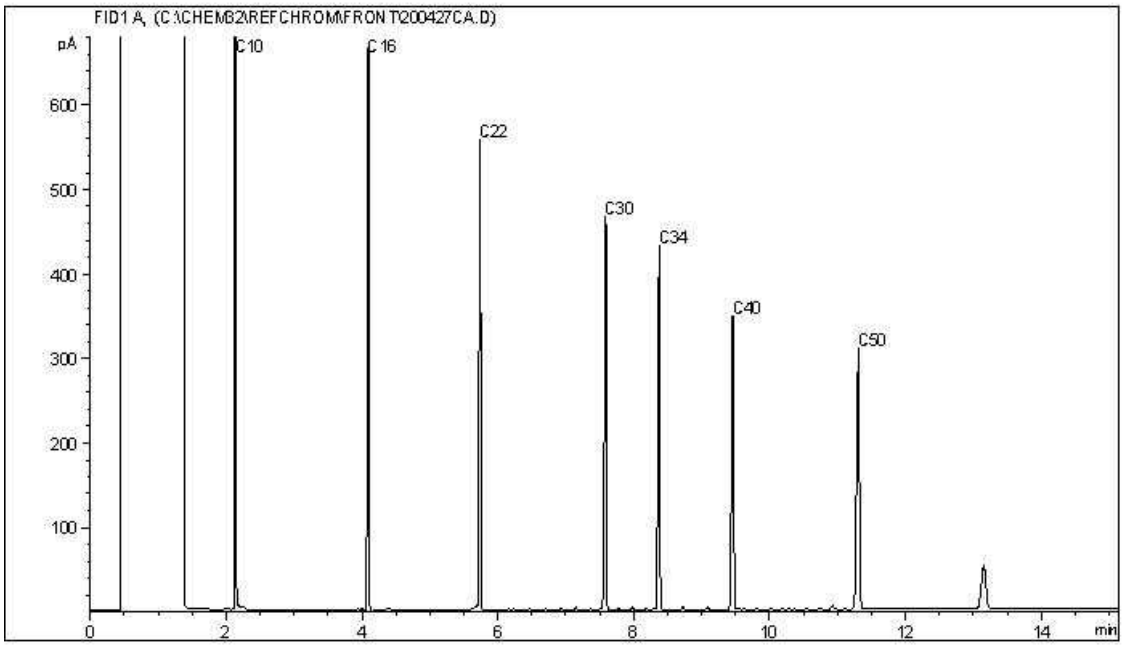
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 3001B

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

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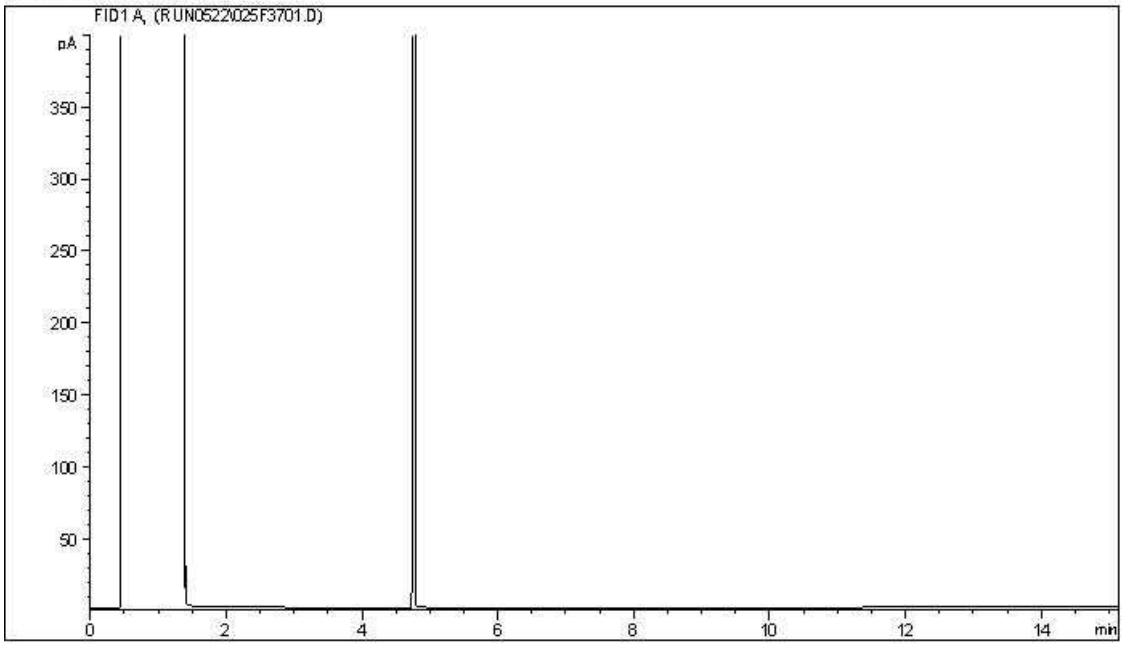
BV Labs Job #: C033917
Report Date: 2020/05/28
BV Labs Sample: XU3432

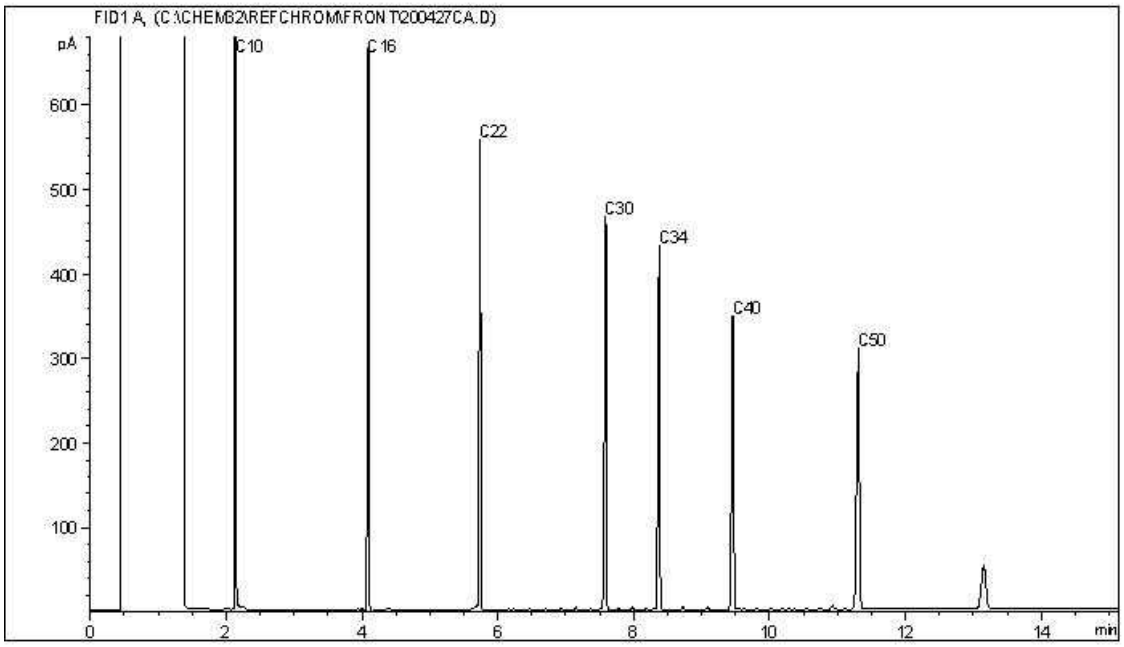
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 3001C

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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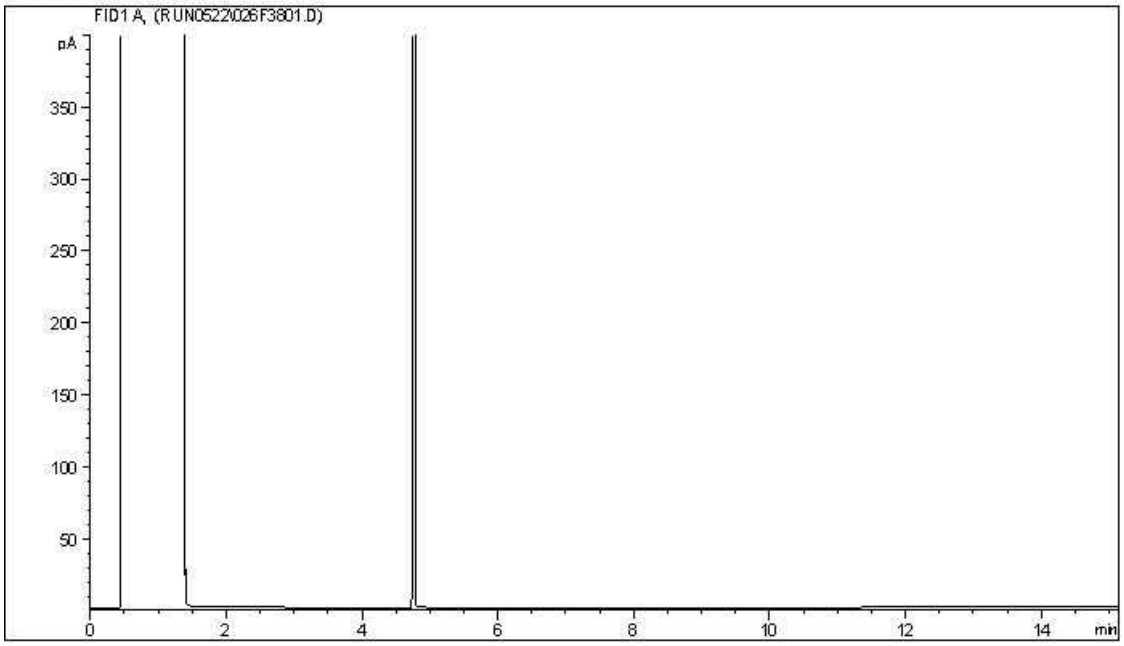
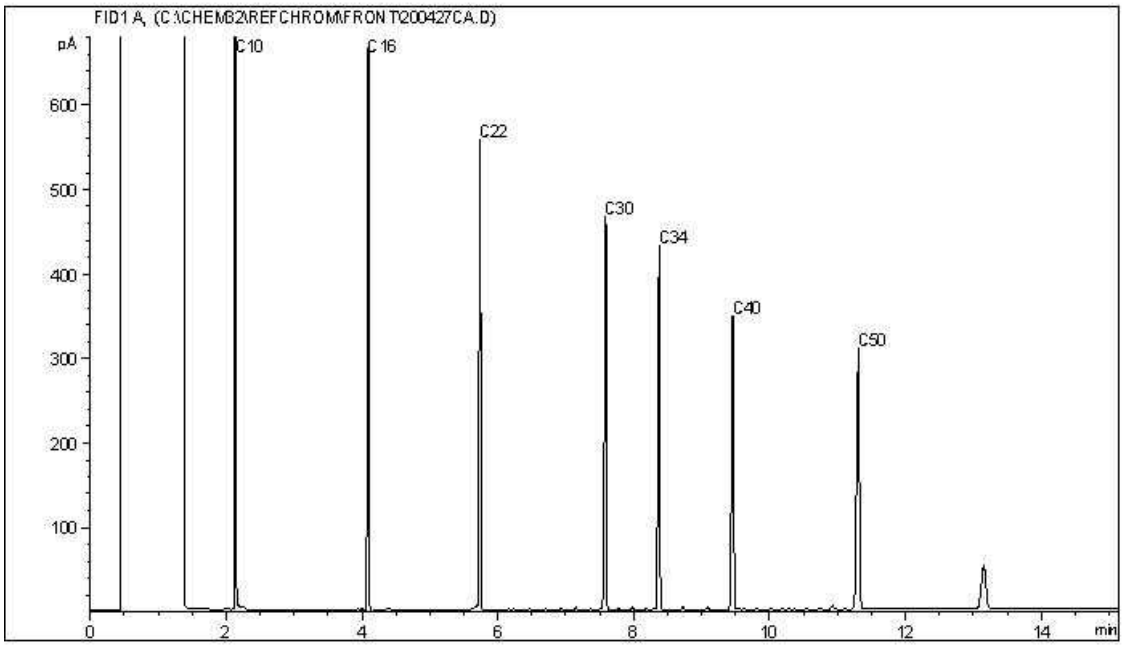
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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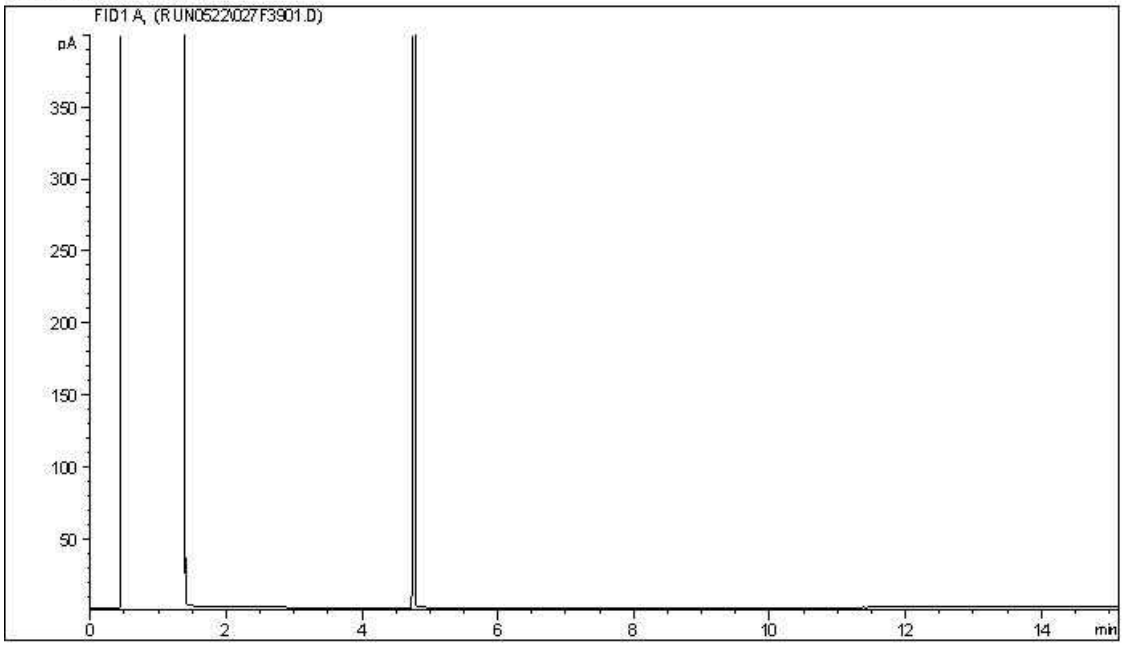
BV Labs Job #: C033917
Report Date: 2020/05/28
BV Labs Sample: XU3434

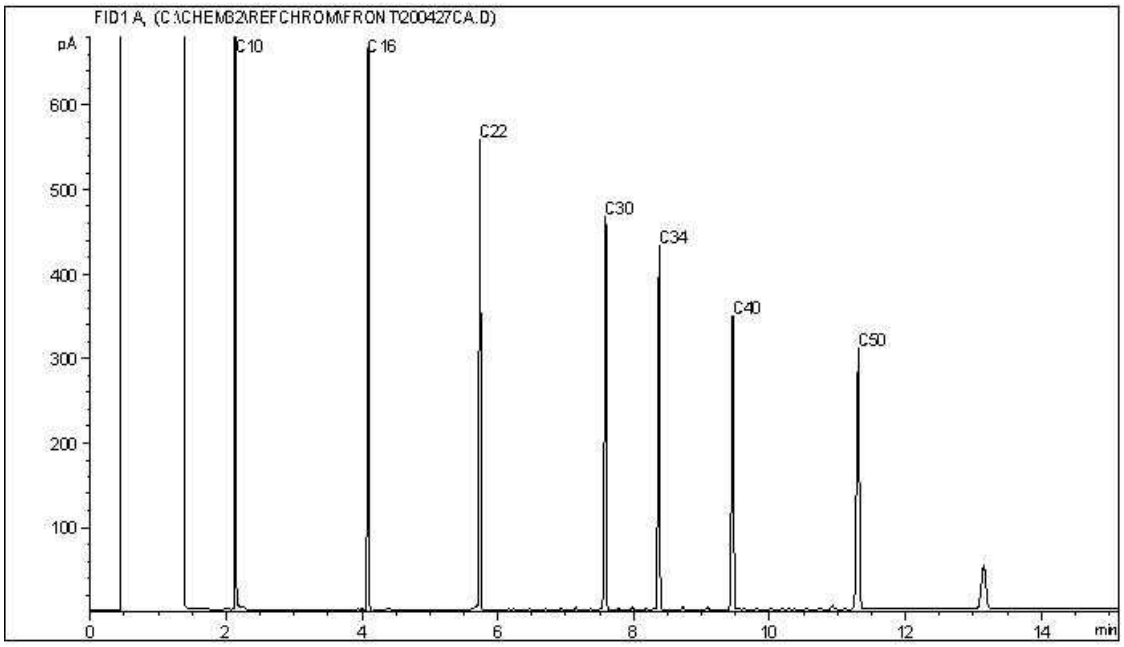
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 3002B

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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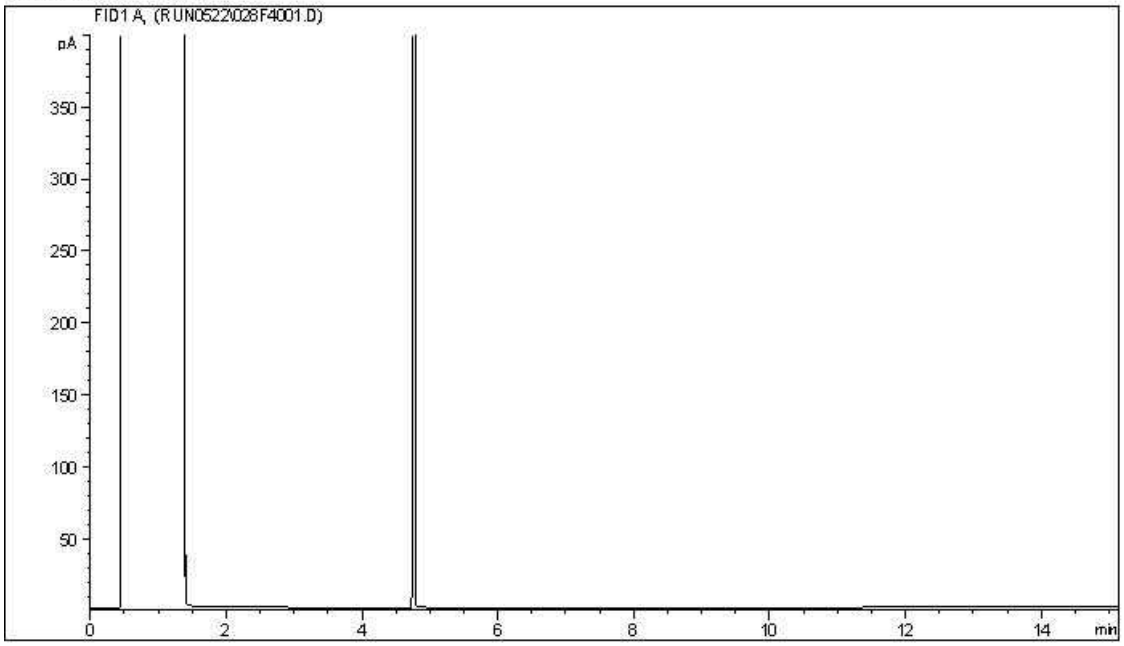
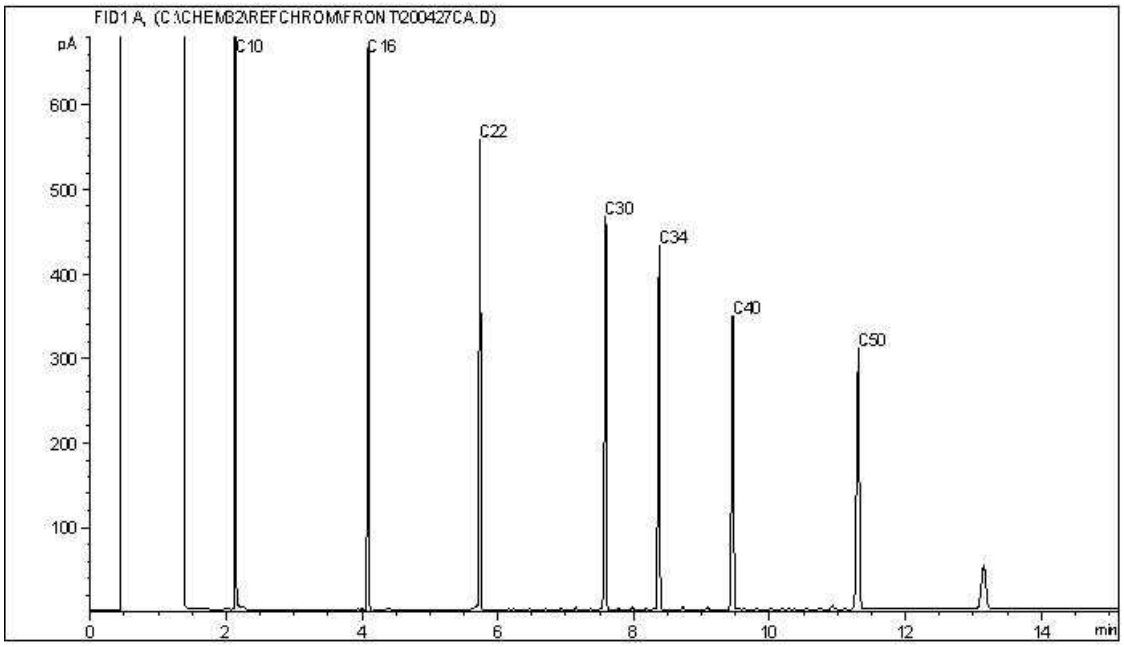
Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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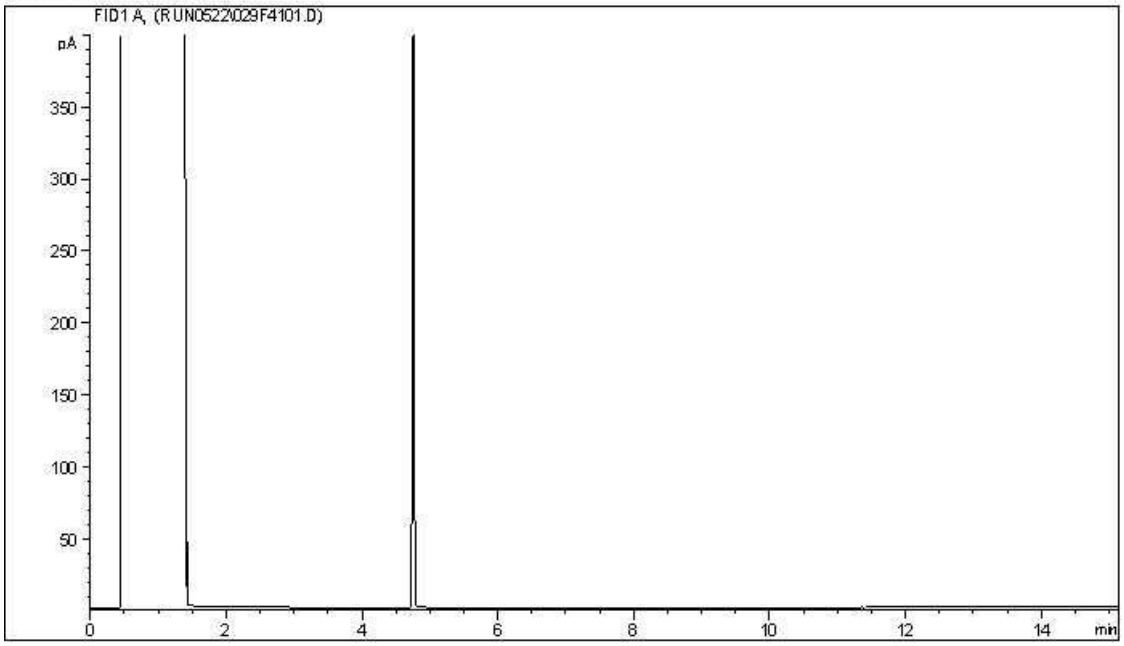
BV Labs Job #: C033917
Report Date: 2020/05/28
BV Labs Sample: XU3436

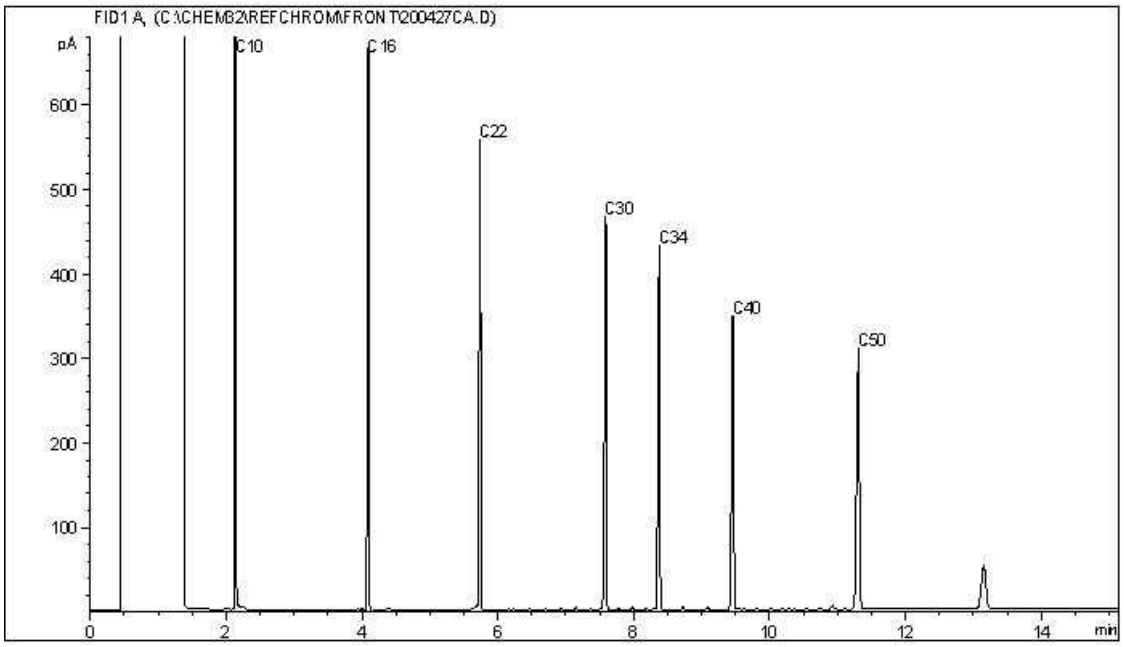
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 3003B

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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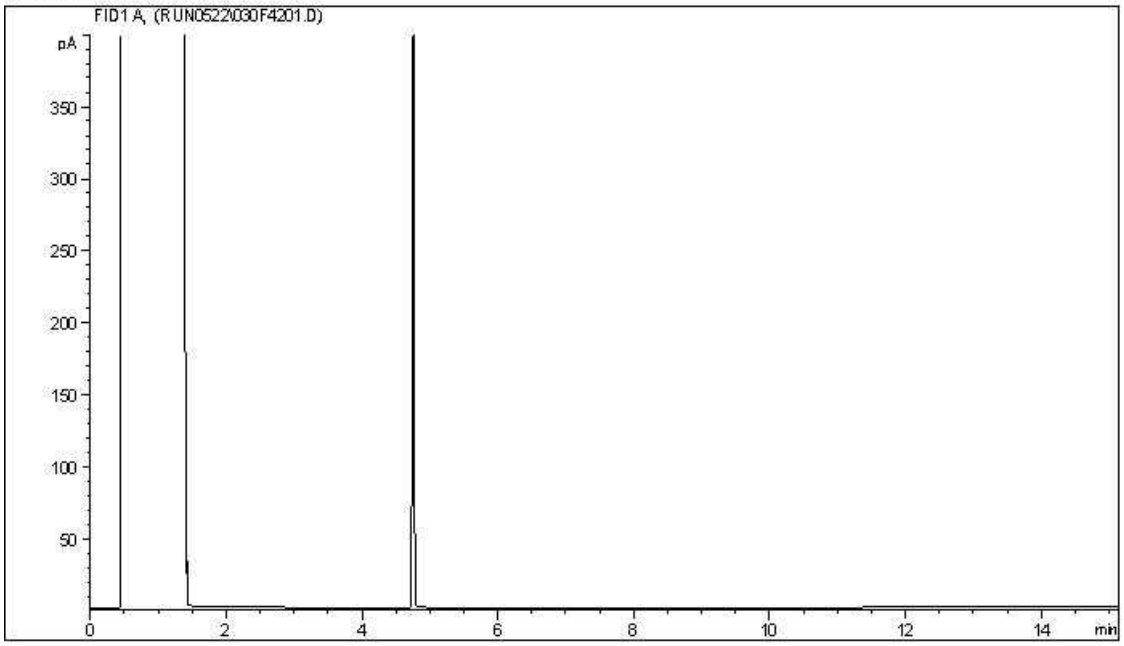


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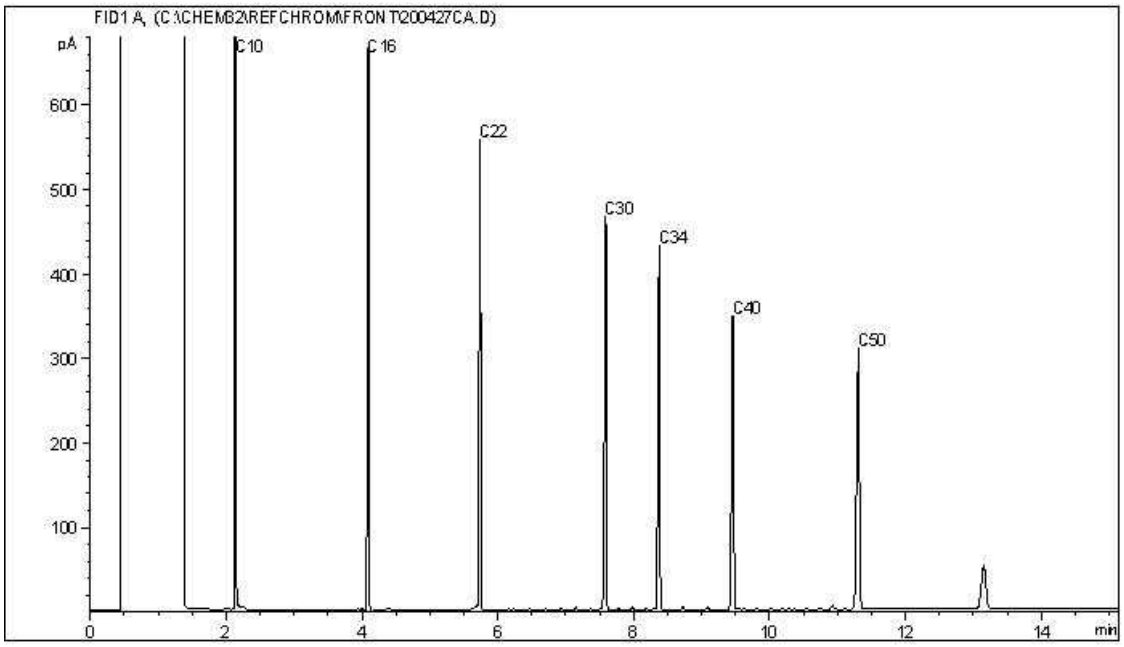


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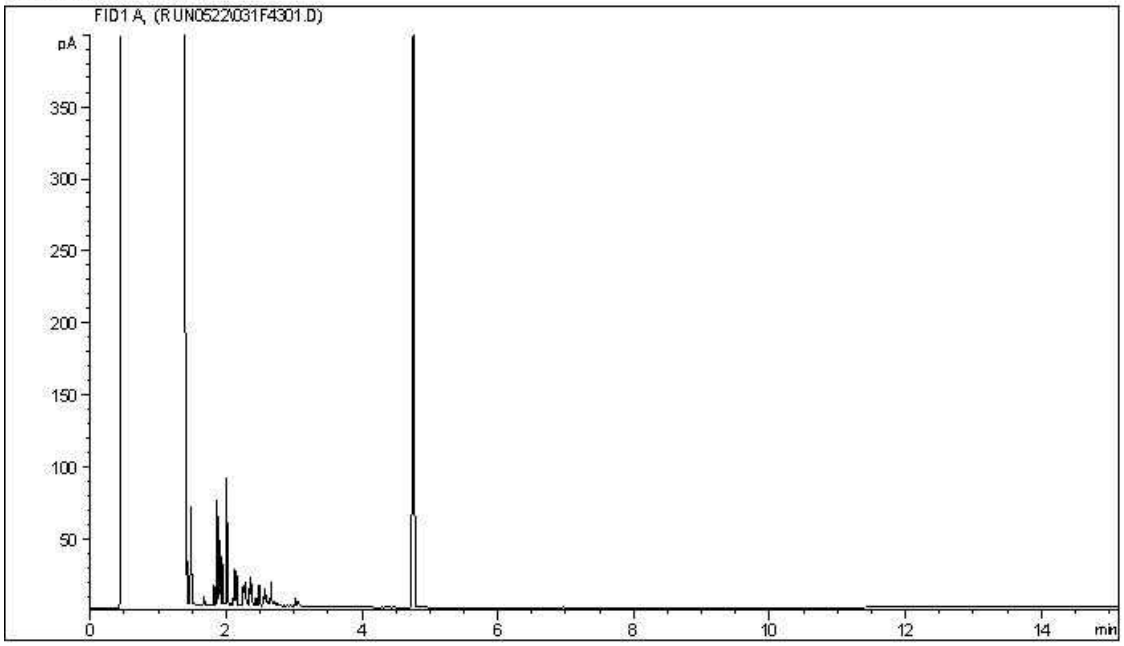


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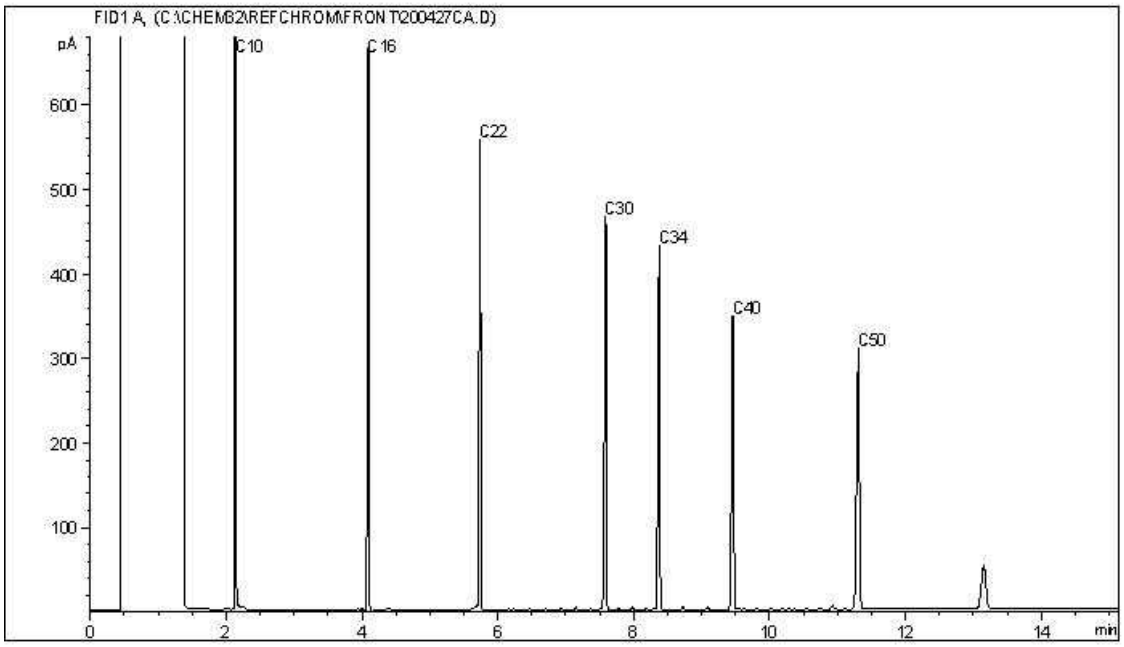


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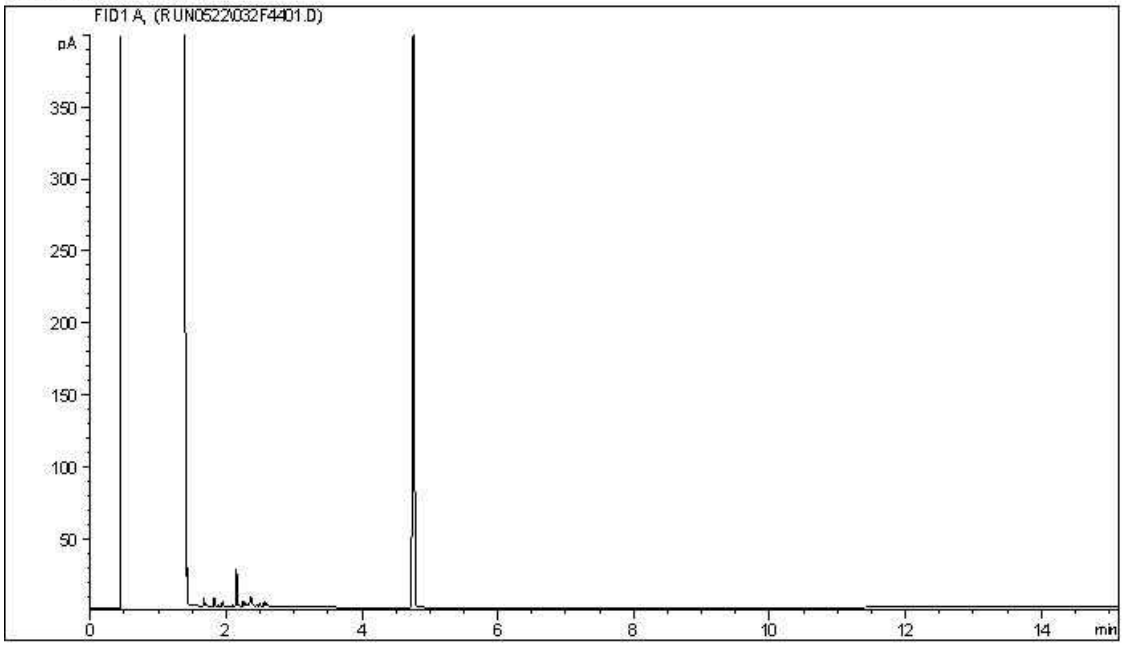


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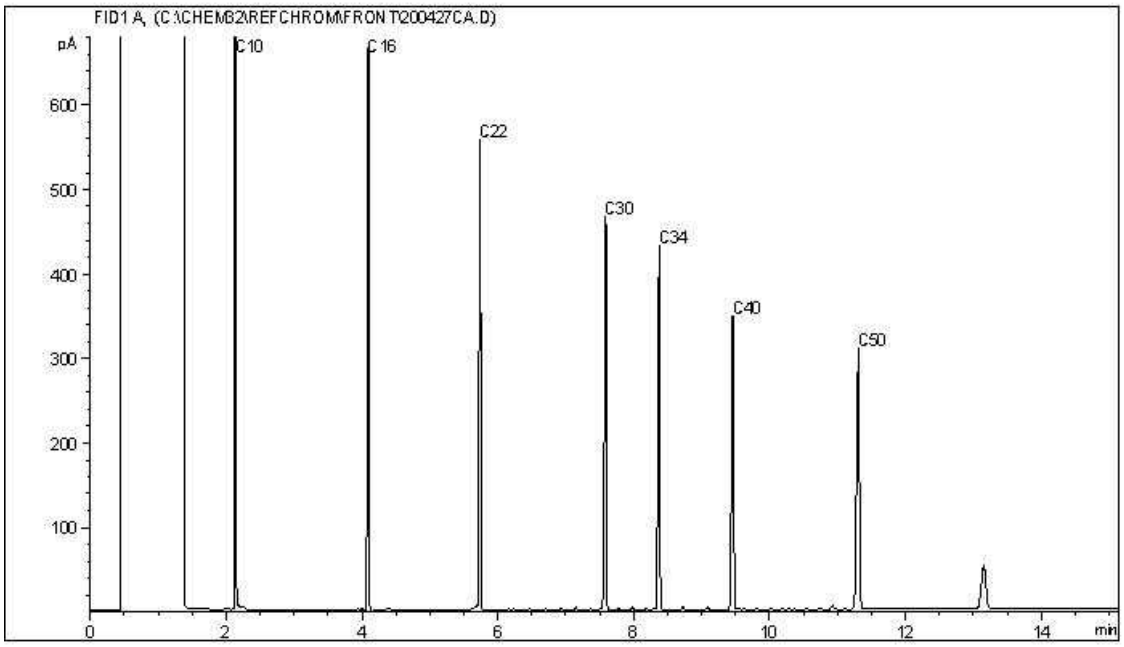


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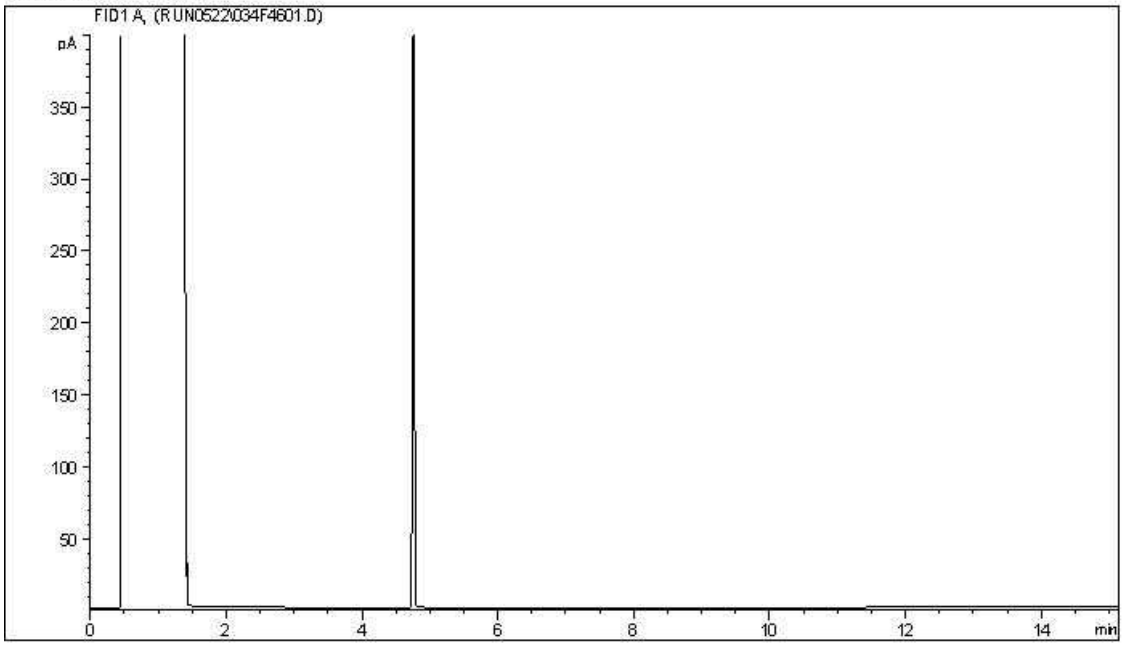


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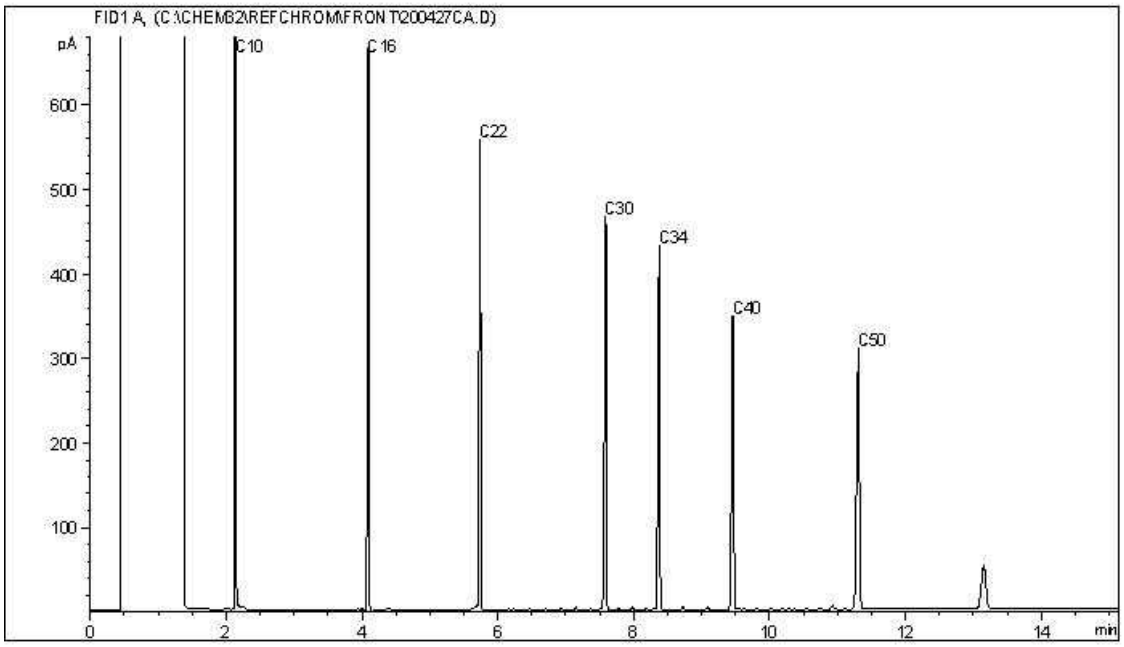


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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

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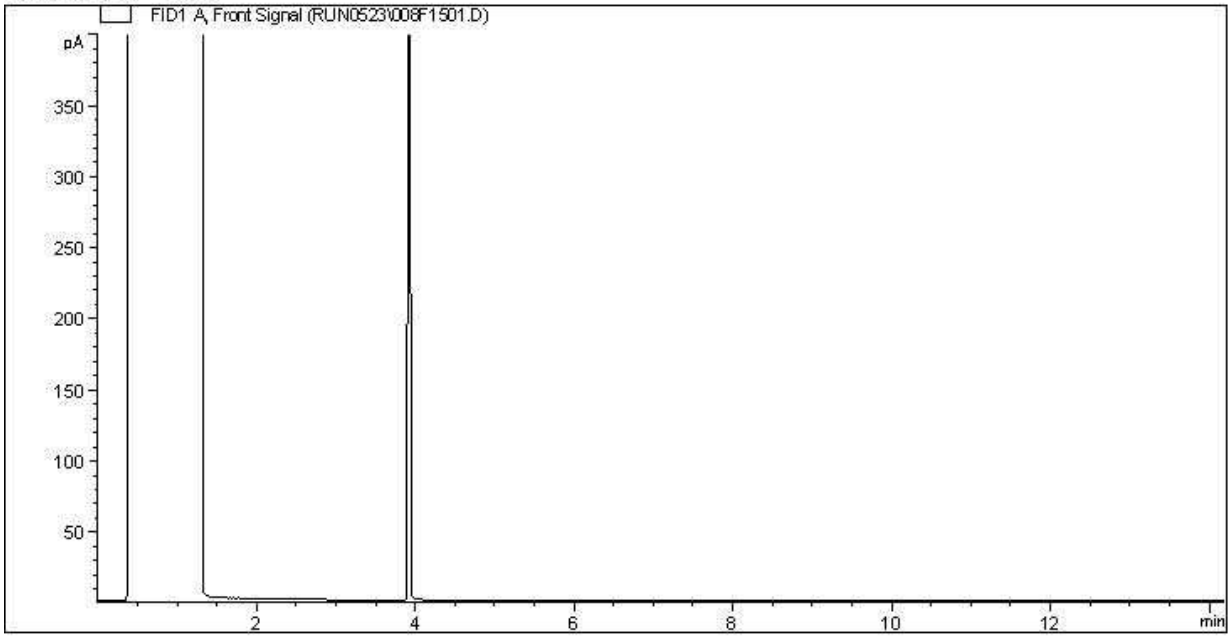
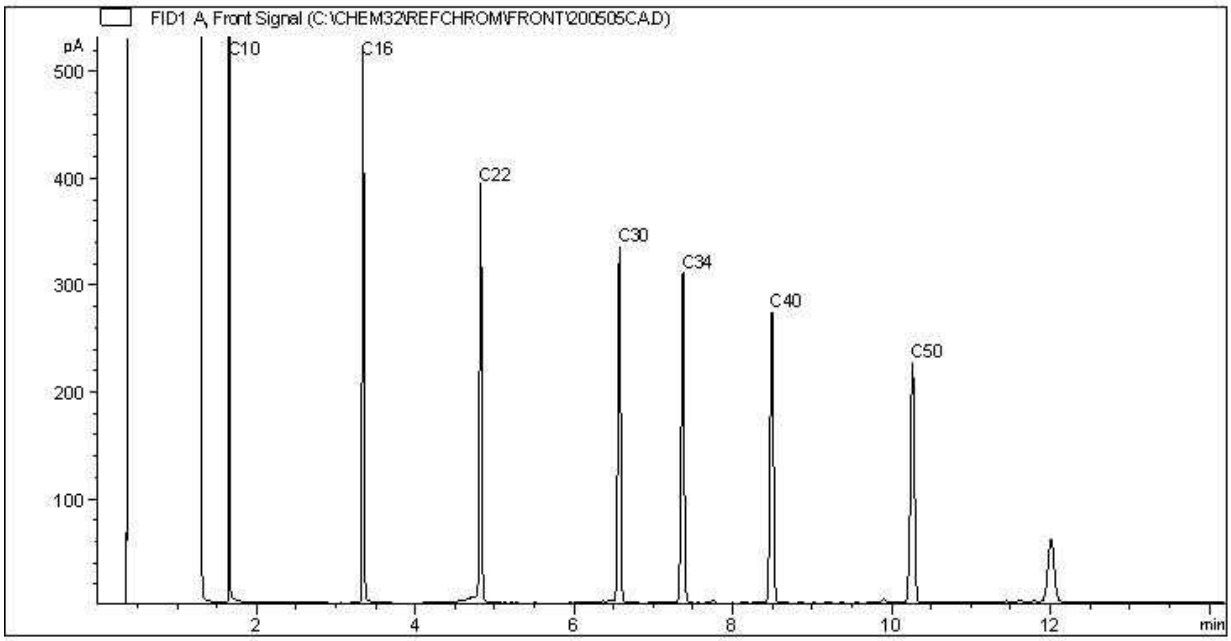
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



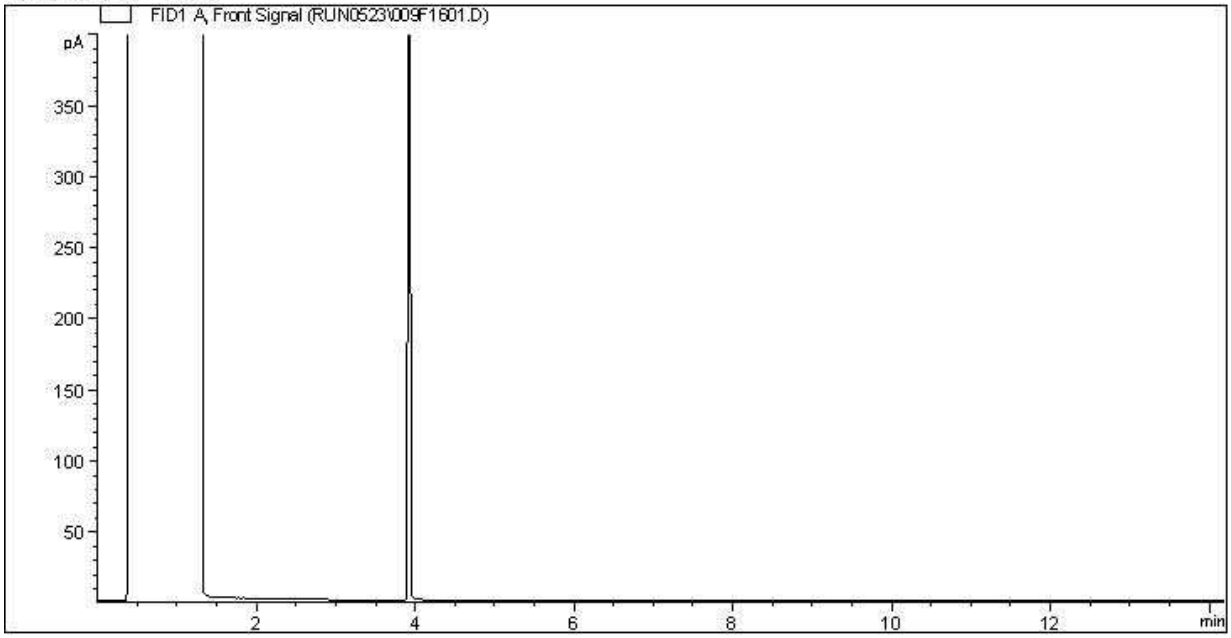

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

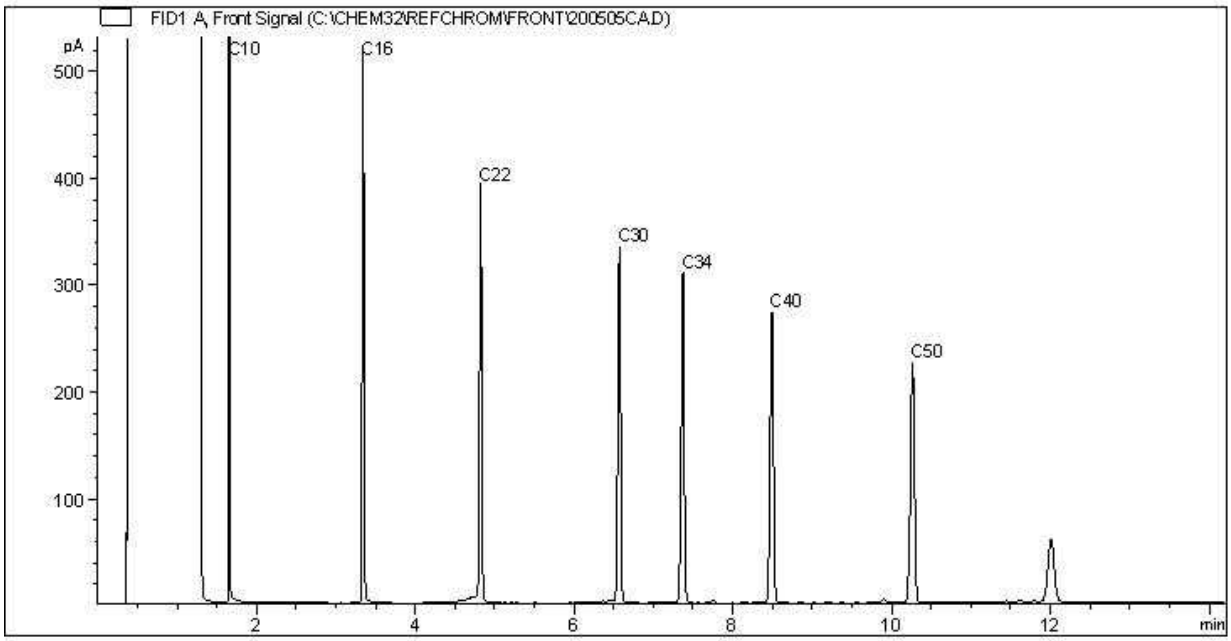
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



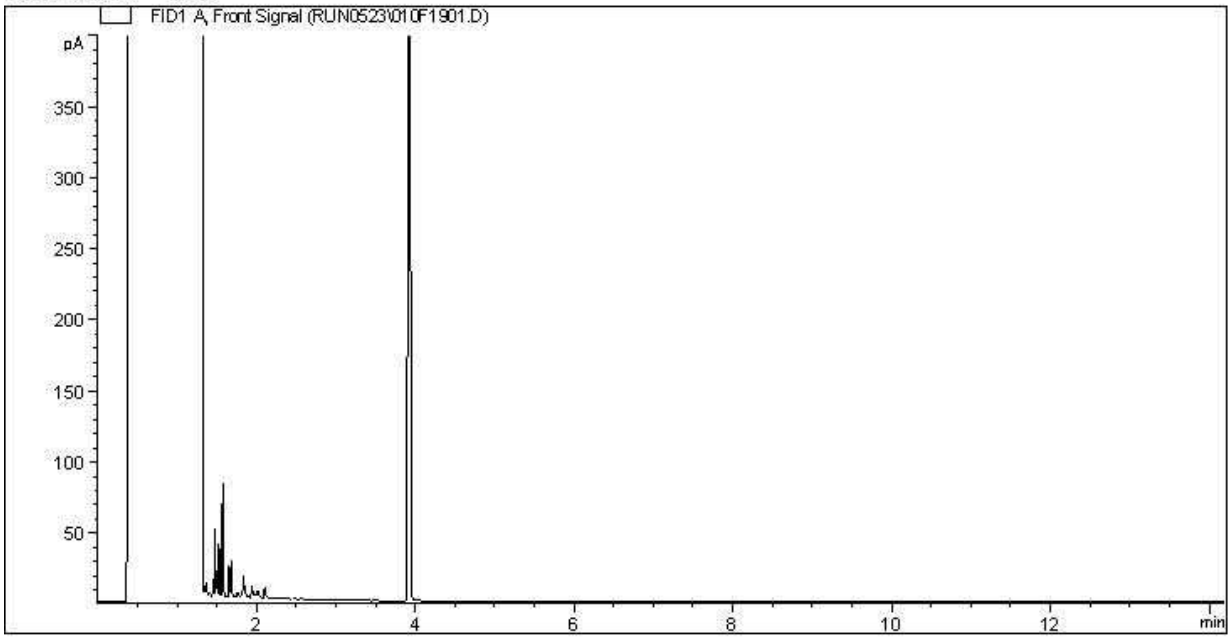

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

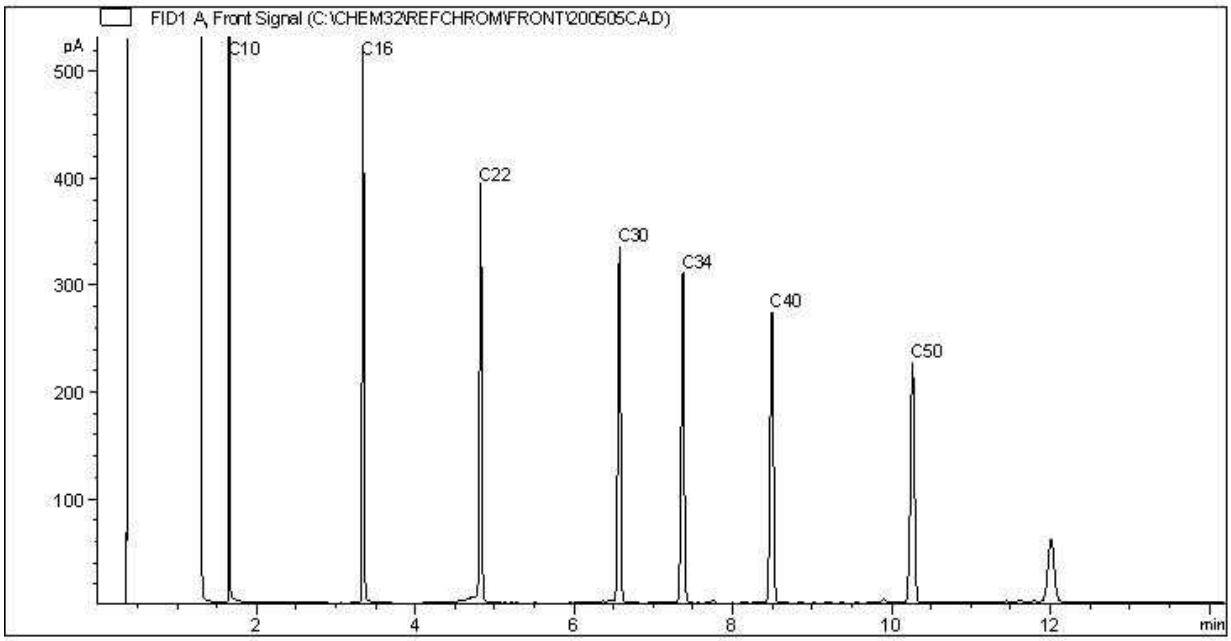
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



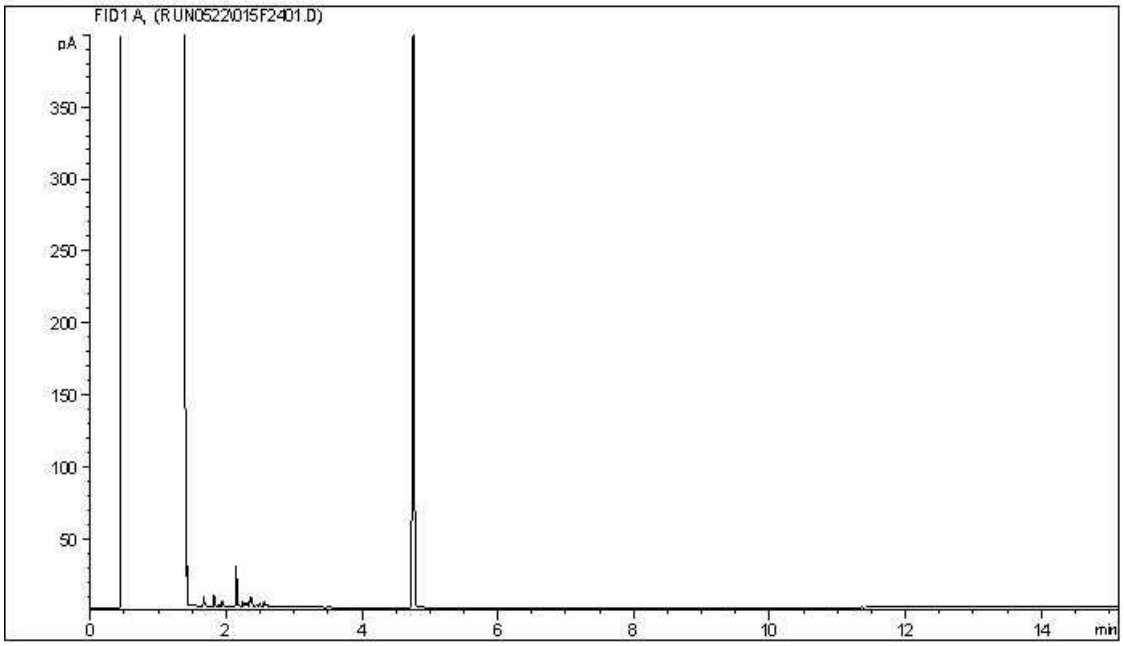

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

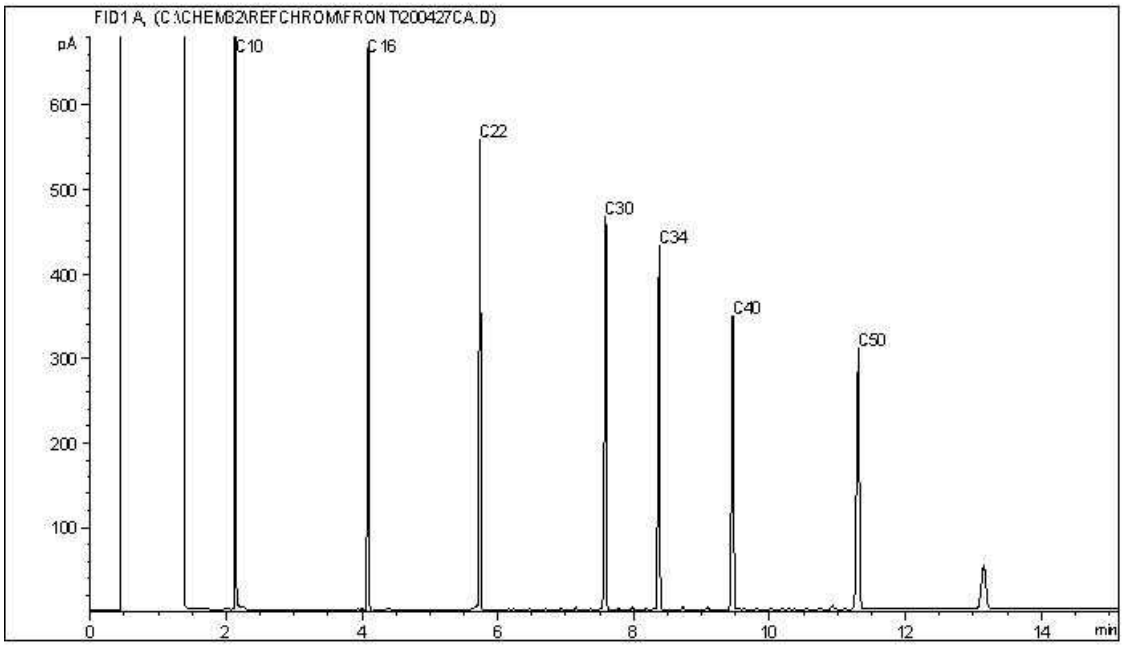
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

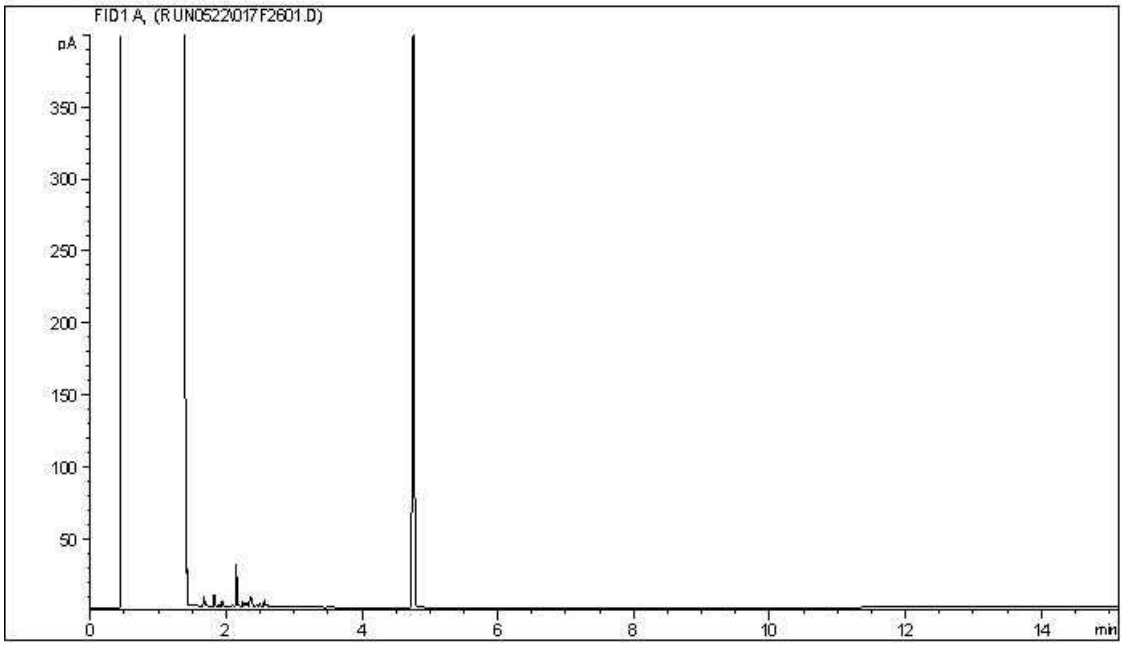
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C033917
Report Date: 2020/05/28
BV Labs Sample: XU3445 Lab-Dup

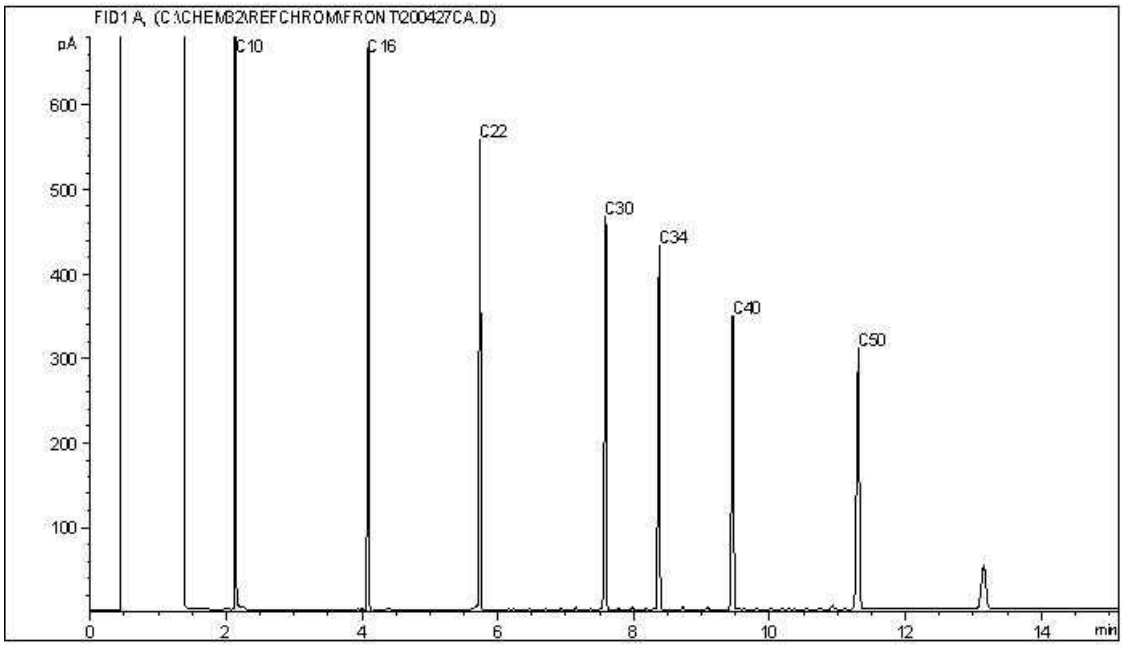
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 9967

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: m061075, m073247

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/03**
Report #: R2886113
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C035916**
**Received: 2020/05/27, 16:35**

Sample Matrix: Water
# Samples Received: 15

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 3 | N/A | 2020/05/30 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 14 | N/A | 2020/06/01 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 14 | N/A | 2020/06/02 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 3 | N/A | 2020/06/03 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 3 | N/A | 2020/05/30 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 14 | 2020/05/29 | 2020/05/30 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 3 | N/A | 2020/05/31 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 3 | N/A | 2020/05/31 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 3 | N/A | 2020/06/03 | | Auto Calc |
| Sum of cations, anions | 3 | N/A | 2020/05/31 | | Auto Calc |
| Nitrate and Nitrite | 3 | N/A | 2020/06/01 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 3 | N/A | 2020/06/01 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 3 | N/A | 2020/05/31 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 3 | N/A | 2020/05/30 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 3 | N/A | 2020/06/03 | | Auto Calc |
| Total Trihalomethanes Calculation | 15 | N/A | 2020/06/02 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 1 | N/A | 2020/06/01 | AB SOP-00056 | EPA 5021a/8260d m |
| VOCs in Water by HS GC/MS (Std List) | 14 | N/A | 2020/06/02 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: m061075, m073247

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/03**
Report #: R2886113
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C035916**
**Received: 2020/05/27, 16:35**

BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV2771 | XV2772 | XV2773 | XV2774 | XV2775 | XV2776 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 09:30 | 2020/05/27 15:30 | 2020/05/27 15:15 | 2020/05/27 14:30 | 2020/05/27 14:15 | 2020/05/27 13:45 | | |
| **COC Number** | | m061075 | m061075 | m061075 | m061075 | m061075 | m061075 | | |
| | **UNITS** | **1704** | **4008B** | **4008A** | **4009B** | **4009A** | **4002** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 1.6 | <0.10 | <0.10 | <0.10 | <0.10 | 0.50 | 0.10 | 9865614 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | 0.28 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00068 (1) | 0.00040 | 9865600 |
| Toluene | mg/L | 0.053 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.15 | 0.00040 | 9865600 |
| Ethylbenzene | mg/L | 0.12 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.0039 | 0.00040 | 9865600 |
| m & p-Xylene | mg/L | 0.29 | <0.00080 | 0.0012 | <0.00080 | <0.00080 | 2.0 | 0.00080 | 9865600 |
| o-Xylene | mg/L | 0.25 | <0.00040 | 0.019 | <0.00040 | <0.00040 | 0.88 | 0.00040 | 9865600 |
| Xylenes (Total) | mg/L | 0.53 | <0.00089 | 0.020 | <0.00089 | <0.00089 | 2.9 | 0.00089 | 9865102 |
| F1 (C6-C10) - BTEX | mg/L | 2.5 | <0.10 | <0.10 | <0.10 | <0.10 | 1.4 | 0.10 | 9865102 |
| F1 (C6-C10) | mg/L | 3.4 | <0.10 | <0.10 | <0.10 | <0.10 | 4.4 | 0.10 | 9865600 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 105 | 101 | 101 | 101 | 104 | 103 | N/A | 9865600 |
| 4-Bromofluorobenzene (sur.) | % | 100 | 94 | 93 | 93 | 90 | 95 | N/A | 9865600 |
| D4-1,2-Dichloroethane (sur.) | % | 71 | 88 | 93 | 94 | 85 | 80 | N/A | 9865600 |
| O-TERPHENYL (sur.) | % | 106 | 105 | 106 | 103 | 92 | 94 | N/A | 9865614 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV2777 | XV2778 | XV2779 | XV2781 | XV2782 | XV2783 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 08:45 | 2020/05/27 08:15 | 2020/05/27 08:15 | 2020/05/27 15:45 | 2020/05/27 11:40 | 2020/05/27 10:15 | | |
| **COC Number** | | m061075 | m061075 | m061075 | m073247 | m073247 | m073247 | | |
| | **UNITS** | **4003B** | **4003A** | **94033A** | **1904** | **1918** | **1927** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | 0.26 | 0.28 | <0.10 | <0.10 | <0.10 | 0.10 | 9865614 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | 0.87 | 0.87 | 0.17 | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| Toluene | mg/L | <0.00040 | 0.017 | 0.017 | 0.00061 | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| Ethylbenzene | mg/L | <0.00040 | 0.0014 | 0.0015 | 0.0014 | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| m & p-Xylene | mg/L | <0.00080 | 0.15 | 0.15 | 0.0011 | <0.00080 | <0.00080 | 0.00080 | 9865600 |
| o-Xylene | mg/L | <0.00040 | 0.78 | 0.78 | 0.0011 | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| Xylenes (Total) | mg/L | <0.00089 | 0.93 | 0.93 | 0.0022 | <0.00089 | <0.00089 | 0.00089 | 9865102 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | 0.79 | 1.1 | 0.15 | <0.10 | <0.10 | 0.10 | 9865102 |
| F1 (C6-C10) | mg/L | <0.10 | 2.6 | 2.9 | 0.33 | <0.10 | <0.10 | 0.10 | 9865600 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 106 | 110 | 105 | 104 | 102 | N/A | 9865600 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 92 | 93 | 89 | 91 | 92 | N/A | 9865600 |
| D4-1,2-Dichloroethane (sur.) | % | 87 | 88 | 90 | 86 | 88 | 85 | N/A | 9865600 |
| O-TERPHENYL (sur.) | % | 86 | 88 | 89 | 92 | 91 | 91 | N/A | 9865614 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV2784 | XV2785 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 12:55 | 2020/05/27 14:30 | | |
| **COC Number** | | m073247 | m073247 | | |
| | **UNITS** | **1953** | **1985** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | 0.10 | 9865614 |
| **Volatiles** | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| Toluene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | 0.00080 | 9865600 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9865600 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | 0.00089 | 9865102 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | 0.10 | 9865102 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | 0.10 | 9865600 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 103 | N/A | 9865600 |
| 4-Bromofluorobenzene (sur.) | % | 92 | 90 | N/A | 9865600 |
| D4-1,2-Dichloroethane (sur.) | % | 88 | 87 | N/A | 9865600 |
| O-TERPHENYL (sur.) | % | 89 | 85 | N/A | 9865614 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| BV Labs ID | | XV2782 | XV2782 | | XV2783 | XV2783 | | |
|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2020/05/27 11:40 | 2020/05/27 11:40 | | 2020/05/27 10:15 | 2020/05/27 10:15 | | |
| COC Number | | m073247 | m073247 | | m073247 | m073247 | | |
| | UNITS | 1918 | 1918 Lab-Dup | RDL | 1927 | 1927 Lab-Dup | RDL | QC Batch |
| **Calculated Parameters** | | | | | | | | |
| Anion Sum | meq/L | 25 | N/A | N/A | 12 | N/A | N/A | 9865184 |
| Cation Sum | meq/L | 25 | N/A | N/A | 11 | N/A | N/A | 9865184 |
| Hardness (CaCO3) | mg/L | 1000 | N/A | 0.50 | 510 | N/A | 0.50 | 9865173 |
| Ion Balance (% Difference) | % | 0.28 | N/A | N/A | 0.41 | N/A | N/A | 9865177 |
| Dissolved Nitrate (NO3) | mg/L | 31 | N/A | 0.044 | 15 | N/A | 0.044 | 9865140 |
| Nitrate plus Nitrite (N) | mg/L | 7.1 | N/A | 0.014 | 3.7 | N/A | 0.014 | 9865143 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | N/A | 0.033 | 1.3 | N/A | 0.033 | 9865140 |
| Calculated Total Dissolved Solids | mg/L | 1300 | N/A | 10 | 580 | N/A | 10 | 9865187 |
| **Misc. Inorganics** | | | | | | | | |
| Conductivity | uS/cm | 2400 | N/A | 2.0 | 1100 | 1100 | 2.0 | 9866899 |
| pH | pH | 7.54 | N/A | N/A | 7.07 | 7.24 | N/A | 9866898 |
| **Anions** | | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | N/A | 1.0 | <1.0 | <1.0 | 1.0 | 9866897 |
| Alkalinity (Total as CaCO3) | mg/L | 560 | N/A | 1.0 | 350 | 350 | 1.0 | 9866897 |
| Bicarbonate (HCO3) | mg/L | 680 | N/A | 1.0 | 430 | 430 | 1.0 | 9866897 |
| Carbonate (CO3) | mg/L | <1.0 | N/A | 1.0 | <1.0 | <1.0 | 1.0 | 9866897 |
| Hydroxide (OH) | mg/L | <1.0 | N/A | 1.0 | <1.0 | <1.0 | 1.0 | 9866897 |
| Dissolved Chloride (Cl) | mg/L | 440 (1) | N/A | 5.0 | 130 | N/A | 1.0 | 9868959 |
| Dissolved Sulphate (SO4) | mg/L | 50 | N/A | 1.0 | 33 | N/A | 1.0 | 9868959 |
| **Nutrients** | | | | | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | <0.010 | 0.010 | 0.41 | N/A | 0.010 | 9867193 |
| Dissolved Nitrate (N) | mg/L | 7.1 | 7.2 | 0.010 | 3.3 | N/A | 0.010 | 9867193 |
| **Elements** | | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 170 | N/A | 0.30 | 110 | N/A | 0.30 | 9867707 |
| Dissolved Iron (Fe) | mg/L | <0.060 | N/A | 0.060 | <0.060 | N/A | 0.060 | 9867707 |
| Dissolved Magnesium (Mg) | mg/L | 150 | N/A | 0.20 | 59 | N/A | 0.20 | 9867707 |
| Dissolved Manganese (Mn) | mg/L | <0.0040 | N/A | 0.0040 | 0.40 | N/A | 0.0040 | 9867707 |
| Dissolved Potassium (K) | mg/L | 5.8 | N/A | 0.30 | 3.2 | N/A | 0.30 | 9867707 |
| Dissolved Sodium (Na) | mg/L | 93 | N/A | 0.50 | 27 | N/A | 0.50 | 9867707 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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BV Labs Job #: C035916
Report Date: 2020/06/03

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XV2784 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 12:55 | | |
| **COC Number** | | m073247 | | |
| | **UNITS** | **1953** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 22 | N/A | 9865184 |
| Cation Sum | meq/L | 23 | N/A | 9865184 |
| Hardness (CaCO3) | mg/L | 950 | 0.50 | 9865173 |
| Ion Balance (% Difference) | % | 1.7 | N/A | 9865177 |
| Dissolved Nitrate (NO3) | mg/L | 55 | 0.089 | 9865140 |
| Nitrate plus Nitrite (N) | mg/L | 12 | 0.022 | 9865143 |
| Dissolved Nitrite (NO2) | mg/L | 0.079 | 0.033 | 9865140 |
| Calculated Total Dissolved Solids | mg/L | 1100 | 10 | 9865187 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 2100 | 2.0 | 9866899 |
| pH | pH | 7.73 | N/A | 9866898 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9866897 |
| Alkalinity (Total as CaCO3) | mg/L | 620 | 1.0 | 9866897 |
| Bicarbonate (HCO3) | mg/L | 750 | 1.0 | 9866897 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9866897 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9866897 |
| Dissolved Chloride (Cl) | mg/L | 270 (1) | 2.0 | 9868959 |
| Dissolved Sulphate (SO4) | mg/L | 46 | 1.0 | 9868959 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | 0.024 | 0.010 | 9867193 |
| Dissolved Nitrate (N) | mg/L | 12 (1) | 0.020 | 9867193 |
| **Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 170 | 0.30 | 9867671 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9867671 |
| Dissolved Magnesium (Mg) | mg/L | 130 | 0.20 | 9867671 |
| Dissolved Manganese (Mn) | mg/L | 0.19 | 0.0040 | 9867671 |
| Dissolved Potassium (K) | mg/L | 6.0 | 0.30 | 9867671 |
| Dissolved Sodium (Na) | mg/L | 78 | 0.50 | 9867671 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.


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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV2771 | XV2772 | XV2773 | XV2774 | XV2775 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 09:30 | 2020/05/27 15:30 | 2020/05/27 15:15 | 2020/05/27 14:30 | 2020/05/27 14:15 | | |
| **COC Number** | | m061075 | m061075 | m061075 | m061075 | m061075 | | |
| | **UNITS** | **1704** | **4008B** | **4008A** | **4009B** | **4009A** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9864540 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| 1,2-dibromoethane | mg/L | 0.00038 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9865602 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,2-dichloroethane | mg/L | 0.042 | <0.00050 | <0.00050 | 0.0031 | 0.0051 | 0.00050 | 9865602 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV2771 | XV2772 | XV2773 | XV2774 | XV2775 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 09:30 | 2020/05/27 15:30 | 2020/05/27 15:15 | 2020/05/27 14:30 | 2020/05/27 14:15 | | |
| **COC Number** | | m061075 | m061075 | m061075 | m061075 | m061075 | | |
| | **UNITS** | **1704** | **4008B** | **4008A** | **4009B** | **4009A** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,2,4-trimethylbenzene | mg/L | 0.23 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,3,5-trimethylbenzene | mg/L | 0.27 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 101 | 102 | 102 | 102 | N/A | 9865602 |
| 4-Bromofluorobenzene (sur.) | % | 92 | 91 | 86 | 89 | 89 | N/A | 9865602 |
| D4-1,2-Dichloroethane (sur.) | % | 113 | 94 | 95 | 94 | 96 | N/A | 9865602 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV2776 | XV2777 | XV2778 | XV2779 | | XV2780 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 13:45 | 2020/05/27 08:45 | 2020/05/27 08:15 | 2020/05/27 08:15 | | 2020/05/27 | | |
| **COC Number** | | m061075 | m061075 | m061075 | m061075 | | m061075 | | |
| | **UNITS** | **4002** | **4003B** | **4003A** | **94033A** | **QC Batch** | **TRIP BLANK 7** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 9864540 | <0.0013 | 0.0013 | 9864540 |
| Benzene | mg/L | N/A | N/A | N/A | N/A | 9868419 | <0.00040 | 0.00040 | 9868419 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9865602 | <0.0020 | 0.0020 | 9868419 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9865602 | <0.0010 | 0.0010 | 9868419 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9865602 | <0.0010 | 0.0010 | 9868419 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0025 | 9865602 | <0.0020 | 0.0020 | 9868419 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00076 | 0.00076 | 9865602 | <0.00020 | 0.00020 | 9868419 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.090 | 0.093 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9865602 | <0.0020 | 0.0020 | 9868419 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Ethylbenzene | mg/L | N/A | N/A | N/A | N/A | N/A | <0.00040 | 0.00040 | 9868419 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9865602 | <0.0010 | 0.0010 | 9868419 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9865602 | <0.0020 | 0.0020 | 9868419 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV2776 | XV2777 | XV2778 | XV2779 | | XV2780 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 13:45 | 2020/05/27 08:45 | 2020/05/27 08:15 | 2020/05/27 08:15 | | 2020/05/27 | | |
| **COC Number** | | m061075 | m061075 | m061075 | m061075 | | m061075 | | |
| | **UNITS** | **4002** | **4003B** | **4003A** | **94033A** | **QC Batch** | **TRIP BLANK 7** | **RDL** | **QC Batch** |
| Toluene | mg/L | N/A | N/A | N/A | N/A | N/A | <0.00040 | 0.00040 | 9868419 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9865602 | <0.0010 | 0.0010 | 9868419 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9865602 | <0.0010 | 0.0010 | 9868419 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,2,4-trimethylbenzene | mg/L | 0.28 | <0.00050 | 0.024 | 0.023 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| 1,3,5-trimethylbenzene | mg/L | 0.087 | <0.00050 | 0.0042 | 0.0041 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9865602 | <0.00050 | 0.00050 | 9868419 |
| Xylenes (Total) | mg/L | N/A | N/A | N/A | N/A | N/A | <0.00080 | 0.00080 | 9868419 |
| m & p-Xylene | mg/L | N/A | N/A | N/A | N/A | N/A | <0.00080 | 0.00080 | 9868419 |
| o-Xylene | mg/L | N/A | N/A | N/A | N/A | N/A | <0.00040 | 0.00040 | 9868419 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 101 | 106 | 105 | 9865602 | 101 | N/A | 9868419 |
| 4-Bromofluorobenzene (sur.) | % | 90 | 89 | 86 | 87 | 9865602 | 89 | N/A | 9868419 |
| D4-1,2-Dichloroethane (sur.) | % | 90 | 93 | 111 | 118 | 9865602 | 93 | N/A | 9868419 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C035916
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV2781 | XV2782 | XV2783 | XV2784 | XV2785 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 15:45 | 2020/05/27 11:40 | 2020/05/27 10:15 | 2020/05/27 12:55 | 2020/05/27 14:30 | | |
| **COC Number** | | m073247 | m073247 | m073247 | m073247 | m073247 | | |
| | **UNITS** | **1904** | **1918** | **1927** | **1953** | **1985** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9864540 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9865602 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,2-dichloroethane | mg/L | 0.0014 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00051 | 0.00050 | 9865602 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9865602 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9865602 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV2781 | XV2782 | XV2783 | XV2784 | XV2785 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/27 15:45 | 2020/05/27 11:40 | 2020/05/27 10:15 | 2020/05/27 12:55 | 2020/05/27 14:30 | | |
| **COC Number** | | m073247 | m073247 | m073247 | m073247 | m073247 | | |
| | **UNITS** | **1904** | **1918** | **1927** | **1953** | **1985** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9865602 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 102 | 100 | 101 | 103 | N/A | 9865602 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 90 | 90 | 90 | 90 | N/A | 9865602 |
| D4-1,2-Dichloroethane (sur.) | % | 116 | 95 | 96 | 96 | 94 | N/A | 9865602 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 12.3°C |

Sample XV2782 [1918] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XV2783 [1927] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XV2784 [1953] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**Results relate only to the items tested.**



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9865600 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/01 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/01 | | 90 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/01 | | 90 | % | 50 - 140 |
| | | | Benzene | 2020/06/01 | | 78 | % | 50 - 140 |
| | | | Toluene | 2020/06/01 | | 77 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/01 | | 76 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/01 | | 78 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/01 | | 78 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/01 | | 62 | % | 60 - 140 |
| 9865600 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/01 | | 107 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/01 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/01 | | 84 | % | 50 - 140 |
| | | | Benzene | 2020/06/01 | | 81 | % | 60 - 130 |
| | | | Toluene | 2020/06/01 | | 82 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/01 | | 81 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/01 | | 83 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/01 | | 81 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/01 | | 63 | % | 60 - 140 |
| 9865600 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/01 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/01 | | 92 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/01 | | 84 | % | 50 - 140 |
| | | | Benzene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/01 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/01 | <0.10 | | mg/L | |
| 9865600 | DO1 | RPD | Benzene | 2020/06/01 | NC | | % | 30 |
| | | | Toluene | 2020/06/01 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/01 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/06/01 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/01 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/01 | NC | | % | 30 |
| 9865602 | QW1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/02 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/02 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/02 | | 107 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/02 | | 94 | % | 50 - 140 |
| | | | Bromoform | 2020/06/02 | | 106 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/02 | | 90 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/02 | | 96 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/02 | | 100 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/02 | | 108 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/02 | | 83 | % | 50 - 140 |
| | | | Chloroform | 2020/06/02 | | 84 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/02 | | 85 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/02 | | 95 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/02 | | 96 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/02 | | 93 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/02 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/02 | | 87 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/02 | | 86 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dichloromethane | 2020/06/02 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/02 | | 86 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/02 | | 93 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/02 | | 106 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/02 | | 84 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/02 | | 87 | % | 50 - 140 |
| | | | Styrene | 2020/06/02 | | 99 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/02 | | 100 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/02 | | 95 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/02 | | 102 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/02 | | 91 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/02 | | 95 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/02 | | 102 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/02 | | 90 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/02 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/02 | | 92 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/02 | | 79 | % | 50 - 140 |
| 9865602 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/02 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/02 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/02 | | 108 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/02 | | 94 | % | 60 - 130 |
| | | | Bromoform | 2020/06/02 | | 108 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/02 | | 89 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/02 | | 96 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/02 | | 100 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/02 | | 109 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/02 | | 84 | % | 60 - 130 |
| | | | Chloroform | 2020/06/02 | | 84 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/02 | | 87 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/02 | | 96 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/02 | | 97 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/02 | | 93 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/02 | | 92 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/02 | | 85 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/02 | | 88 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/02 | | 91 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/02 | | 92 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/02 | | 85 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/02 | | 85 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/02 | | 86 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/02 | | 91 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/02 | | 96 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/02 | | 86 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/02 | | 87 | % | 60 - 130 |
| | | | Styrene | 2020/06/02 | | 99 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/02 | | 98 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/02 | | 95 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/02 | | 100 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/02 | | 93 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/02 | | 92 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/02 | | 91 | % | 60 - 130 |



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-trichloroethane | 2020/06/02 | | 95 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/02 | | 94 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/02 | | 102 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/02 | | 90 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/02 | | 89 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/02 | | 91 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/02 | | 79 | % | 60 - 130 |
| 9865602 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/02 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/02 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/02 | | 94 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/02 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/02 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/02 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/02 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/02 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/02 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/02 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/02 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/02 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/02 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/02 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/02 | <0.00050 | | mg/L | |
| 9865602 | QW1 | RPD | 1,2-dibromoethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/02 | NC | | % | 30 |
| 9865614 | MHF | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/30 | | 103 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | | 92 | % | 60 - 140 |
| 9865614 | MHF | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/30 | | 109 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | | 96 | % | 60 - 140 |



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BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9865614 | MHF | Method Blank | O-TERPHENYL (sur.) | 2020/05/30 | | 110 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | <0.10 | | mg/L | |
| 9865614 | MHF | RPD | F2 (C10-C16 Hydrocarbons) | 2020/05/30 | NC | | % | 30 |
| 9866897 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/30 | | 94 | % | 80 - 120 |
| 9866897 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/30 | <1.0 | | mg/L | |
| 9866897 | IK0 | RPD [XV2783-03] | Alkalinity (PP as CaCO3) | 2020/05/30 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/30 | 0.0019 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/30 | 0.0019 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/30 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/30 | NC | | % | 20 |
| 9866898 | IK0 | Spiked Blank | pH | 2020/05/30 | | 100 | % | 97 - 103 |
| 9866898 | IK0 | RPD [XV2783-03] | pH | 2020/05/30 | 2.4 | | % | N/A |
| 9866899 | IK0 | Spiked Blank | Conductivity | 2020/05/30 | | 101 | % | 90 - 110 |
| 9866899 | IK0 | Method Blank | Conductivity | 2020/05/30 | <2.0 | | uS/cm | |
| 9866899 | IK0 | RPD [XV2783-03] | Conductivity | 2020/05/30 | 0.55 | | % | 10 |
| 9867193 | IBL | Matrix Spike [XV2782-03] | Dissolved Nitrite (N) | 2020/05/31 | | 103 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/31 | | NC | % | 80 - 120 |
| 9867193 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/05/31 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/31 | | 103 | % | 80 - 120 |
| 9867193 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/05/31 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/31 | <0.010 | | mg/L | |
| 9867193 | IBL | RPD [XV2782-03] | Dissolved Nitrite (N) | 2020/05/31 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/31 | 1.2 | | % | 20 |
| 9867671 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/31 | | 93 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | | 107 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | | 96 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | | 105 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/31 | | 103 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | | 98 | % | 80 - 120 |
| 9867671 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/31 | | 99 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | | 111 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | | 97 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | | 105 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/31 | | 102 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | | 100 | % | 80 - 120 |
| 9867671 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/31 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/31 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/31 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/31 | <0.50 | | mg/L | |
| 9867671 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/31 | 0.28 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | 0.30 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/31 | 0.73 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | 0.39 | | % | 20 |
| 9867707 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/31 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | | 105 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | | 95 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | | 104 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/31 | | 102 | % | 80 - 120 |



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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Sodium (Na) | 2020/05/31 | | 98 | % | 80 - 120 |
| 9867707 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/31 | | 98 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | | 109 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | | 97 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | | 103 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/31 | | 102 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | | 100 | % | 80 - 120 |
| 9867707 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/31 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/31 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/31 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/31 | <0.50 | | mg/L | |
| 9867707 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/31 | 0.046 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | 0.058 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/31 | 0.097 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | 0.24 | | % | 20 |
| 9868419 | QW1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/01 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/01 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/01 | | 106 | % | 50 - 140 |
| | | | Benzene | 2020/06/01 | | 83 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/01 | | 93 | % | 50 - 140 |
| | | | Bromoform | 2020/06/01 | | 107 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/01 | | 93 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/01 | | 95 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/01 | | 99 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/01 | | 108 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/01 | | 82 | % | 50 - 140 |
| | | | Chloroform | 2020/06/01 | | 81 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/01 | | 87 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/01 | | 95 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/01 | | 95 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/01 | | 93 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/01 | | 92 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/01 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/01 | | 87 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/01 | | 91 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/01 | | 91 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/01 | | 85 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/01 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/01 | | 85 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/01 | | 101 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/01 | | 107 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/01 | | 94 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/01 | | 83 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/01 | | 86 | % | 50 - 140 |
| | | | Styrene | 2020/06/01 | | 99 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/01 | | 98 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/01 | | 94 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/01 | | 101 | % | 50 - 140 |
| | | | Toluene | 2020/06/01 | | 93 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/01 | | 91 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/01 | | 91 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/01 | | 91 | % | 50 - 140 |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-trichloroethane | 2020/06/01 | | 95 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/01 | | 92 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/01 | | 101 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/01 | | 90 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/01 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/01 | | 91 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/01 | | 78 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/01 | | 93 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/01 | | 91 | % | 50 - 140 |
| 9868419 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/01 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/01 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/01 | | 109 | % | 50 - 140 |
| | | | Benzene | 2020/06/01 | | 85 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/06/01 | | 95 | % | 60 - 130 |
| | | | Bromoform | 2020/06/01 | | 110 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/01 | | 94 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/01 | | 97 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/01 | | 102 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/01 | | 110 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/01 | | 84 | % | 60 - 130 |
| | | | Chloroform | 2020/06/01 | | 85 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/01 | | 88 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/01 | | 97 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/01 | | 98 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/01 | | 94 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/01 | | 93 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/01 | | 86 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/01 | | 89 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/01 | | 92 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/01 | | 93 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/01 | | 87 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/01 | | 86 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/01 | | 87 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/01 | | 103 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/01 | | 117 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/01 | | 95 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/01 | | 87 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/01 | | 89 | % | 60 - 130 |
| | | | Styrene | 2020/06/01 | | 100 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/01 | | 100 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/01 | | 97 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/01 | | 102 | % | 60 - 130 |
| | | | Toluene | 2020/06/01 | | 94 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/01 | | 94 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/01 | | 94 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/01 | | 93 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/01 | | 95 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/01 | | 95 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/01 | | 103 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/01 | | 91 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/01 | | 91 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/01 | | 92 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/01 | | 80 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/01 | | 94 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | o-Xylene | 2020/06/01 | | 92 | % | 60 - 130 |
| 9868419 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/01 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/01 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/01 | | 94 | % | 50 - 140 |
| | | | Benzene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/01 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/01 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/01 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/01 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/01 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/01 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/01 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/01 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/06/01 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/01 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/01 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/01 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/06/01 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/06/01 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/01 | <0.00040 | | mg/L | |
| 9868419 | QW1 | RPD | Bromodichloromethane | 2020/06/02 | NC | | % | 30 |
| | | | Bromoform | 2020/06/02 | NC | | % | 30 |
| | | | Bromomethane | 2020/06/02 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/06/02 | 2.3 | | % | 30 |
| | | | Chlorobenzene | 2020/06/02 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/06/02 | NC | | % | 30 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Chloroethane | 2020/06/02 | NC | | % | 30 |
| | | | Chloroform | 2020/06/02 | 3.4 | | % | 30 |
| | | | Chloromethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/06/02 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/06/02 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/06/02 | NC | | % | 30 |
| | | | Dichloromethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/06/02 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/06/02 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/06/02 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/06/02 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/02 | NC | | % | 30 |
| | | | Styrene | 2020/06/02 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/02 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/06/02 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/06/02 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/02 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/06/02 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/06/02 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/06/02 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/06/02 | NC | | % | 30 |
| 9868959 | MB5 | Matrix Spike | Dissolved Chloride (Cl) | 2020/06/03 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/03 | | NC | % | 80 - 120 |
| 9868959 | MB5 | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/03 | | 103 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/03 | | 105 | % | 80 - 120 |
| 9868959 | MB5 | Method Blank | Dissolved Chloride (Cl) | 2020/06/03 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/03 | <1.0 | | mg/L | |
| 9868959 | MB5 | RPD | Dissolved Chloride (Cl) | 2020/06/03 | 0.049 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/03 | 0.57 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035916
Report Date: 2020/06/03

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

1047

# CHAIN OF CUSTODY RECORD

M 061075



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☒ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave NE Calgary Alb | Address: | | Project #: | CG 2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | Date Required: |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Rush Confirmation #: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin/Bryn | |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCAL | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 9 | 9 | 19 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss ☐ | Mercury Total ☐ Dissolved ☐ | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1704 | | 2020/05/27 | 09:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 2 | 4008B | | ↑ | 15:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 3 | 4008A | | | 15:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 4 | 4009B | | | 14:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 5 | 4009A | | | 14:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 6 | 4002 | | | 13:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | 4003B | | | 08:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 8 | 4003A | | | 08:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 9 | 94003A | | ↓ | 08:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 10 | Trip Blank 7 | | 2020/05/27 | | W | 2 | ✓ | ✓ | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | | | | | | | |

**Regulatory Criteria**

☒ AT1
☐ CCME
☐ Drinking Water
☐ DSO (Drilling Waste)
☐ Saskatchewan
☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/27 | 16:29 | Fajran Jones | 2020/05/27 | 16:35 | C035916 |

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AB FCD-00331/7

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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

# CHAIN OF CUSTODY RECORD

M 073247



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | [X] 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): [ ] Same Day [ ] 2 Days [ ] 1 Day [ ] 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | Stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin / Bryn | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCH | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 9 | 9 | 19 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 [X] VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot [ ] Diss | Mercury Total [ ] Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1904 | | 2020/05/27 | 15:45 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1918 | | ↓ | 11:40 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 3 | 1927 | | ↓ | 10:15 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 4 | 1953 | | ↓ | 12:55 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 5 | 1985 | | 2020/05/27 | 14:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | F/P | | | | | | | |

**Regulatory Criteria**

- [X] AT1
- [ ] CCME
- [ ] Drinking Water
- [ ] D50 (Drilling Waste)
- [ ] Saskatchewan
- [ ] Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/27 | 16:29 | Fajrun Jones | 2020/05/27 | 16:35 | C035916 |
| | | | | | | |

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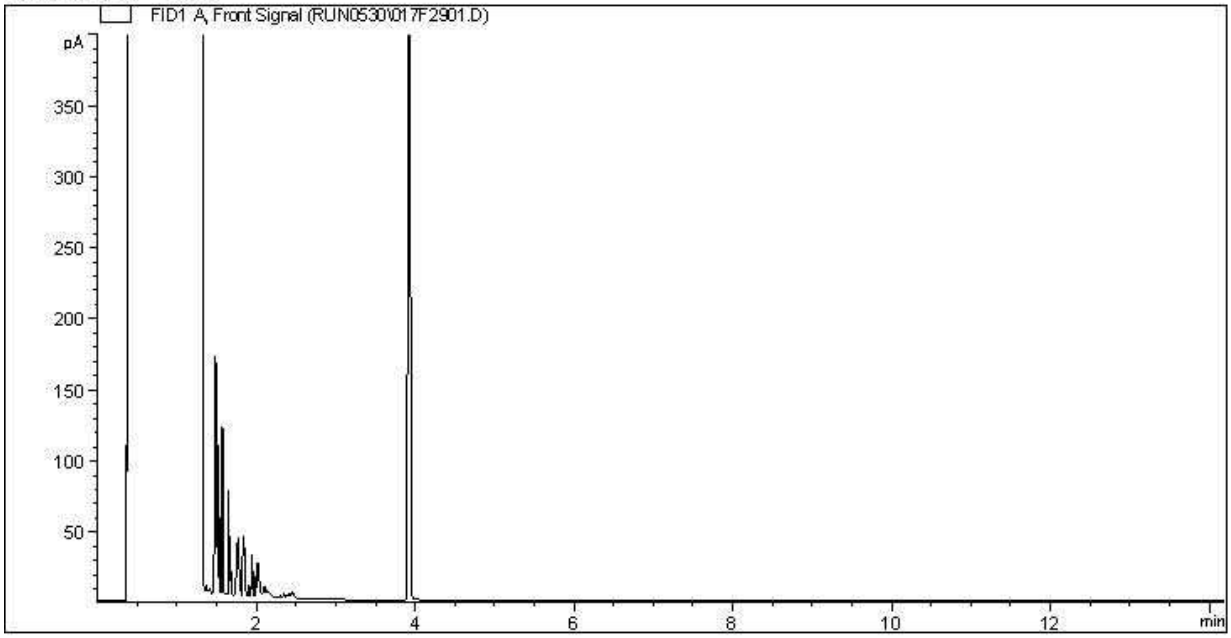
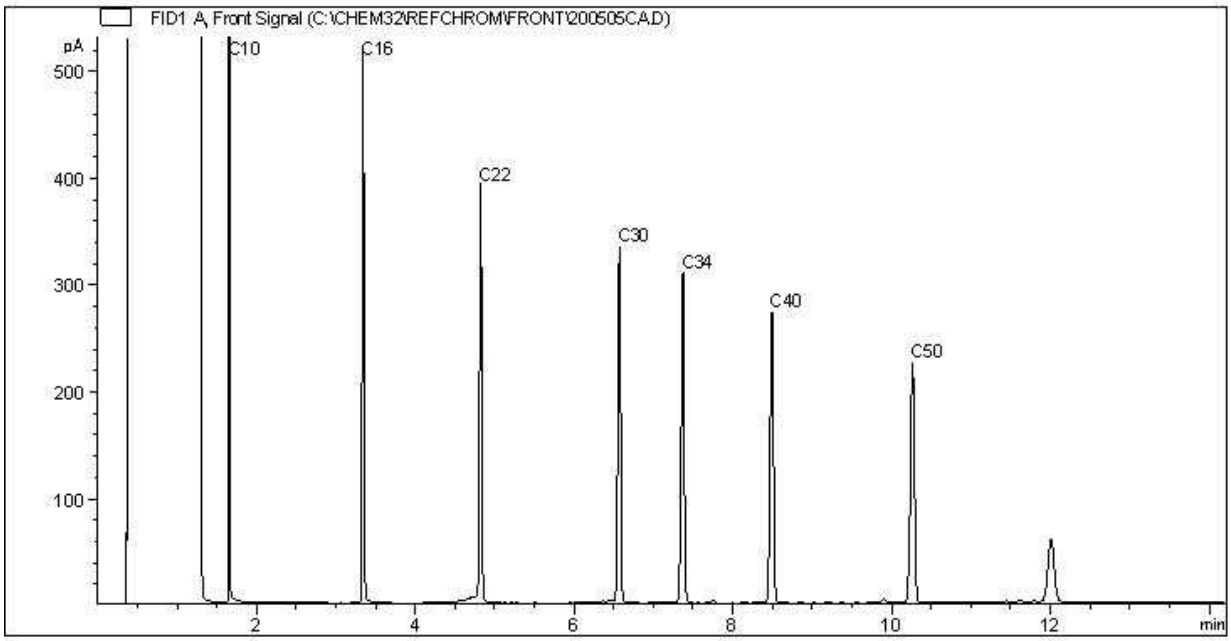
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



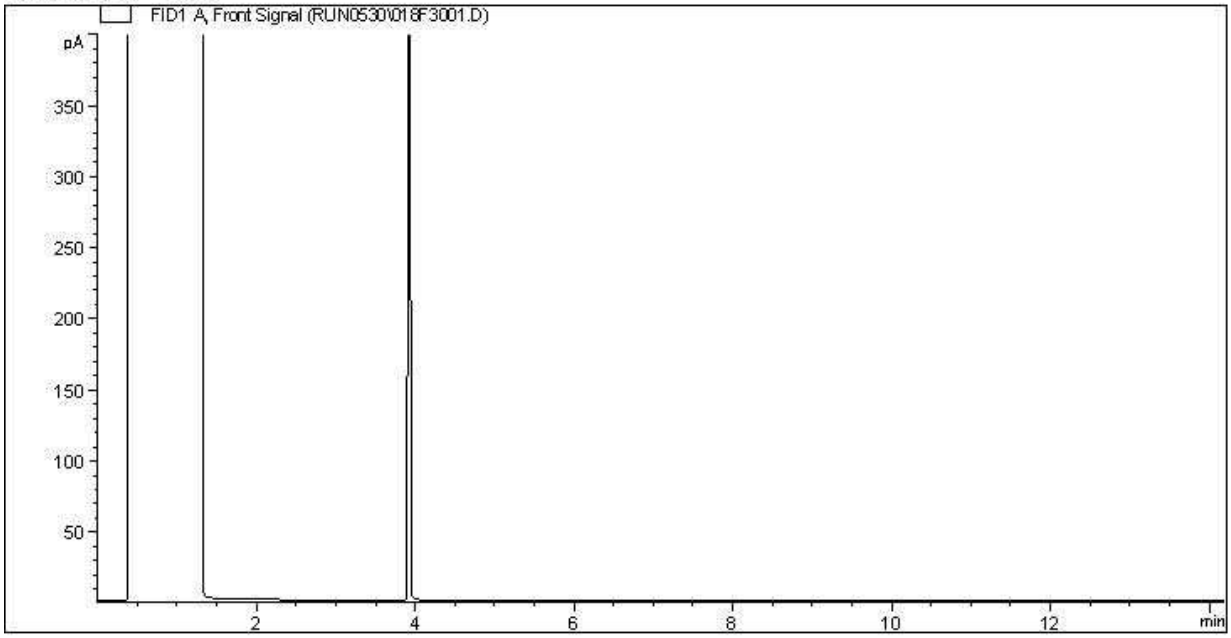

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

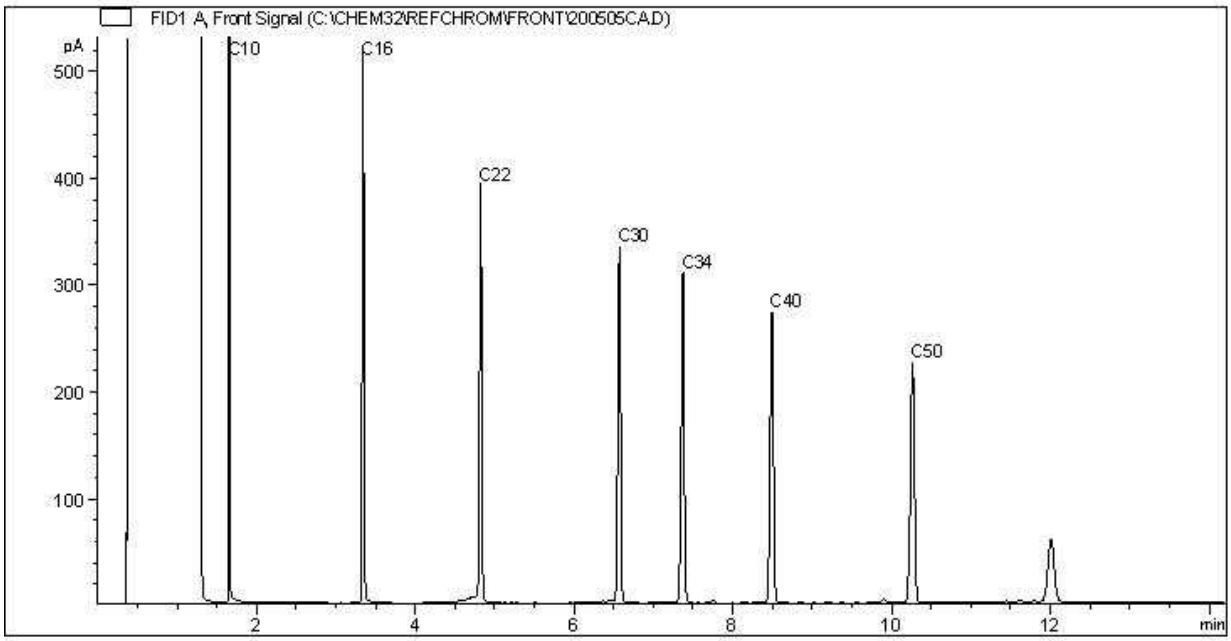
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
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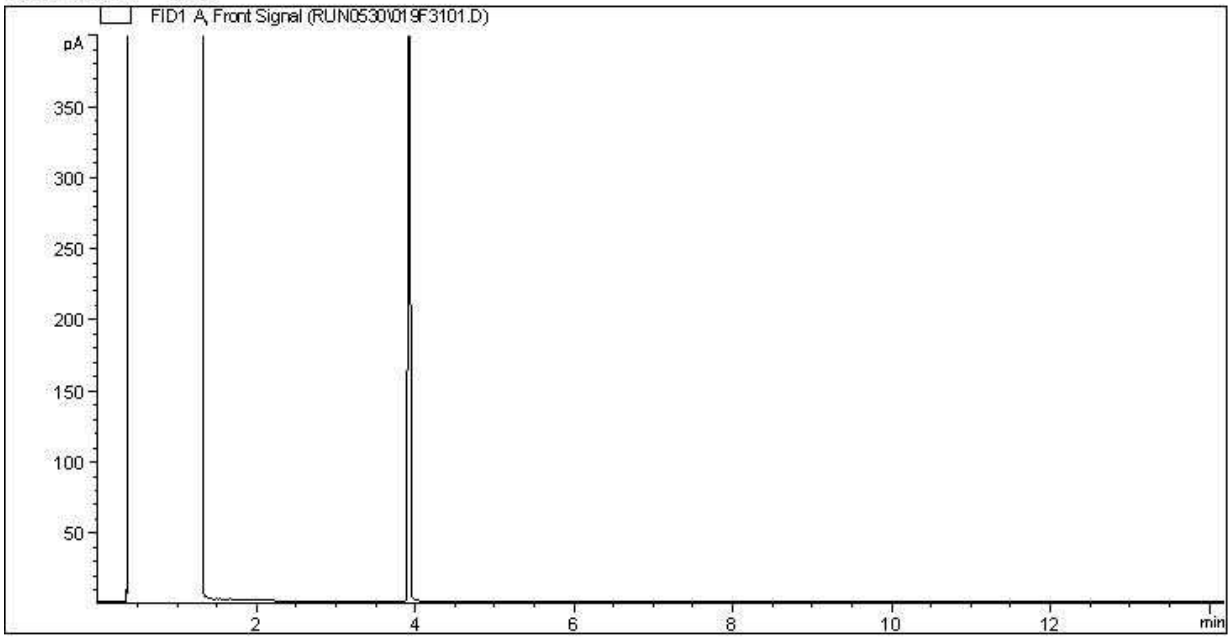
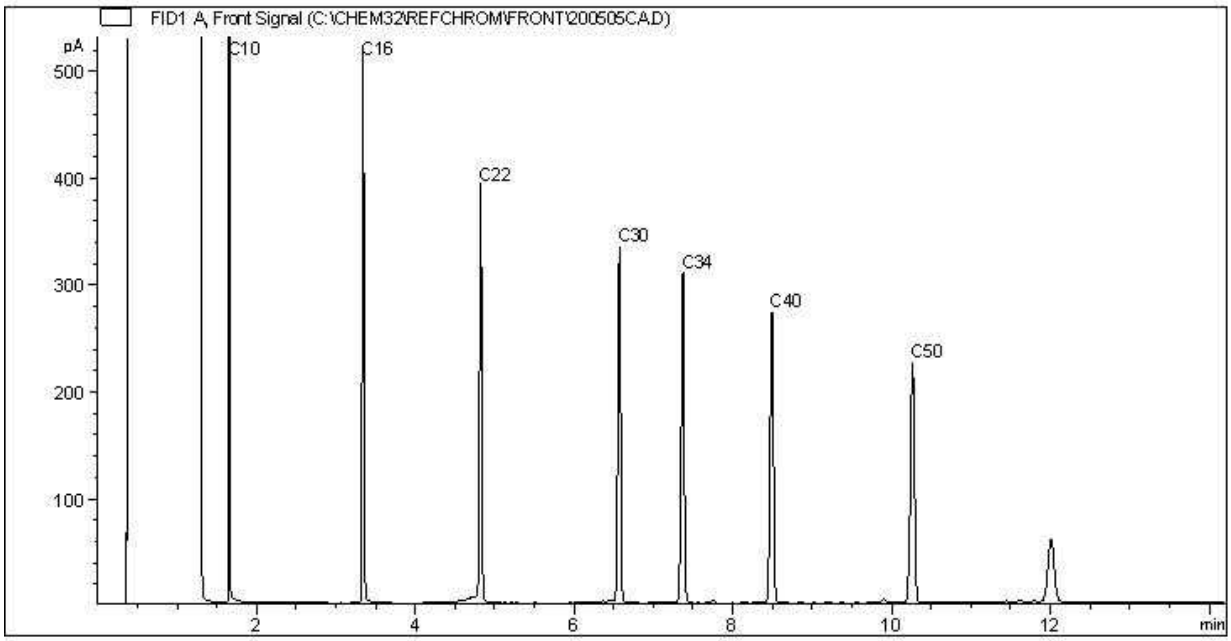
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

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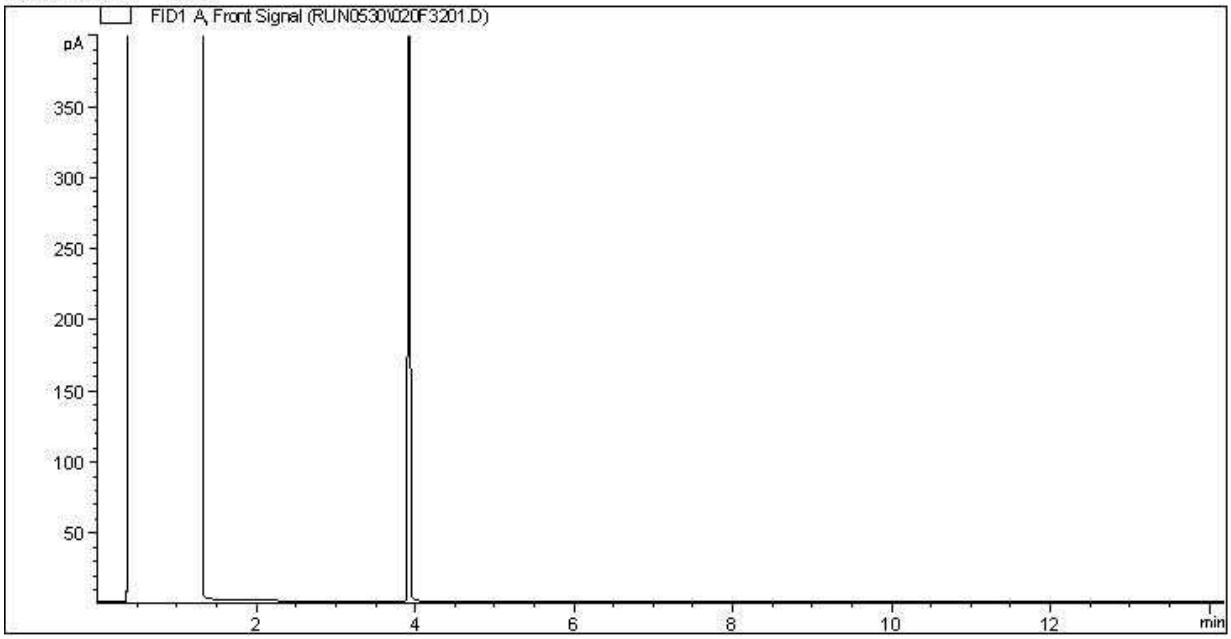
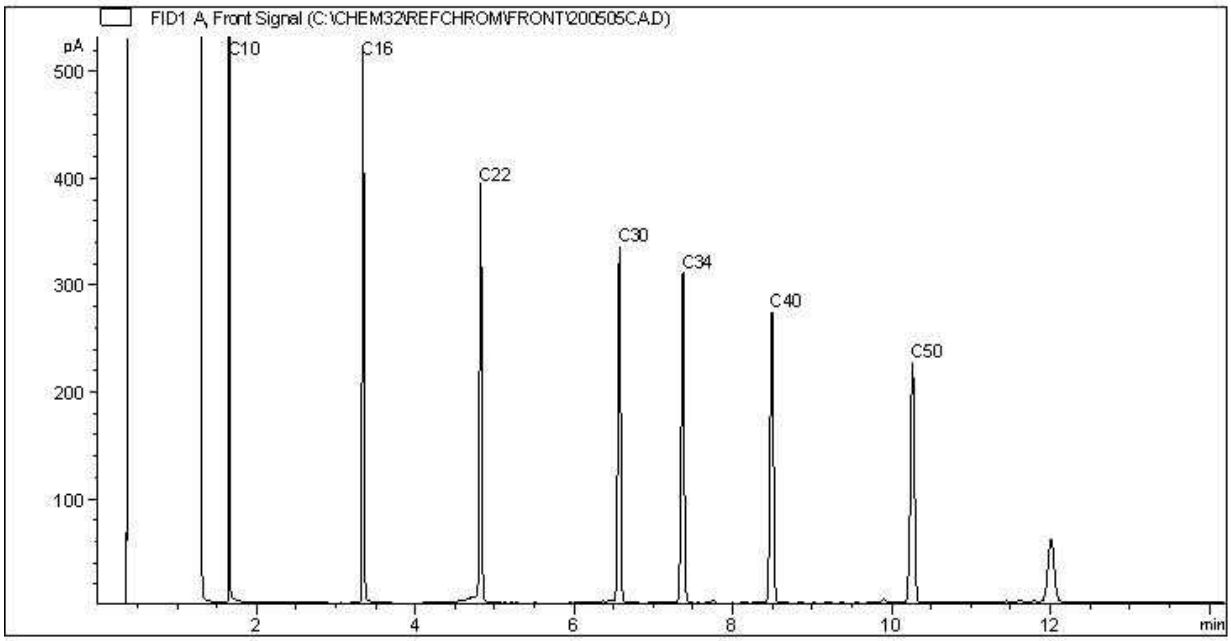
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

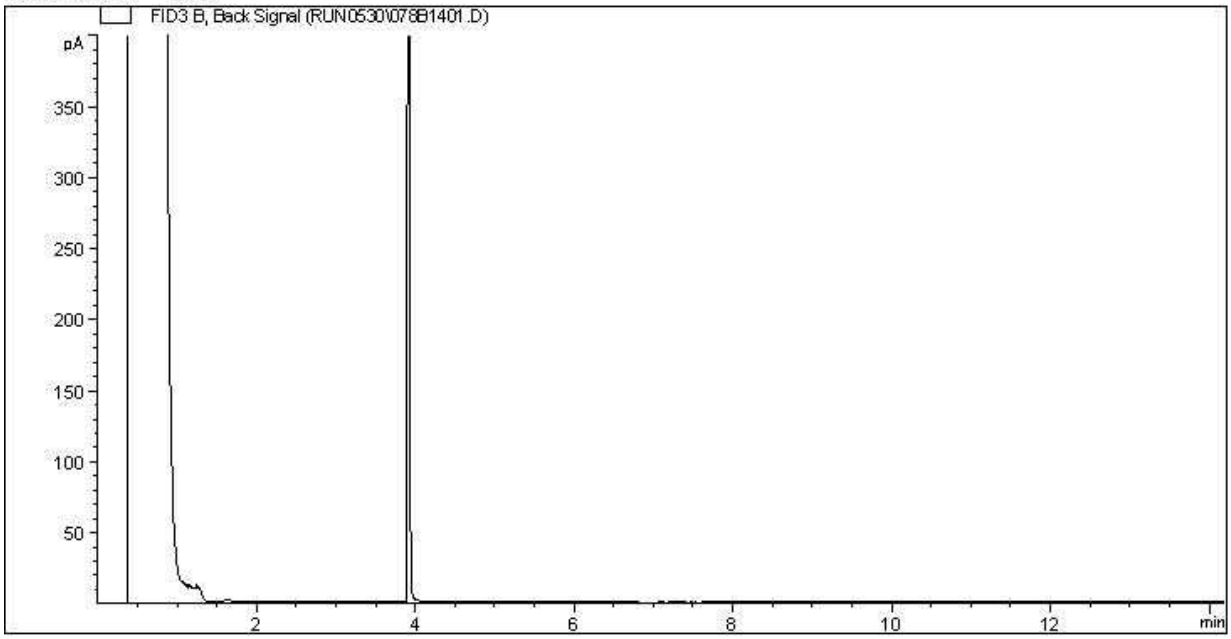
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035916
Report Date: 2020/06/03
BV Labs Sample: XV2775

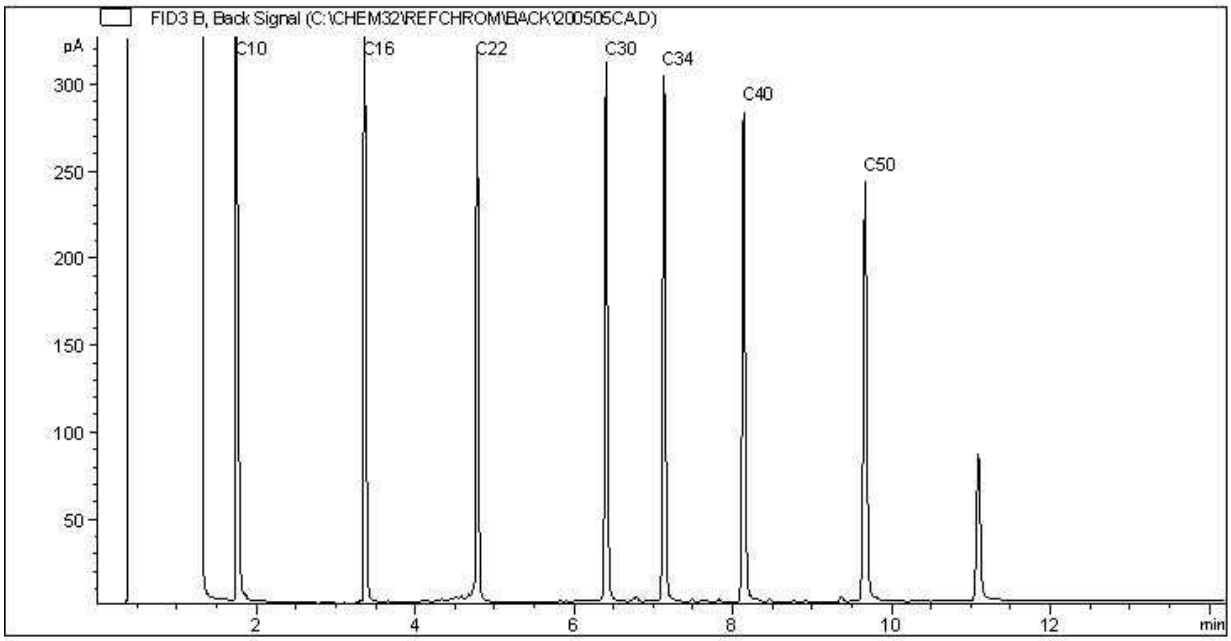
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 4009A

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

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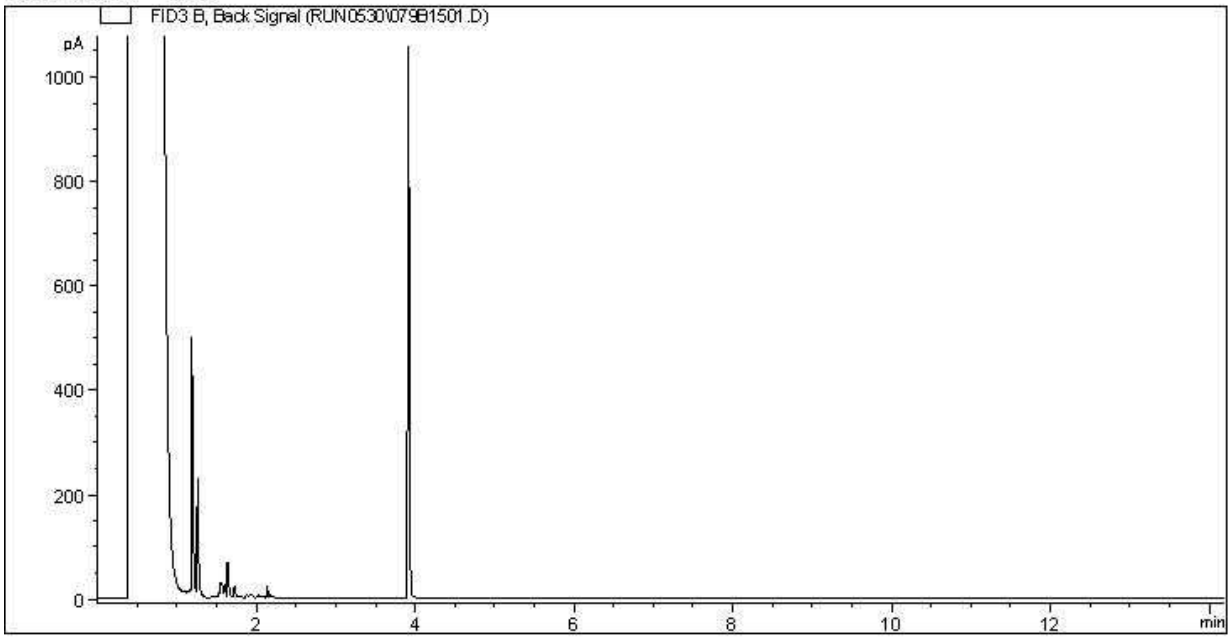
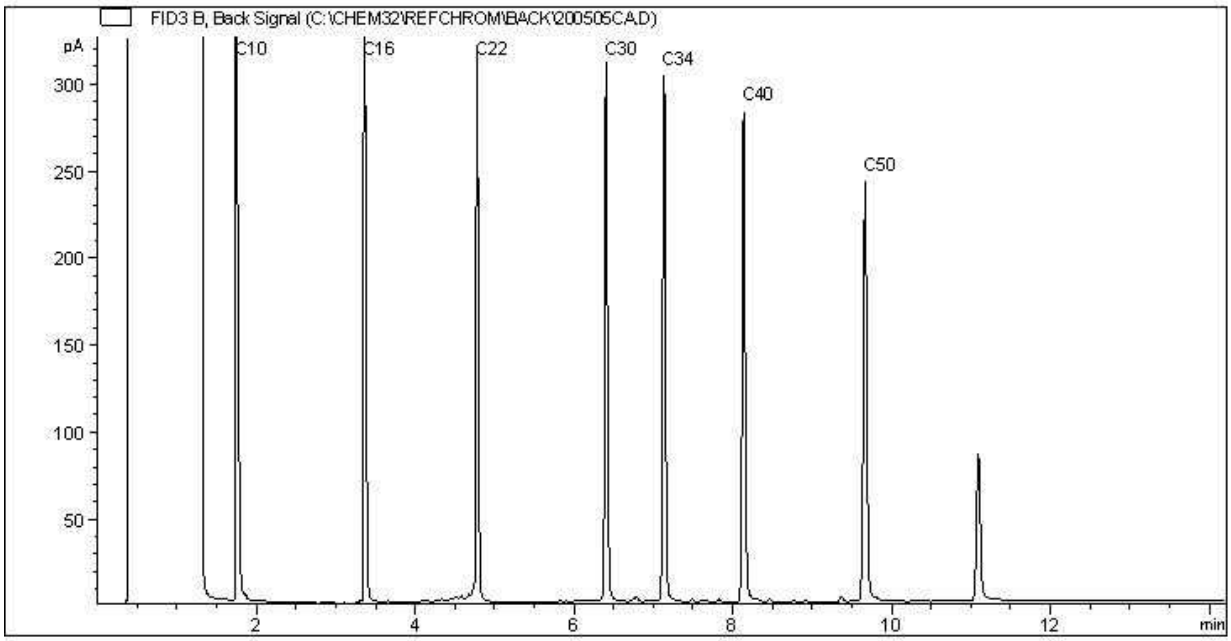
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram

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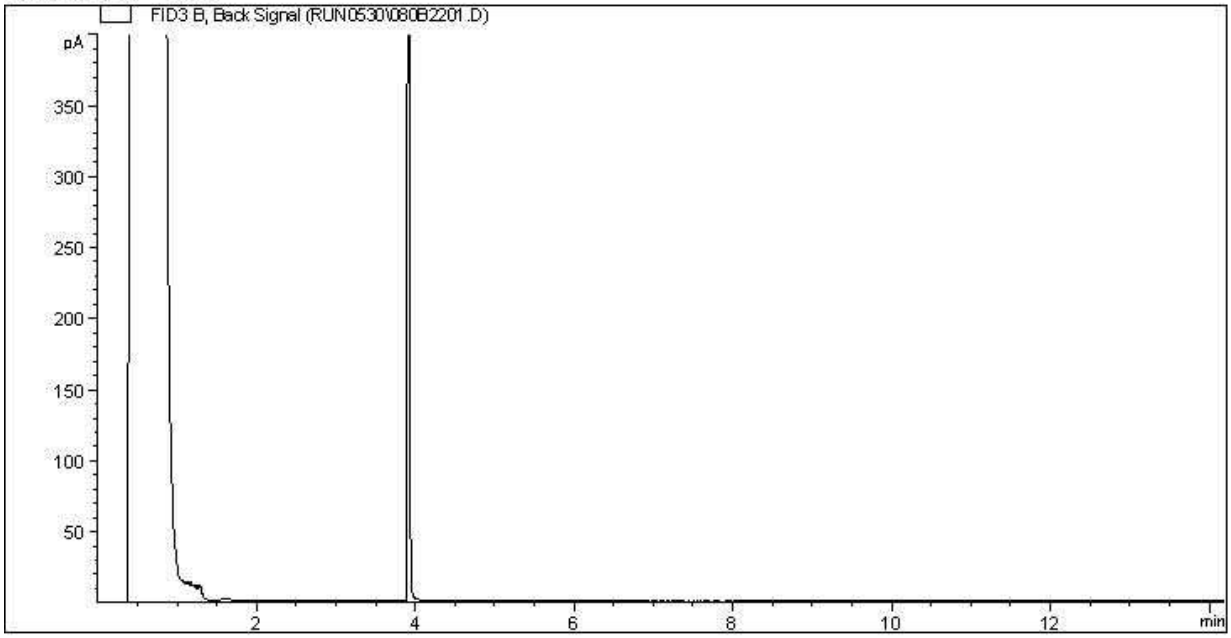
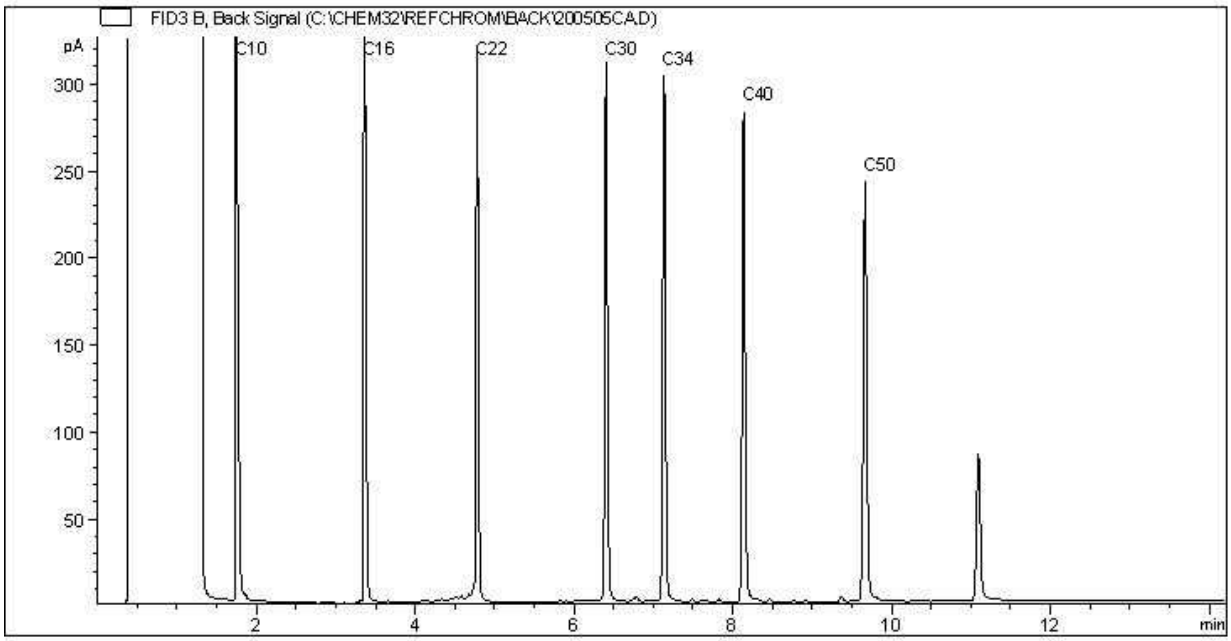
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

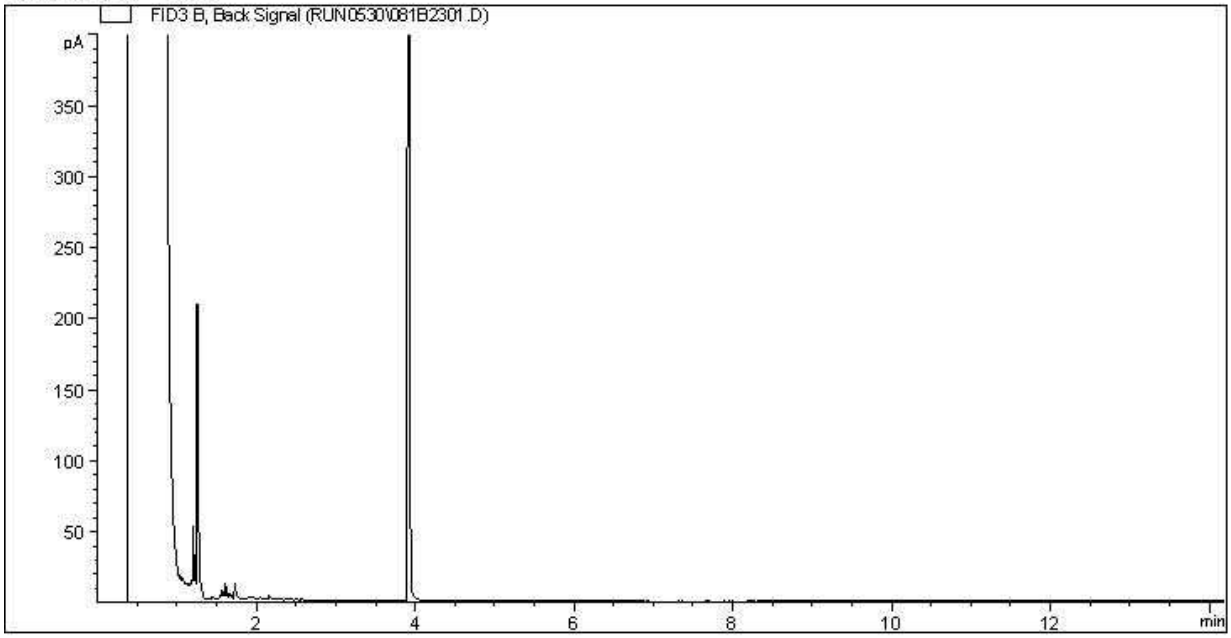
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035916
Report Date: 2020/06/03
BV Labs Sample: XV2778

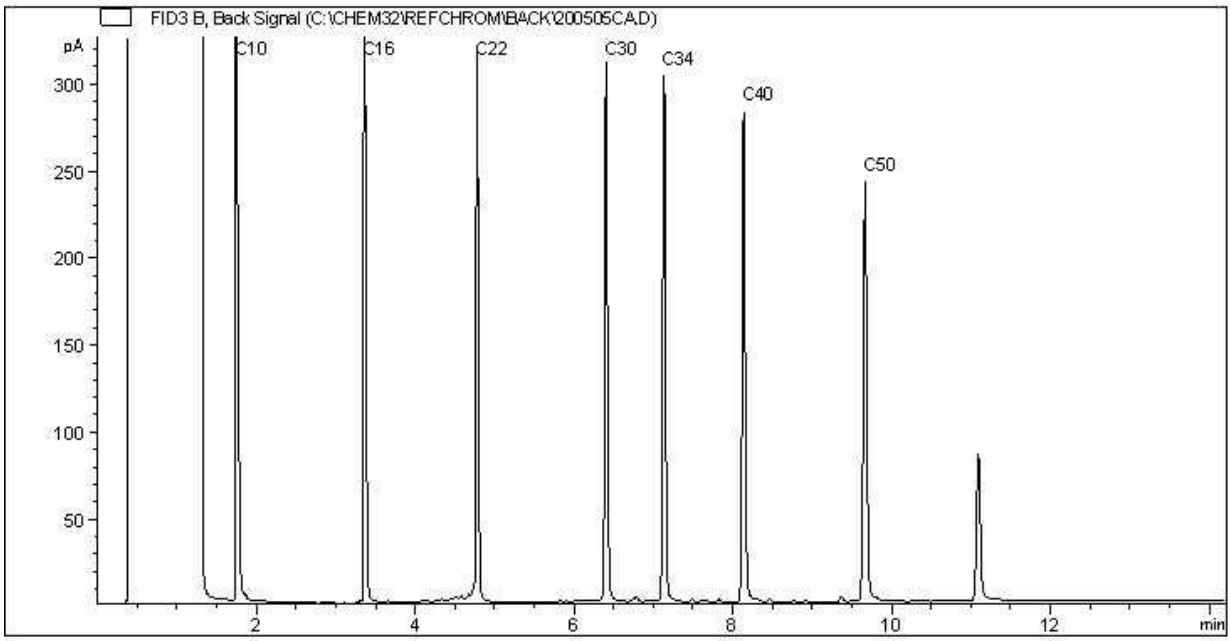
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 4003A

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

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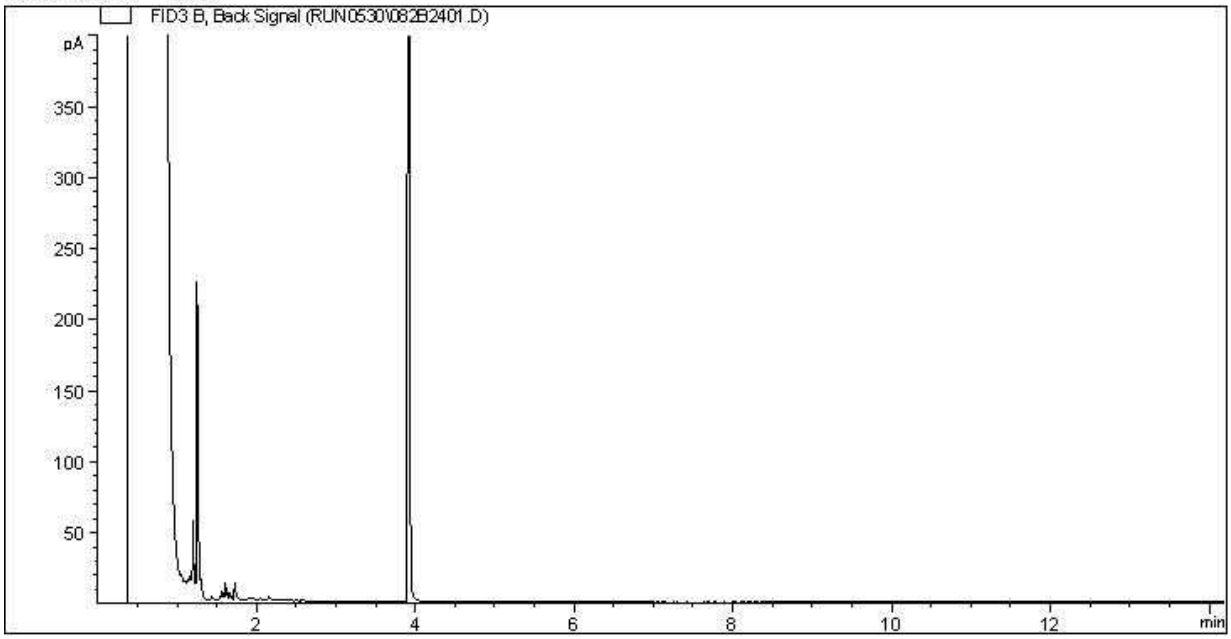
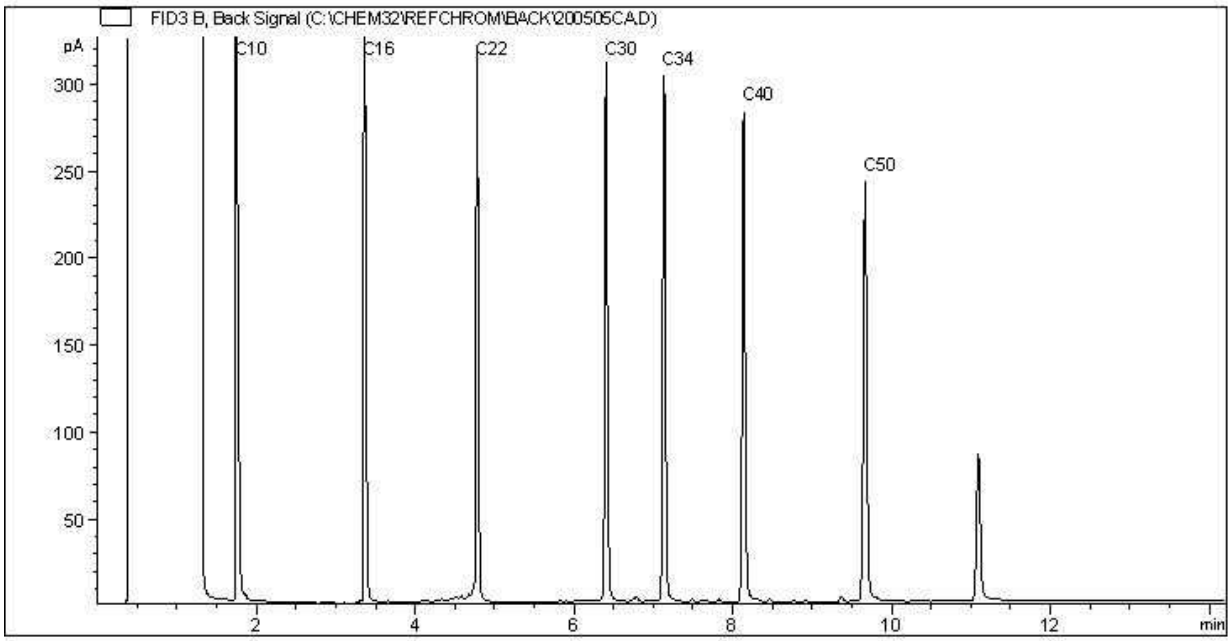
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram

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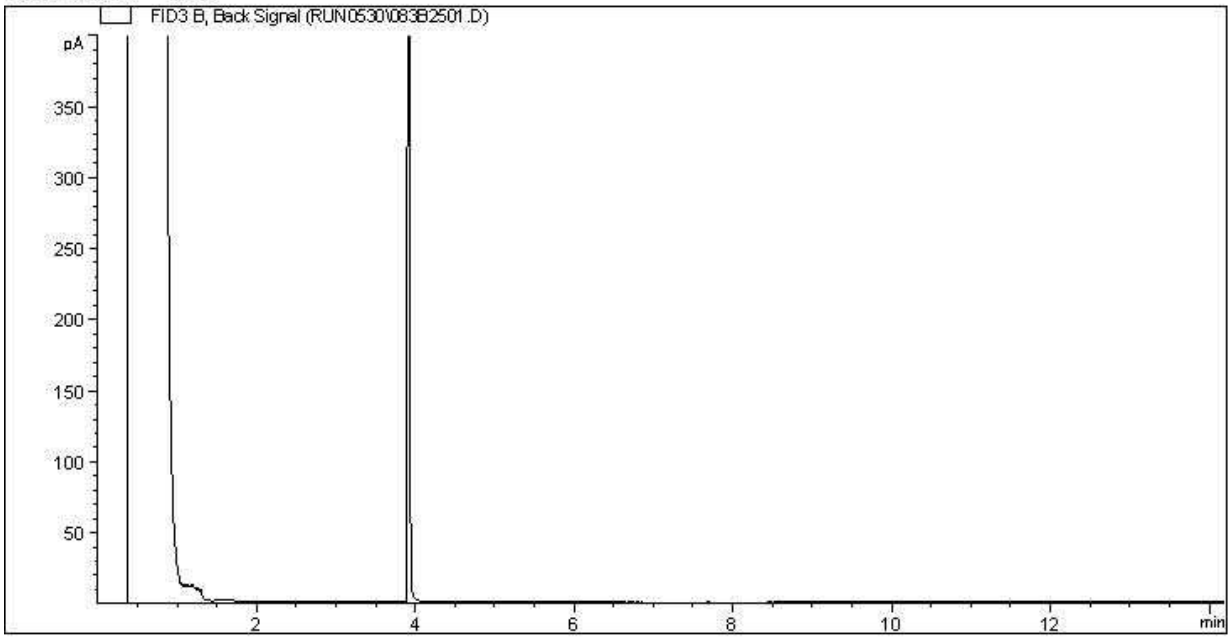
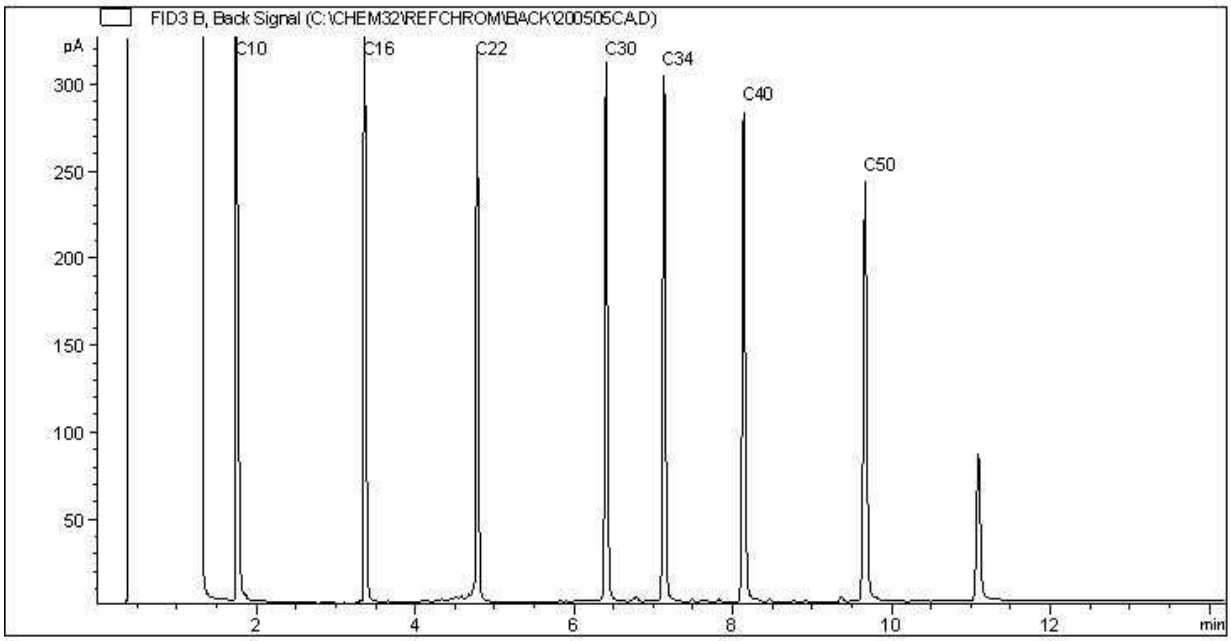
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram

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|---|---|---|---|
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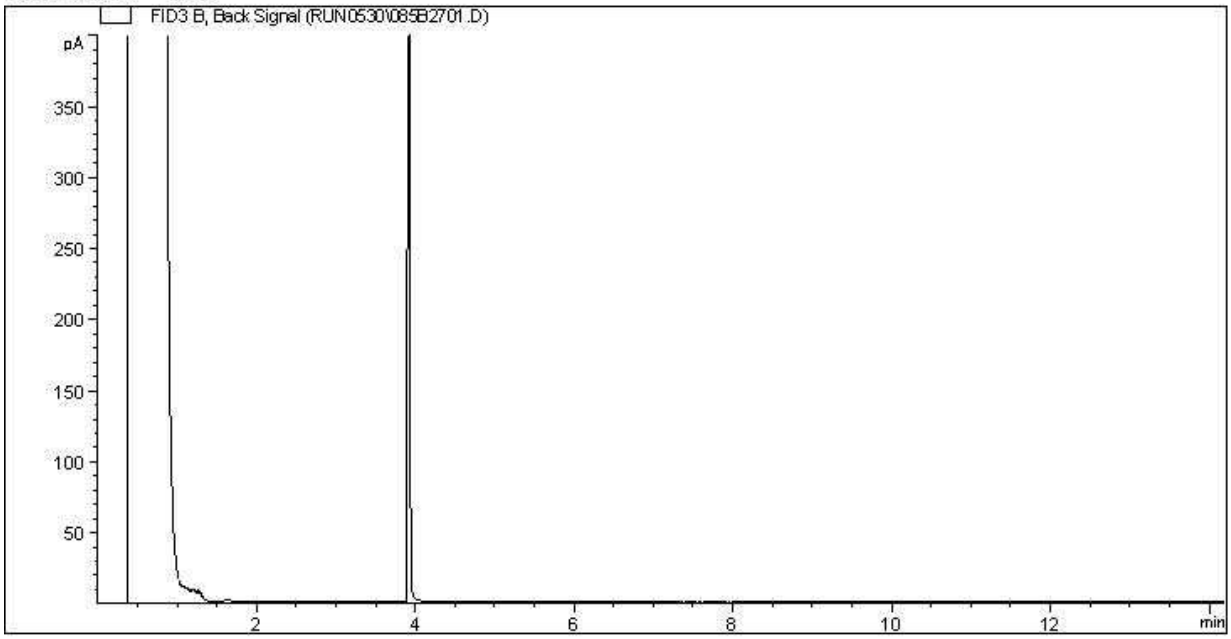
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

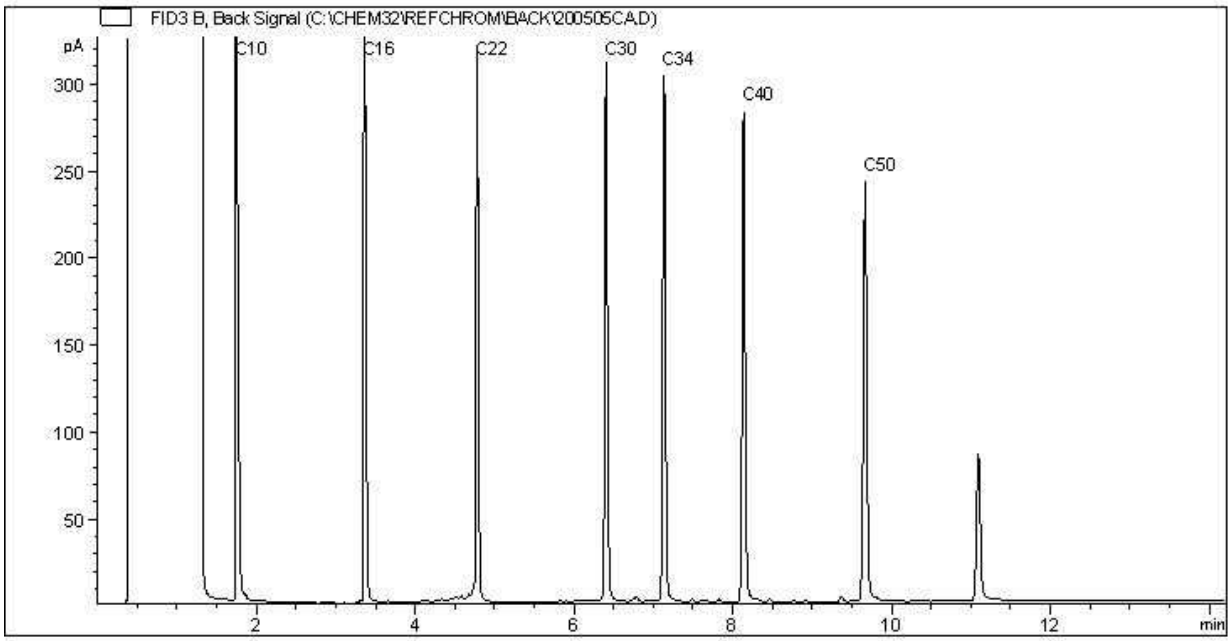
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



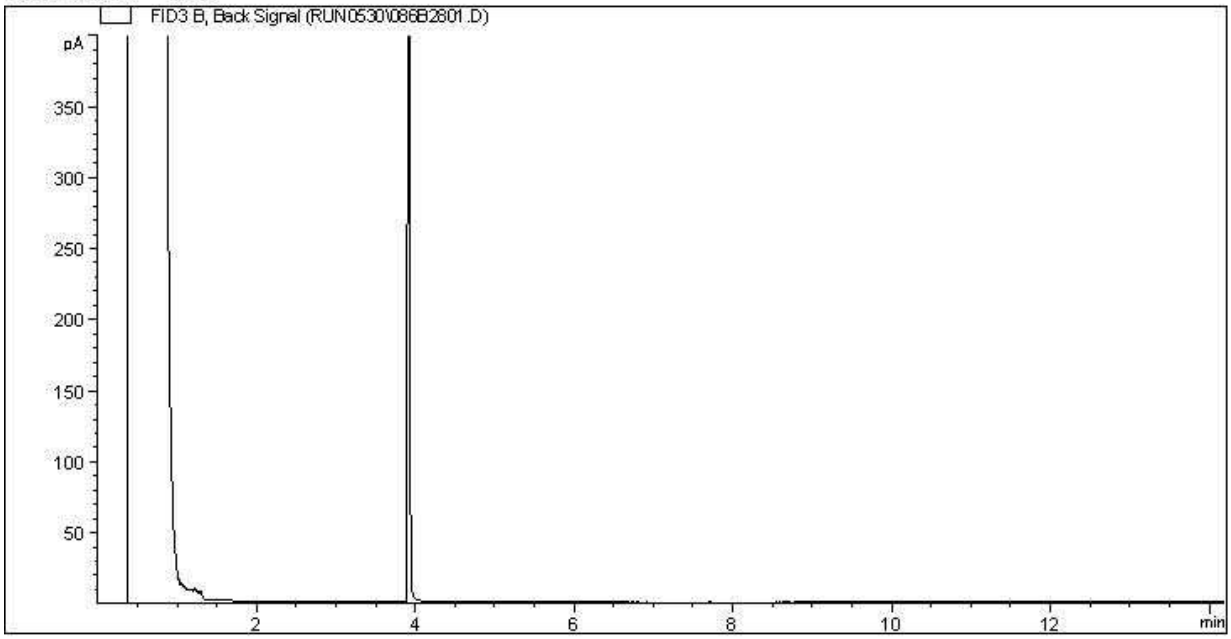

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

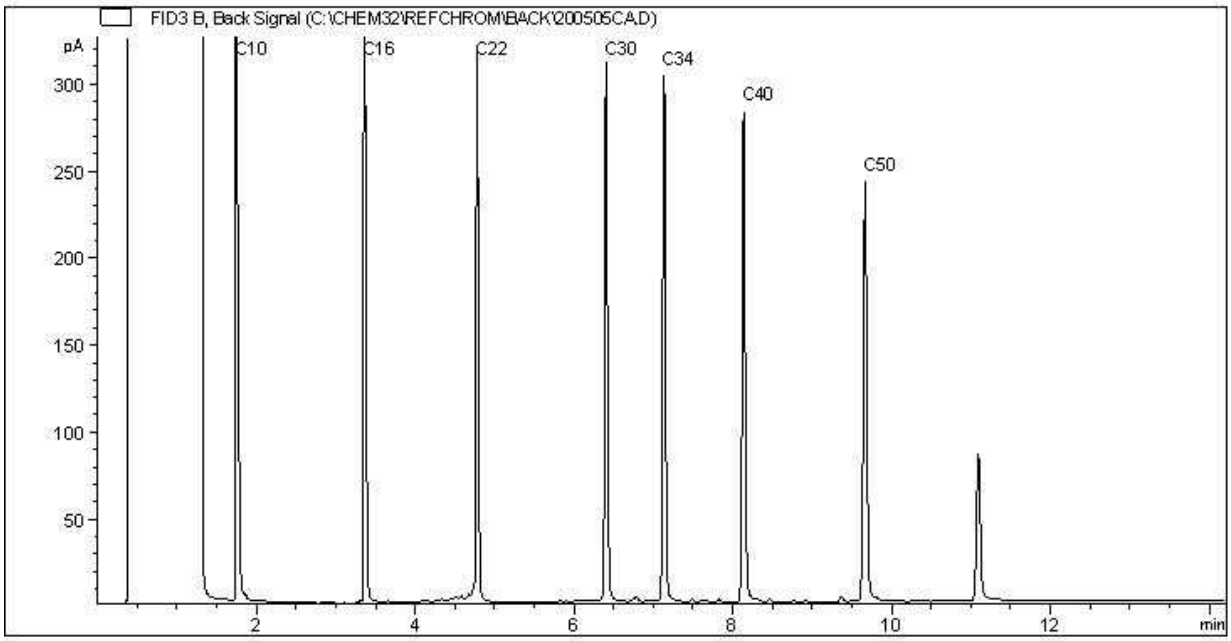
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram



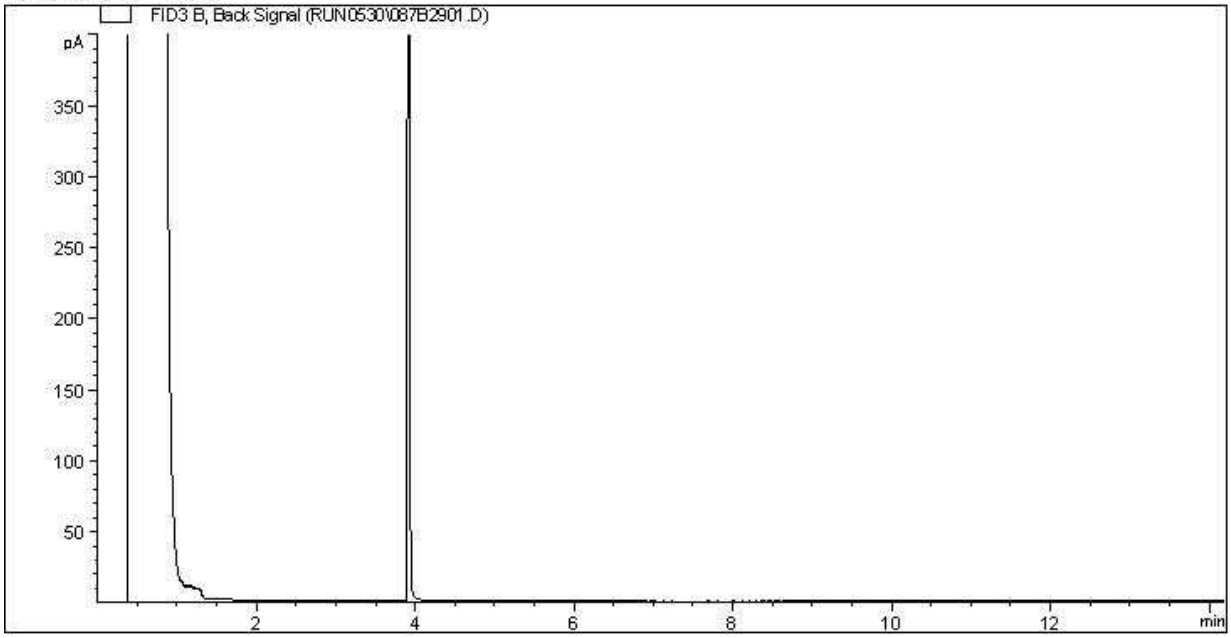

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

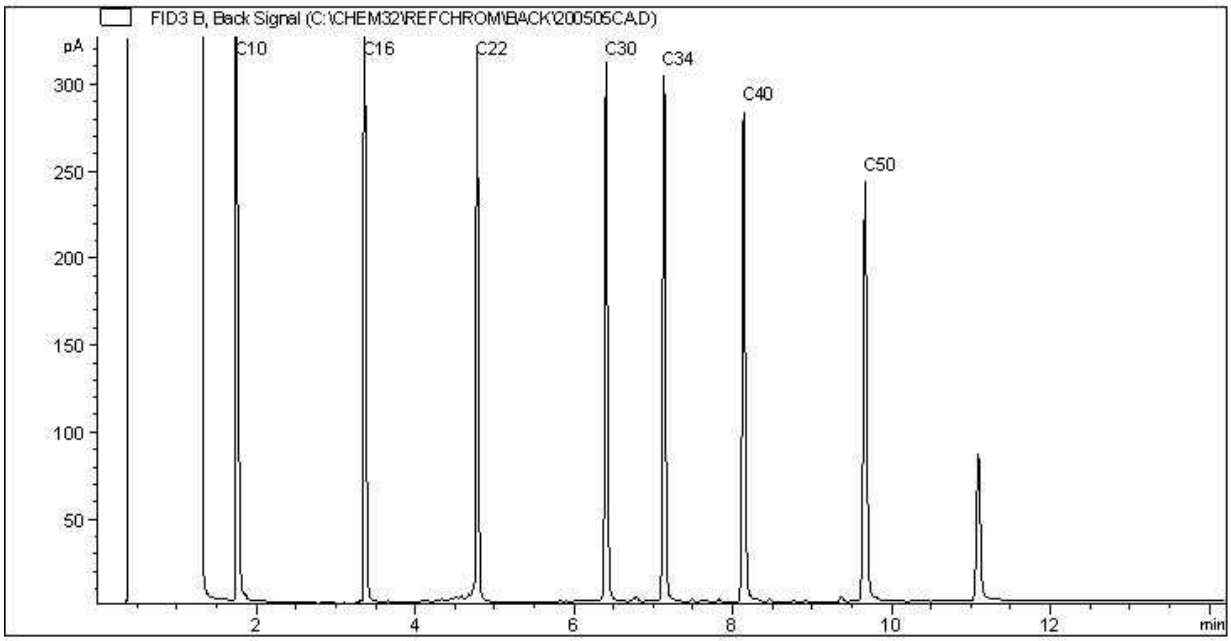
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

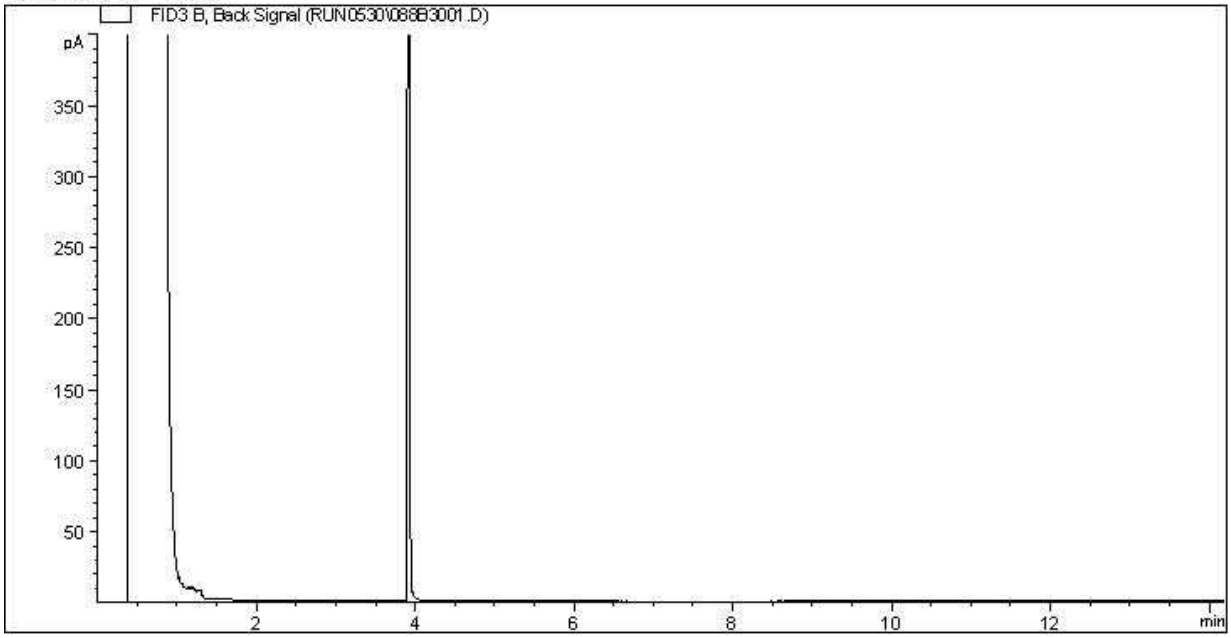
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C035916
Report Date: 2020/06/03
BV Labs Sample: XV2785

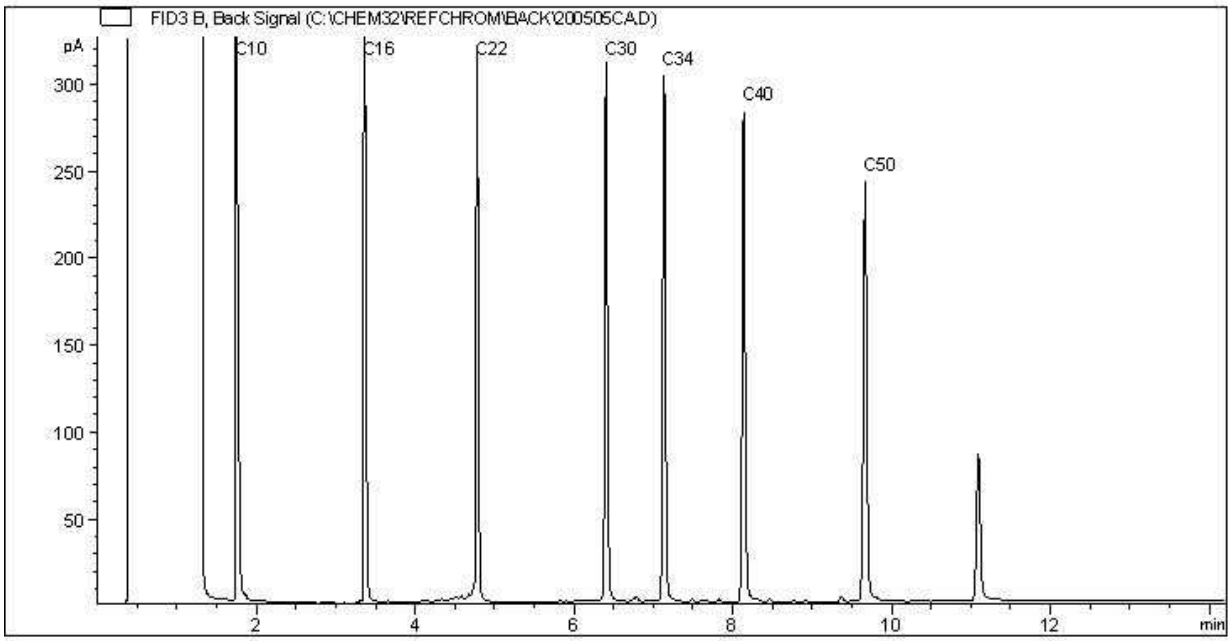
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1985

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC15




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061027

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/02**
Report #: R2885623
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C035538**
**Received: 2020/05/26, 17:12**

Sample Matrix: Water
# Samples Received: 6

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 4 | N/A | 2020/05/30 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 4 | N/A | 2020/05/28 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| BTEX/F1 in Water by HS GC/MS/FID | 1 | N/A | 2020/05/29 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 5 | N/A | 2020/05/29 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 4 | N/A | 2020/06/01 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 4 | N/A | 2020/05/30 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 5 | 2020/06/01 | 2020/06/01 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 4 | N/A | 2020/05/31 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 4 | N/A | 2020/05/31 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 4 | N/A | 2020/06/01 | | Auto Calc |
| Sum of cations, anions | 4 | N/A | 2020/05/31 | | Auto Calc |
| Nitrate and Nitrite | 4 | N/A | 2020/05/30 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 4 | N/A | 2020/05/30 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 4 | N/A | 2020/05/28 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 4 | N/A | 2020/05/30 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 4 | N/A | 2020/06/01 | | Auto Calc |
| Total Trihalomethanes Calculation | 6 | N/A | 2020/06/01 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 6 | N/A | 2020/05/29 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061027

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/02**
Report #: R2885623
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C035538**
**Received: 2020/05/26, 17:12**

BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV0827 | | XV0828 | | XV0829 | XV0830 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/26 12:05 | | 2020/05/26 15:35 | | 2020/05/26 14:45 | 2020/05/26 10:55 | | |
| **COC Number** | | M061027 | | M061027 | | M061027 | M061027 | | |
| | **UNITS** | **1901** | **RDL** | **1906** | **RDL** | **1910** | **1958** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | 0.10 | <0.10 | 0.10 | <0.10 | <0.10 | 0.10 | 9864926 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | 0.00040 | 2.0 (1) | 0.0040 | 0.41 | <0.00040 | 0.00040 | 9864299 |
| Toluene | mg/L | <0.00040 | 0.00040 | 0.00041 | 0.00040 | <0.00040 | <0.00040 | 0.00040 | 9864299 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | <0.00040 | 0.00040 | <0.00040 | <0.00040 | 0.00040 | 9864299 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | <0.00080 | 0.00080 | <0.00080 | <0.00080 | 0.00080 | 9864299 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 0.00063 | 0.00040 | <0.00040 | <0.00040 | 0.00040 | 9864299 |
| Xylenes (Total) | mg/L | <0.00089 | 0.00089 | <0.00089 | 0.00089 | <0.00089 | <0.00089 | 0.00089 | 9863378 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | 0.10 | <1.0 | 1.0 | <0.10 | <0.10 | 0.10 | 9863378 |
| F1 (C6-C10) | mg/L | <0.10 | 0.10 | 2.3 (1) | 1.0 | 0.42 | <0.10 | 0.10 | 9864299 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 99 | N/A | 106 | N/A | 101 | 101 | N/A | 9864299 |
| 4-Bromofluorobenzene (sur.) | % | 93 | N/A | 80 | N/A | 94 | 92 | N/A | 9864299 |
| D4-1,2-Dichloroethane (sur.) | % | 81 | N/A | 86 | N/A | 92 | 87 | N/A | 9864299 |
| O-TERPHENYL (sur.) | % | 106 | N/A | 109 | N/A | 103 | 106 | N/A | 9864926 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV0831 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/26 09:30 | | |
| **COC Number** | | M061027 | | |
| | **UNITS** | **1984** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | 0.10 | 9864926 |
| **Volatiles** | | | | |
| Benzene | mg/L | <0.00040 | 0.00040 | 9864299 |
| Toluene | mg/L | <0.00040 | 0.00040 | 9864299 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 9864299 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | 9864299 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 9864299 |
| Xylenes (Total) | mg/L | <0.00089 | 0.00089 | 9863378 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | 0.10 | 9863378 |
| F1 (C6-C10) | mg/L | <0.10 | 0.10 | 9864299 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 96 | N/A | 9864299 |
| 4-Bromofluorobenzene (sur.) | % | 93 | N/A | 9864299 |
| D4-1,2-Dichloroethane (sur.) | % | 79 | N/A | 9864299 |
| O-TERPHENYL (sur.) | % | 105 | N/A | 9864926 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| BV Labs ID | | XV0828 | XV0828 | | XV0829 | XV0829 | | XV0830 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2020/05/26 15:35 | 2020/05/26 15:35 | | 2020/05/26 14:45 | 2020/05/26 14:45 | | 2020/05/26 10:55 | | |
| COC Number | | M061027 | M061027 | | M061027 | M061027 | | M061027 | | |
| | **UNITS** | **1906** | **1906 Lab-Dup** | **RDL** | **1910** | **1910 Lab-Dup** | **RDL** | **1958** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | | | | | | |
| Anion Sum | meq/L | 20 | N/A | N/A | 19 | N/A | N/A | 16 | N/A | 9863166 |
| Cation Sum | meq/L | 20 | N/A | N/A | 20 | N/A | N/A | 17 | N/A | 9863166 |
| Hardness (CaCO3) | mg/L | 930 | N/A | 0.50 | 890 | N/A | 0.50 | 730 | 0.50 | 9863382 |
| Ion Balance (% Difference) | % | 1.2 | N/A | N/A | 0.94 | N/A | N/A | 1.5 | N/A | 9863162 |
| Dissolved Nitrate (NO3) | mg/L | 130 | N/A | 0.22 | 31 | N/A | 0.044 | 12 | 0.044 | 9863283 |
| Nitrate plus Nitrite (N) | mg/L | 36 | N/A | 0.071 | 7.3 | N/A | 0.014 | 2.6 | 0.014 | 9863286 |
| Dissolved Nitrite (NO2) | mg/L | 20 | N/A | 0.16 | 1.0 | N/A | 0.033 | <0.033 | 0.033 | 9863283 |
| Calculated Total Dissolved Solids | mg/L | 1100 | N/A | 10 | 970 | N/A | 10 | 820 | 10 | 9863192 |
| **Misc. Inorganics** | | | | | | | | | | |
| Conductivity | uS/cm | 1900 | 1900 | 2.0 | 1900 | N/A | 2.0 | 1600 | 2.0 | 9866039 |
| pH | pH | 7.77 | 7.78 | N/A | 7.89 | N/A | N/A | 7.94 | N/A | 9866038 |
| **Anions** | | | | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | <1.0 | 1.0 | <1.0 | N/A | 1.0 | <1.0 | 1.0 | 9866037 |
| Alkalinity (Total as CaCO3) | mg/L | 500 | 490 | 1.0 | 530 | N/A | 1.0 | 440 | 1.0 | 9866037 |
| Bicarbonate (HCO3) | mg/L | 610 | 600 | 1.0 | 650 | N/A | 1.0 | 540 | 1.0 | 9866037 |
| Carbonate (CO3) | mg/L | <1.0 | <1.0 | 1.0 | <1.0 | N/A | 1.0 | <1.0 | 1.0 | 9866037 |
| Hydroxide (OH) | mg/L | <1.0 | <1.0 | 1.0 | <1.0 | N/A | 1.0 | <1.0 | 1.0 | 9866037 |
| Dissolved Chloride (Cl) | mg/L | 230 (1) | N/A | 2.0 | 270 (1) | 270 | 2.0 | 220 (1) | 2.0 | 9866888 |
| Dissolved Sulphate (SO4) | mg/L | 34 | N/A | 1.0 | 31 | 30 | 1.0 | 37 (1) | 2.0 | 9866888 |
| **Nutrients** | | | | | | | | | | |
| Dissolved Nitrite (N) | mg/L | 6.1 (2) | N/A | 0.050 | 0.31 | N/A | 0.010 | <0.010 | 0.010 | 9864534 |
| Dissolved Nitrate (N) | mg/L | 30 (2) | N/A | 0.050 | 7.0 | N/A | 0.010 | 2.6 | 0.010 | 9864534 |
| **Elements** | | | | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 200 | N/A | 0.30 | 140 | N/A | 0.30 | 140 | 0.30 | 9866939 |
| Dissolved Iron (Fe) | mg/L | <0.060 | N/A | 0.060 | <0.060 | N/A | 0.060 | <0.060 | 0.060 | 9866939 |
| Dissolved Magnesium (Mg) | mg/L | 100 | N/A | 0.20 | 130 | N/A | 0.20 | 93 | 0.20 | 9866939 |
| Dissolved Manganese (Mn) | mg/L | 0.62 | N/A | 0.0040 | 0.73 | N/A | 0.0040 | <0.0040 | 0.0040 | 9866939 |
| Dissolved Potassium (K) | mg/L | 4.5 | N/A | 0.30 | 3.4 | N/A | 0.30 | 4.3 | 0.30 | 9866939 |
| Dissolved Sodium (Na) | mg/L | 29 | N/A | 0.50 | 43 | N/A | 0.50 | 44 | 0.50 | 9866939 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.
(2) Detection limits raised due to dilution to bring analyte within the calibrated range


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| BV Labs ID | | XV0831 | | |
|---|---|---|---|---|
| Sampling Date | | 2020/05/26 09:30 | | |
| COC Number | | M061027 | | |
| | UNITS | 1984 | RDL | QC Batch |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 14 | N/A | 9863166 |
| Cation Sum | meq/L | 14 | N/A | 9863166 |
| Hardness (CaCO3) | mg/L | 640 | 0.50 | 9863382 |
| Ion Balance (% Difference) | % | 1.0 | N/A | 9863162 |
| Dissolved Nitrate (NO3) | mg/L | 26 | 0.044 | 9863283 |
| Nitrate plus Nitrite (N) | mg/L | 5.8 | 0.014 | 9863286 |
| Dissolved Nitrite (NO2) | mg/L | 0.12 | 0.033 | 9863283 |
| Calculated Total Dissolved Solids | mg/L | 680 | 10 | 9863192 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 1200 | 2.0 | 9866039 |
| pH | pH | 7.91 | N/A | 9866038 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9866037 |
| Alkalinity (Total as CaCO3) | mg/L | 510 | 1.0 | 9866037 |
| Bicarbonate (HCO3) | mg/L | 620 | 1.0 | 9866037 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9866037 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9866037 |
| Dissolved Chloride (Cl) | mg/L | 79 | 1.0 | 9866888 |
| Dissolved Sulphate (SO4) | mg/L | 42 | 1.0 | 9866888 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | 0.037 | 0.010 | 9864534 |
| Dissolved Nitrate (N) | mg/L | 5.8 | 0.010 | 9864534 |
| **Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 110 | 0.30 | 9866939 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9866939 |
| Dissolved Magnesium (Mg) | mg/L | 88 | 0.20 | 9866939 |
| Dissolved Manganese (Mn) | mg/L | 0.28 | 0.0040 | 9866939 |
| Dissolved Potassium (K) | mg/L | 4.6 | 0.30 | 9866939 |
| Dissolved Sodium (Na) | mg/L | 26 | 0.50 | 9866939 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV0827 | XV0828 | XV0829 | XV0830 | | XV0831 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/26 12:05 | 2020/05/26 15:35 | 2020/05/26 14:45 | 2020/05/26 10:55 | | 2020/05/26 09:30 | | |
| **COC Number** | | M061027 | M061027 | M061027 | M061027 | | M061027 | | |
| | **UNITS** | **1901** | **1906** | **1910** | **1958** | **QC Batch** | **1984** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 9862813 | <0.0013 | 0.0013 | 9862813 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9862567 | <0.0020 | 0.0020 | 9864925 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9862567 | <0.0010 | 0.0010 | 9864925 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9862567 | <0.0010 | 0.0010 | 9864925 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9862567 | <0.0020 | 0.0020 | 9864925 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 9862567 | <0.00020 | 0.00020 | 9864925 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.038 | 0.041 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9862567 | <0.0020 | 0.0020 | 9864925 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9862567 | <0.0010 | 0.0010 | 9864925 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 9862567 | <0.0020 | 0.0020 | 9864925 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9862567 | <0.0010 | 0.0010 | 9864925 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 9862567 | <0.0010 | 0.0010 | 9864925 |

RDL = Reportable Detection Limit



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV0827 | XV0828 | XV0829 | XV0830 | | XV0831 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/26 12:05 | 2020/05/26 15:35 | 2020/05/26 14:45 | 2020/05/26 10:55 | | 2020/05/26 09:30 | | |
| **COC Number** | | M061027 | M061027 | M061027 | M061027 | | M061027 | | |
| | **UNITS** | **1901** | **1906** | **1910** | **1958** | **QC Batch** | **1984** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00079 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 9862567 | <0.00050 | 0.00050 | 9864925 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 105 | 104 | 101 | 9862567 | 101 | N/A | 9864925 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 86 | 88 | 89 | 9862567 | 89 | N/A | 9864925 |
| D4-1,2-Dichloroethane (sur.) | % | 98 | 133 | 132 | 95 | 9862567 | 97 | N/A | 9864925 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV0831 | XV0832 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/26 09:30 | 2020/05/26 | | |
| **COC Number** | | M061027 | M061027 | | |
| | **UNITS** | **1984 Lab-Dup** | **TRIP BLANK 6** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | |
| Total Trihalomethanes | mg/L | N/A | <0.0013 | 0.0013 | 9862813 |
| Benzene | mg/L | N/A | <0.00040 | 0.00040 | 9864925 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9864925 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9864925 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9864925 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9864925 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00020 | 9864925 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9864925 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Ethylbenzene | mg/L | N/A | <0.00040 | 0.00040 | 9864925 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9864925 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9864925 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV0831 | XV0832 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/26 09:30 | 2020/05/26 | | |
| **COC Number** | | M061027 | M061027 | | |
| | **UNITS** | **1984 Lab-Dup** | **TRIP BLANK 6** | **RDL** | **QC Batch** |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Toluene | mg/L | N/A | <0.00040 | 0.00040 | 9864925 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9864925 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9864925 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9864925 |
| Xylenes (Total) | mg/L | N/A | <0.00080 | 0.00080 | 9864925 |
| m & p-Xylene | mg/L | N/A | <0.00080 | 0.00080 | 9864925 |
| o-Xylene | mg/L | N/A | <0.00040 | 0.00040 | 9864925 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 101 | N/A | 9864925 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 88 | N/A | 9864925 |
| D4-1,2-Dichloroethane (sur.) | % | 98 | 93 | N/A | 9864925 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 9.3°C |

**Results relate only to the items tested.**



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9862567 | QW1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 113 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | Bromoform | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/29 | | 103 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/29 | | 93 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/29 | | 102 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/29 | | 108 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | Chloroform | 2020/05/29 | | 83 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/29 | | 96 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/29 | | 90 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | | 107 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | | 123 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/29 | | 83 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | Styrene | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | | 100 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/29 | | 103 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | | 89 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/29 | | 90 | % | 50 - 140 |
| 9862567 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | Bromoform | 2020/05/29 | | 106 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/29 | | 102 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/29 | | 98 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/29 | | 109 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Chloroform | 2020/05/29 | | 84 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/29 | | 95 | % | 60 - 130 |



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dichlorobenzene | 2020/05/29 | | 98 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/29 | | 86 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/29 | | 87 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/29 | | 87 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | | 107 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | | 115 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Styrene | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | | 99 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/29 | | 104 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/29 | | 105 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/29 | | 88 | % | 60 - 130 |
| 9862567 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/29 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/29 | <0.00050 | | mg/L | |



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/29 | <0.00050 | | mg/L | |
| 9862567 | QW1 | RPD | Bromodichloromethane | 2020/05/29 | NC | | % | 30 |
| | | | Bromoform | 2020/05/29 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/29 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/29 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/29 | NC | | % | 30 |
| | | | Chloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Chloroform | 2020/05/29 | NC | | % | 30 |
| | | | Chloromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/29 | 6.4 | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/29 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/29 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | NC | | % | 30 |
| | | | Styrene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | 1.7 | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/05/29 | NC | | % | 30 |
| 9864299 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/28 | | 101 | % | 50 - 140 |



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/28 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/28 | | 88 | % | 50 - 140 |
| | | | Benzene | 2020/05/28 | | 84 | % | 50 - 140 |
| | | | Toluene | 2020/05/28 | | 82 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/28 | | 82 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/28 | | 82 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/28 | | 83 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/28 | | 73 | % | 60 - 140 |
| 9864299 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/28 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/28 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/28 | | 83 | % | 50 - 140 |
| | | | Benzene | 2020/05/28 | | 85 | % | 60 - 130 |
| | | | Toluene | 2020/05/28 | | 86 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/28 | | 89 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/28 | | 88 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/28 | | 87 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/28 | | 96 | % | 60 - 140 |
| 9864299 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/28 | | 99 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/28 | | 85 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/28 | | 76 | % | 50 - 140 |
| | | | Benzene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/28 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/28 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/28 | <0.10 | | mg/L | |
| 9864299 | DO1 | RPD | Benzene | 2020/05/28 | NC | | % | 30 |
| | | | Toluene | 2020/05/28 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/28 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/05/28 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/28 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/28 | NC | | % | 30 |
| 9864534 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/05/28 | | 103 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/28 | | 105 | % | 80 - 120 |
| 9864534 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/05/28 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/28 | | 103 | % | 80 - 120 |
| 9864534 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/05/28 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/28 | <0.010 | | mg/L | |
| 9864534 | IBL | RPD | Dissolved Nitrite (N) | 2020/05/28 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/28 | 0.26 | | % | 20 |
| 9864925 | QW1 | Matrix Spike [XV0832-01] | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 91 | % | 50 - 140 |
| | | | Benzene | 2020/05/29 | | 86 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | Bromoform | 2020/05/29 | | 108 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/29 | | 92 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/29 | | 96 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/29 | | 104 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/29 | | 111 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/29 | | 86 | % | 50 - 140 |
| | | | Chloroform | 2020/05/29 | | 85 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/29 | | 92 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/29 | | 99 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dichlorobenzene | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | | 96 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/29 | | 86 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/29 | | 86 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | | 93 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | | 88 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/29 | | 88 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/29 | | 87 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | | 94 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | | 99 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/29 | | 86 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | | 89 | % | 50 - 140 |
| | | | Styrene | 2020/05/29 | | 102 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | | 103 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | | 79 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/29 | | 106 | % | 50 - 140 |
| | | | Toluene | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | | 91 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | | 92 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | | 92 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | | 96 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/29 | | 119 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/29 | | 92 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | | 93 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | | 95 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/29 | | 82 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/29 | | 97 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/29 | | 95 | % | 50 - 140 |
| 9864925 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 108 | % | 50 - 140 |
| | | | Benzene | 2020/05/29 | | 84 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | Bromoform | 2020/05/29 | | 109 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/29 | | 96 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/29 | | 109 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | Chloroform | 2020/05/29 | | 83 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/29 | | 89 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/29 | | 97 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | | 98 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/29 | | 88 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | | 86 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dichloromethane | 2020/05/29 | | 86 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/29 | | 85 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | | 86 | % | 60 - 130 |
| | | | Styrene | 2020/05/29 | | 101 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | | 99 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/29 | | 103 | % | 60 - 130 |
| | | | Toluene | 2020/05/29 | | 95 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/29 | | 102 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/29 | | 90 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | | 92 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | | 93 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/29 | | 79 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/29 | | 94 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/29 | | 92 | % | 60 - 130 |
| 9864925 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/29 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/29 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/29 | | 92 | % | 50 - 140 |
| | | | Benzene | 2020/05/29 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/29 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/05/29 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/29 | <0.00050 | | mg/L | |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/05/29 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/29 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/05/29 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/05/29 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/29 | <0.00040 | | mg/L | |
| 9864925 | QW1 | RPD [XV0831-02] | Bromodichloromethane | 2020/05/29 | NC | | % | 30 |
| | | | Bromoform | 2020/05/29 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/29 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/29 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/29 | NC | | % | 30 |
| | | | Chloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Chloroform | 2020/05/29 | NC | | % | 30 |
| | | | Chloromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/29 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/29 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/29 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/29 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/29 | NC | | % | 30 |
| | | | Styrene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/29 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/29 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/29 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/29 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/05/29 | NC | | % | 30 |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Vinyl chloride | 2020/05/29 | NC | | % | 30 |
| 9864926 | LSH | Matrix Spike [XV0827-01] | O-TERPHENYL (sur.) | 2020/06/01 | | 103 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/01 | | 102 | % | 60 - 140 |
| 9864926 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/01 | | 105 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/01 | | 98 | % | 60 - 140 |
| 9864926 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/01 | | 105 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/01 | <0.10 | | mg/L | |
| 9864926 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/01 | NC | | % | 30 |
| 9866037 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/30 | | 95 | % | 80 - 120 |
| 9866037 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/30 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/30 | <1.0 | | mg/L | |
| 9866037 | IK0 | RPD [XV0828-03] | Alkalinity (PP as CaCO3) | 2020/05/30 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/30 | 0.74 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/30 | 0.74 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/30 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/30 | NC | | % | 20 |
| 9866038 | IK0 | Spiked Blank | pH | 2020/05/30 | | 100 | % | 97 - 103 |
| 9866038 | IK0 | RPD [XV0828-03] | pH | 2020/05/30 | 0.19 | | % | N/A |
| 9866039 | IK0 | Spiked Blank | Conductivity | 2020/05/30 | | 101 | % | 90 - 110 |
| 9866039 | IK0 | Method Blank | Conductivity | 2020/05/30 | <2.0 | | uS/cm | |
| 9866039 | IK0 | RPD [XV0828-03] | Conductivity | 2020/05/30 | 0.11 | | % | 10 |
| 9866888 | MB5 | Matrix Spike [XV0829-03] | Dissolved Chloride (Cl) | 2020/06/01 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/01 | | NC | % | 80 - 120 |
| 9866888 | MB5 | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/01 | | 102 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/01 | | 92 | % | 80 - 120 |
| 9866888 | MB5 | Method Blank | Dissolved Chloride (Cl) | 2020/06/01 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/01 | <1.0 | | mg/L | |
| 9866888 | MB5 | RPD [XV0829-03] | Dissolved Chloride (Cl) | 2020/06/01 | 1.3 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/01 | 0.26 | | % | 20 |
| 9866939 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/31 | | 97 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | | 106 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | | 99 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | | 104 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/31 | | 102 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | | 97 | % | 80 - 120 |
| 9866939 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/31 | | 99 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | | 104 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | | 100 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | | 102 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/31 | | 101 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | | 100 | % | 80 - 120 |
| 9866939 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/31 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/31 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/31 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/31 | <0.50 | | mg/L | |
| 9866939 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/31 | 0.33 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/05/31 | 11 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/31 | 0.11 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/05/31 | 17 | | % | 20 |



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BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Potassium (K) | 2020/05/31 | 0.46 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/31 | 0.037 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C035538
Report Date: 2020/06/02

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

986

# CHAIN OF CUSTODY RECORD

M 061027



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton Associates | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 - 30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MeAC | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 12 | 6 | 10 |
| Seal Intact | | | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss ☐ | Mercury Total ☐ Dissolved ☐ | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1901 | | 2020/05/26 | 12:05 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1906 | | ↓ | 15:35 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 3 | 1910 | | ↓ | 14:45 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 4 | 1958 | | ↓ | 10:55 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 5 | 1984 | | ↓ | 9:30 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 6 | Trip Blank 6 | | 2020/05/26 | | W | 2 | ✓ | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | F/P | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/05/26 | 16:30 | Fahran Jones | 2020/05/26 | 17:12 |
| | | | | | |

26-May-20 17:12
Linsay Sunderman
C035538

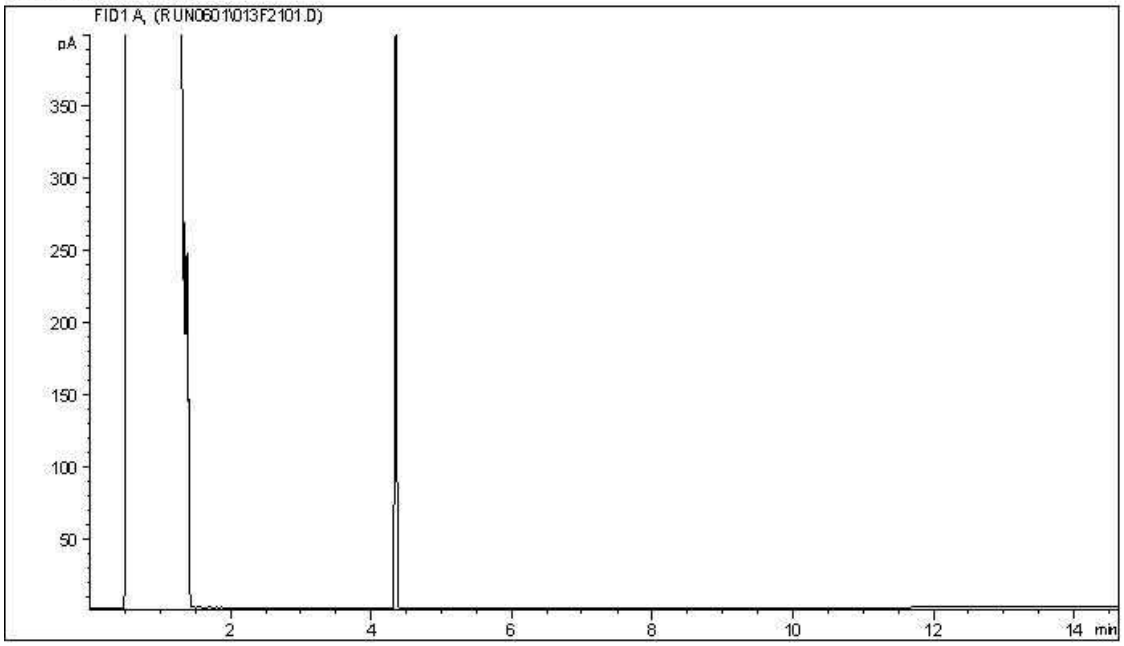
JK4 INS-0199

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxx

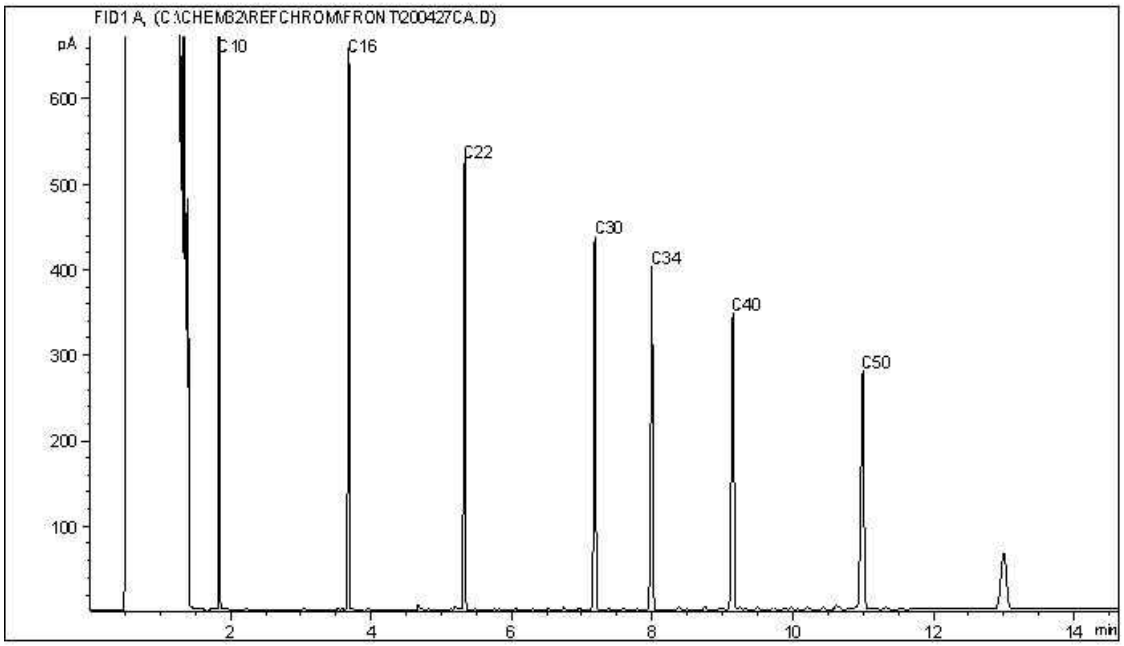
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



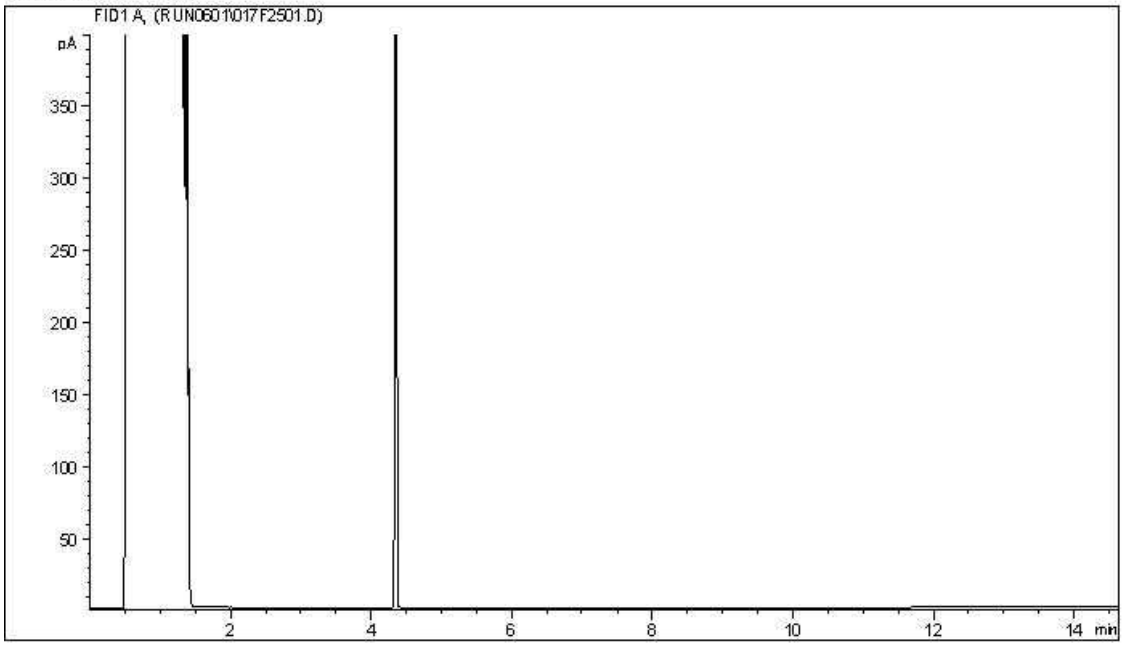

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

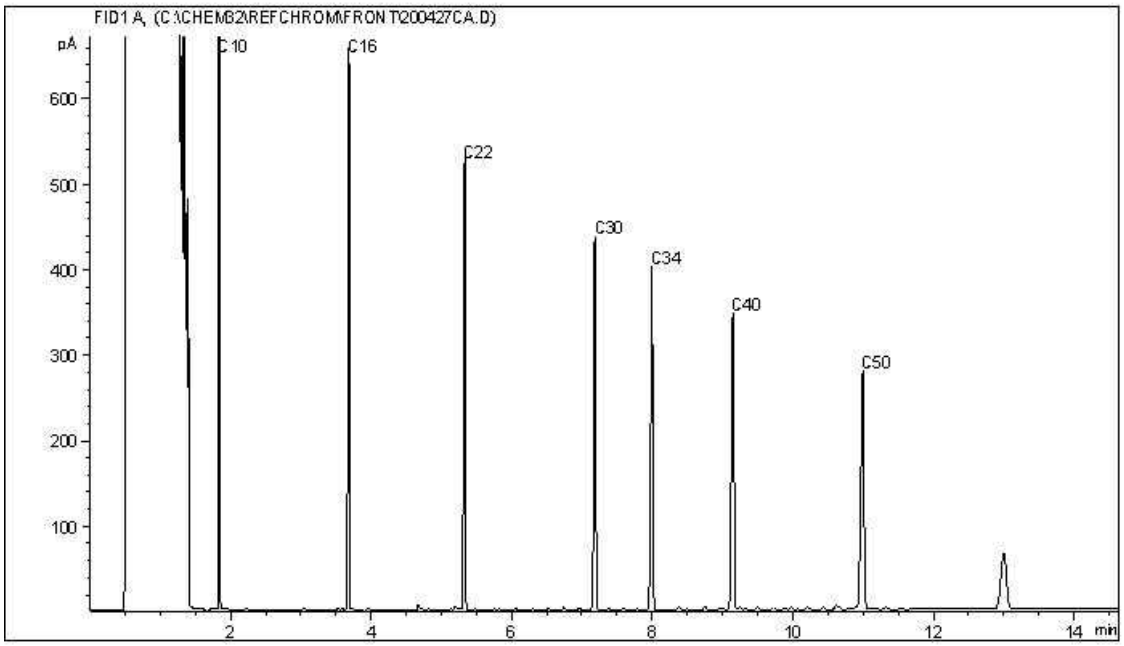
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram

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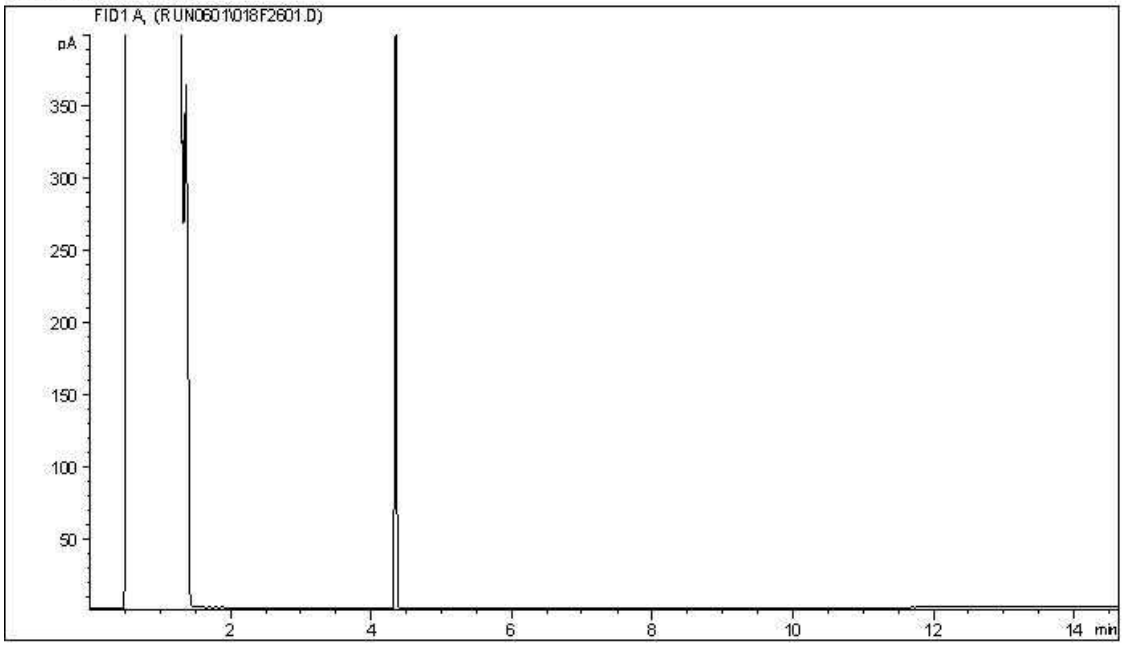
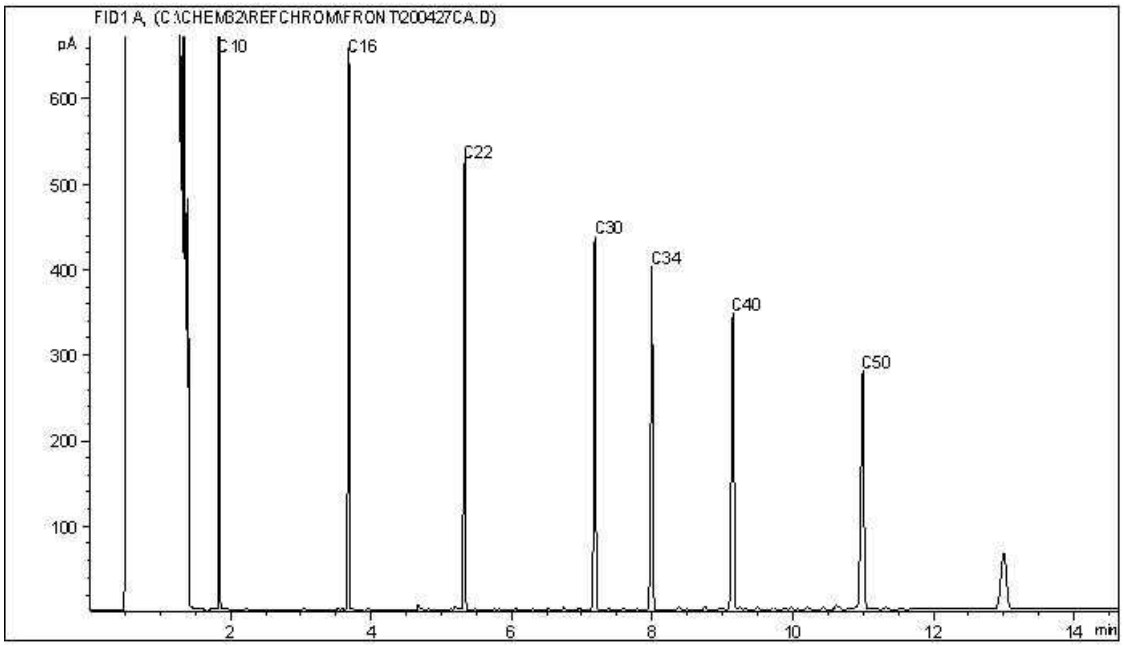
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram

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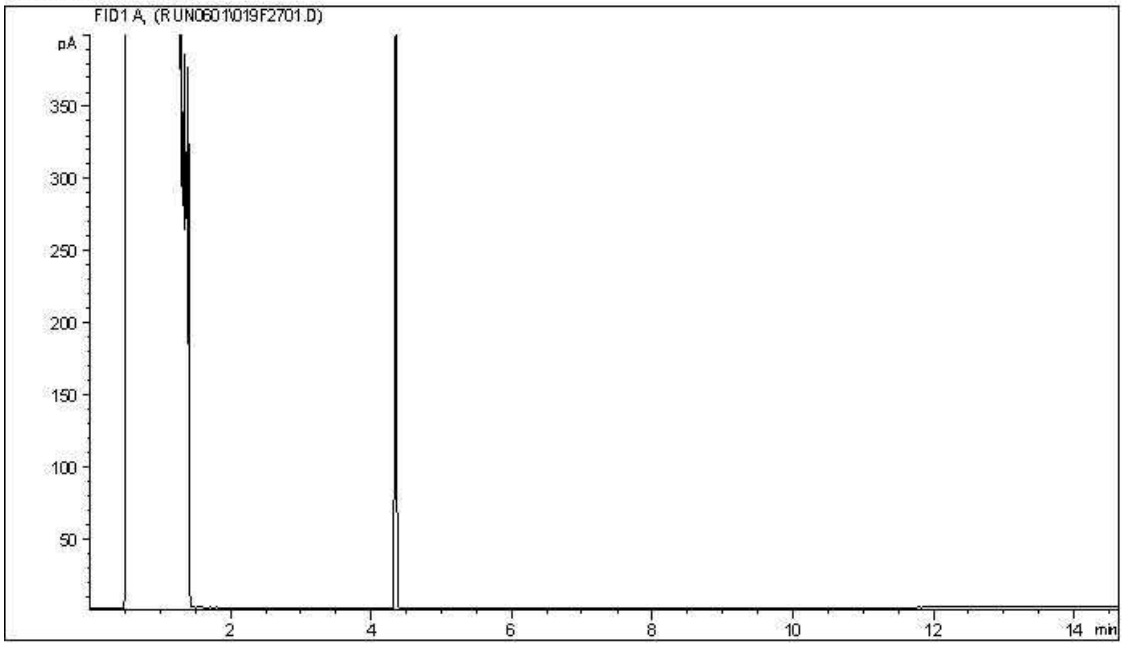
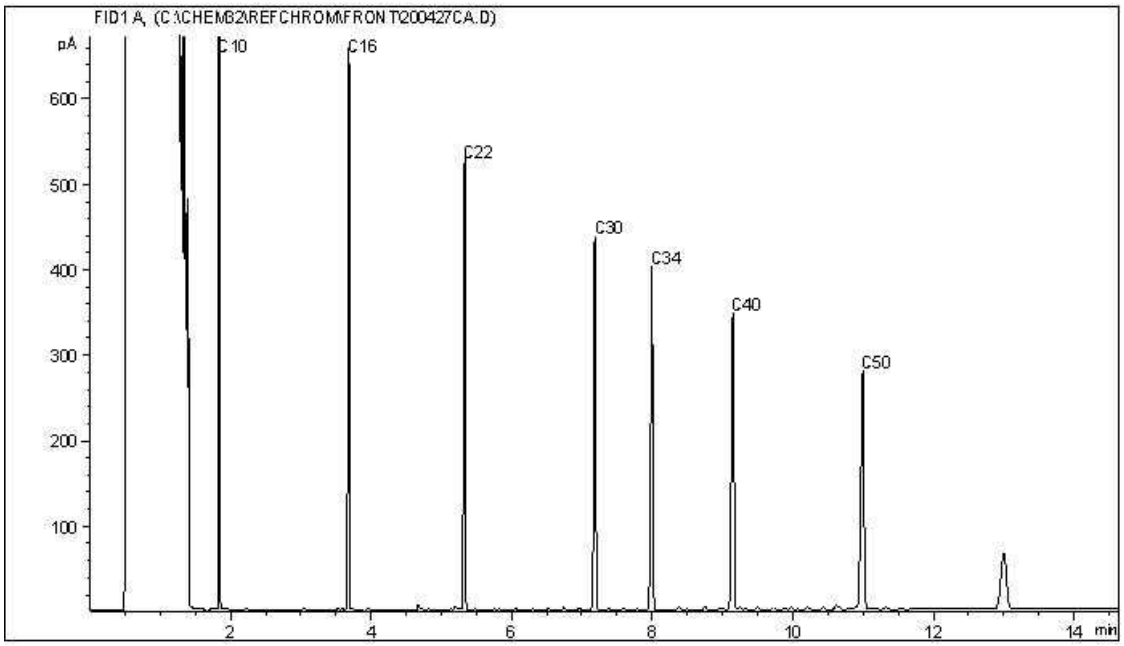
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



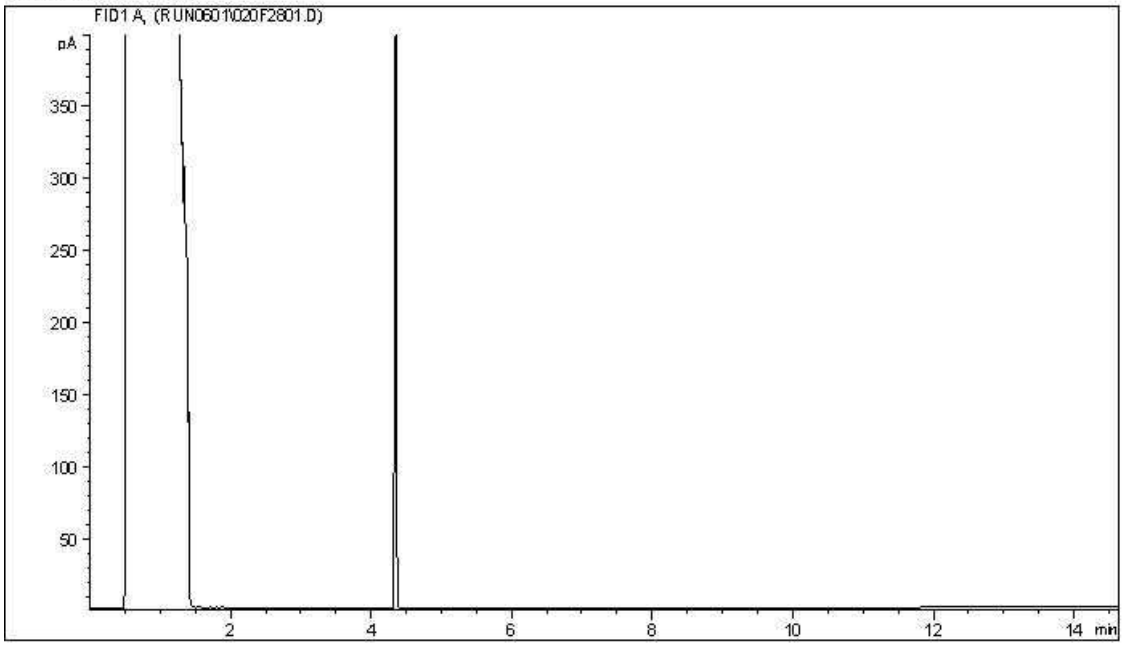

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

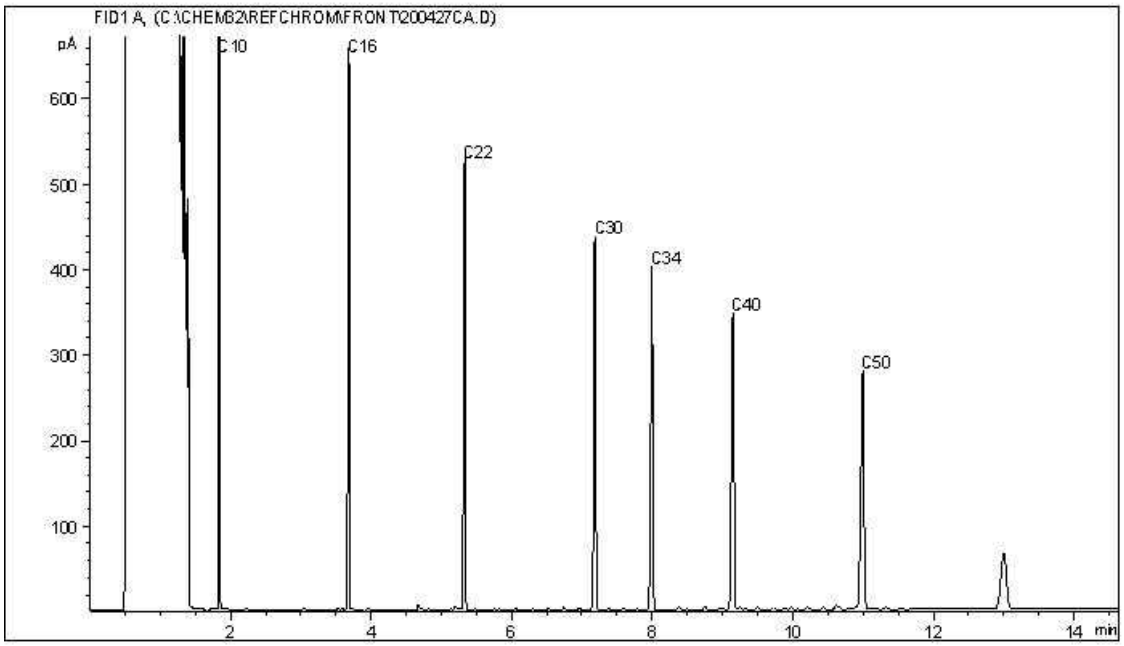
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: m061030

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/08**
Report #: R2887400
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C036476**
**Received: 2020/05/29, 14:30**

Sample Matrix: Water
# Samples Received: 6

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 5 | N/A | 2020/06/05 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 5 | N/A | 2020/06/06 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 1 | 2020/06/04 | 2020/06/04 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 4 | 2020/06/04 | 2020/06/05 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 6 | N/A | 2020/06/05 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 6 | N/A | 2020/06/05 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: m061030

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/08**
Report #: R2887400
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C036476**
**Received: 2020/05/29, 14:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV5289 | XV5289 | XV5290 | XV5291 | XV5292 | XV5293 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/29 13:00 | 2020/05/29 13:00 | 2020/05/29 11:00 | 2020/05/29 14:00 | 2020/05/29 12:00 | 2020/05/29 09:45 | | |
| **COC Number** | | m061030 | m061030 | m061030 | m061030 | m061030 | m061030 | | |
| | **UNITS** | **1902** | **1902 Lab-Dup** | **1903** | **1957** | **1959** | **1983A** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9870614 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9870423 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9870423 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9870423 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9870423 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9870423 |
| Xylenes (Total) | mg/L | <0.00089 | N/A | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9869124 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | N/A | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9869124 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9870423 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 103 | 99 | 104 | 103 | 105 | N/A | 9870423 |
| 4-Bromofluorobenzene (sur.) | % | 92 | 89 | 90 | 94 | 92 | 91 | N/A | 9870423 |
| D4-1,2-Dichloroethane (sur.) | % | 87 | 89 | 91 | 90 | 88 | 87 | N/A | 9870423 |
| O-TERPHENYL (sur.) | % | 104 | N/A | 110 | 107 | 105 | 110 | N/A | 9870614 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV5289 | XV5290 | | XV5291 | XV5292 | XV5293 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/29 13:00 | 2020/05/29 11:00 | | 2020/05/29 14:00 | 2020/05/29 12:00 | 2020/05/29 09:45 | | |
| **COC Number** | | m061030 | m061030 | | m061030 | m061030 | m061030 | | |
| | **UNITS** | **1902** | **1903** | **QC Batch** | **1957** | **1959** | **1983A** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | 9868127 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9869144 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 9870426 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9870426 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 9870426 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9870426 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 9870426 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9870426 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 9870426 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9870426 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 9870426 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9870426 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 9870426 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9870426 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Styrene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 9870426 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9870426 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 9870426 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9870426 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 9870426 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9870426 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 9870426 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9870426 |
| RDL = Reportable Detection Limit | | | | | | | | | |



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV5289 | XV5290 | | XV5291 | XV5292 | XV5293 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/29 13:00 | 2020/05/29 11:00 | | 2020/05/29 14:00 | 2020/05/29 12:00 | 2020/05/29 09:45 | | |
| **COC Number** | | m061030 | m061030 | | m061030 | m061030 | m061030 | | |
| | **UNITS** | **1902** | **1903** | **QC Batch** | **1957** | **1959** | **1983A** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 9870426 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9870426 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 101 | 9870426 | 102 | 103 | 101 | N/A | 9870426 |
| 4-Bromofluorobenzene (sur.) | % | 90 | 90 | 9870426 | 89 | 90 | 90 | N/A | 9870426 |
| D4-1,2-Dichloroethane (sur.) | % | 100 | 97 | 9870426 | 97 | 101 | 100 | N/A | 9870426 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV5294 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/29 | | |
| **COC Number** | | m061030 | | |
| | **UNITS** | **TRIP BLANK 8** | **RDL** | **QC Batch** |
| **Volatiles** | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | 0.0013 | 9869144 |
| Benzene | mg/L | <0.00040 | 0.00040 | 9870426 |
| Bromodichloromethane | mg/L | <0.00050 | 0.00050 | 9870426 |
| Bromoform | mg/L | <0.00050 | 0.00050 | 9870426 |
| Bromomethane | mg/L | <0.0020 | 0.0020 | 9870426 |
| Carbon tetrachloride | mg/L | <0.00050 | 0.00050 | 9870426 |
| Chlorobenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| Chlorodibromomethane | mg/L | <0.0010 | 0.0010 | 9870426 |
| Chloroethane | mg/L | <0.0010 | 0.0010 | 9870426 |
| Chloroform | mg/L | <0.00050 | 0.00050 | 9870426 |
| Chloromethane | mg/L | <0.0020 | 0.0020 | 9870426 |
| 1,2-dibromoethane | mg/L | <0.00020 | 0.00020 | 9870426 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,1-dichloroethane | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,1-dichloroethene | mg/L | <0.00050 | 0.00050 | 9870426 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9870426 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9870426 |
| Dichloromethane | mg/L | <0.0020 | 0.0020 | 9870426 |
| 1,2-dichloropropane | mg/L | <0.00050 | 0.00050 | 9870426 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9870426 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9870426 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 9870426 |
| Methyl methacrylate | mg/L | <0.00050 | 0.00050 | 9870426 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.00050 | 9870426 |
| Styrene | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | 0.0010 | 9870426 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | 0.0020 | 9870426 |
| Tetrachloroethene | mg/L | <0.00050 | 0.00050 | 9870426 |
| RDL = Reportable Detection Limit | | | | |



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV5294 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/29 | | |
| **COC Number** | | m061030 | | |
| | **UNITS** | **TRIP BLANK 8** | **RDL** | **QC Batch** |
| Toluene | mg/L | <0.00040 | 0.00040 | 9870426 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9870426 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9870426 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00050 | 9870426 |
| Trichloroethene | mg/L | <0.00050 | 0.00050 | 9870426 |
| Trichlorofluoromethane | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9870426 |
| Vinyl chloride | mg/L | <0.00050 | 0.00050 | 9870426 |
| Xylenes (Total) | mg/L | <0.00080 | 0.00080 | 9870426 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | 9870426 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 9870426 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | N/A | 9870426 |
| 4-Bromofluorobenzene (sur.) | % | 90 | N/A | 9870426 |
| D4-1,2-Dichloroethane (sur.) | % | 97 | N/A | 9870426 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 7.7°C |

**Results relate only to the items tested.**



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9870423 | DO1 | Matrix Spike [XV5290-02] | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 87 | % | 50 - 140 |
| | | | Benzene | 2020/06/05 | | 81 | % | 50 - 140 |
| | | | Toluene | 2020/06/05 | | 80 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/05 | | 79 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/05 | | 80 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/05 | | 78 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/05 | | 78 | % | 60 - 140 |
| 9870423 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 86 | % | 50 - 140 |
| | | | Benzene | 2020/06/05 | | 83 | % | 60 - 130 |
| | | | Toluene | 2020/06/05 | | 82 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/05 | | 82 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/05 | | 83 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/05 | | 81 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/05 | | 76 | % | 60 - 140 |
| 9870423 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 88 | % | 50 - 140 |
| | | | Benzene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/05 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/05 | <0.10 | | mg/L | |
| 9870423 | DO1 | RPD [XV5289-02] | Benzene | 2020/06/05 | NC | | % | 30 |
| | | | Toluene | 2020/06/05 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/05 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/06/05 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/05 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/05 | NC | | % | 30 |
| 9870426 | QW1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 94 | % | 50 - 140 |
| | | | Benzene | 2020/06/05 | | NC | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | Bromoform | 2020/06/05 | | 103 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/05 | | 87 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/05 | | 99 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/05 | | 105 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/05 | | 82 | % | 50 - 140 |
| | | | Chloroform | 2020/06/05 | | 79 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/05 | | 86 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/05 | | 92 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/05 | | 96 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/05 | | 93 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/05 | | 92 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/05 | | 83 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/05 | | 87 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/05 | | 92 | % | 50 - 140 |



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | trans-1,2-dichloroethene | 2020/06/05 | | 81 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/05 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/05 | | 86 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/05 | | 87 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/05 | | 92 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/05 | | 80 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/05 | | 83 | % | 50 - 140 |
| | | | Styrene | 2020/06/05 | | 99 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/05 | | 99 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/05 | | 93 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/05 | | 97 | % | 50 - 140 |
| | | | Toluene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/05 | | 92 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/05 | | 94 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/05 | | 87 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/05 | | 101 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/05 | | 87 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/05 | | 89 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/05 | | 76 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/05 | | 89 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/05 | | 90 | % | 50 - 140 |
| 9870426 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 109 | % | 50 - 140 |
| | | | Benzene | 2020/06/05 | | 86 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/06/05 | | 98 | % | 60 - 130 |
| | | | Bromoform | 2020/06/05 | | 107 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/05 | | 91 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/05 | | 97 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/05 | | 100 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/05 | | 108 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/05 | | 85 | % | 60 - 130 |
| | | | Chloroform | 2020/06/05 | | 86 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/05 | | 88 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/05 | | 96 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/05 | | 99 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/05 | | 95 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/05 | | 88 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/05 | | 91 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/05 | | 93 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/05 | | 86 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/05 | | 88 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/05 | | 89 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/05 | | 109 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/05 | | 93 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/05 | | 90 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/05 | | 92 | % | 60 - 130 |



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Styrene | 2020/06/05 | | 100 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/05 | | 99 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/05 | | 97 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/05 | | 99 | % | 60 - 130 |
| | | | Toluene | 2020/06/05 | | 93 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/05 | | 92 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/05 | | 97 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/05 | | 98 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/05 | | 105 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/05 | | 91 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/05 | | 92 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/05 | | 93 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/05 | | 79 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/05 | | 92 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/05 | | 90 | % | 60 - 130 |
| 9870426 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 96 | % | 50 - 140 |
| | | | Benzene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/05 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/05 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/05 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/05 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/06/05 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/05 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/05 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |



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BV Labs Job #: C036476
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-trichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/06/05 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/06/05 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/05 | <0.00040 | | mg/L | |
| 9870426 | QW1 | RPD | Carbon tetrachloride | 2020/06/05 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/06/05 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/05 | NC | | % | 30 |
| 9870614 | LSH | Matrix Spike [XV5289-01] | O-TERPHENYL (sur.) | 2020/06/05 | | 106 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/05 | | 105 | % | 60 - 140 |
| 9870614 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/04 | | 108 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/04 | | 103 | % | 60 - 140 |
| 9870614 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/04 | | 114 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/04 | <0.10 | | mg/L | |
| 9870614 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/05 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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BV Labs Job #: C036476
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

1184

# CHAIN OF CUSTODY RECORD

M061030

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 5 | 9 | 9 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1902 | | 2020/05/29 | 13:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1903 | | ↓ | 11:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 1957 | | | 14:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 1959 | | | 12:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | 1983A | | ↓ | 9:45 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 6 | Trip Blank 8 | | 2020/05/29 | | W | 2 | ✓ | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

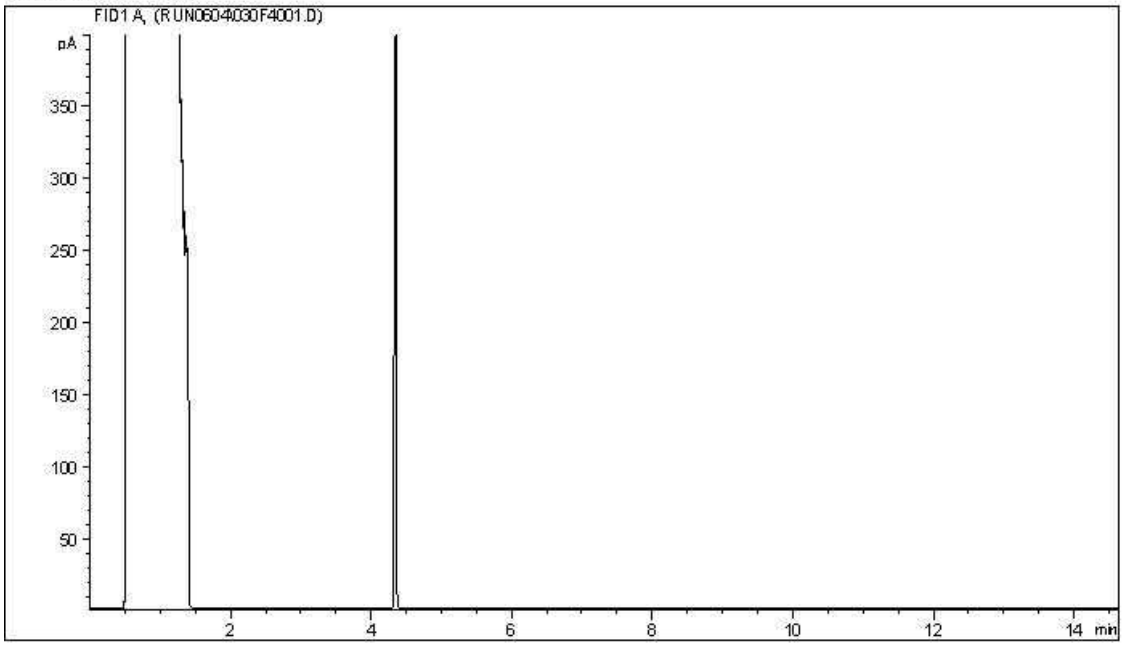
| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/29 | 14:40 | Jasmine M Jasmine Mourina | 2020/05/29 | 14:30 | C036476 |
| | | | | | | |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

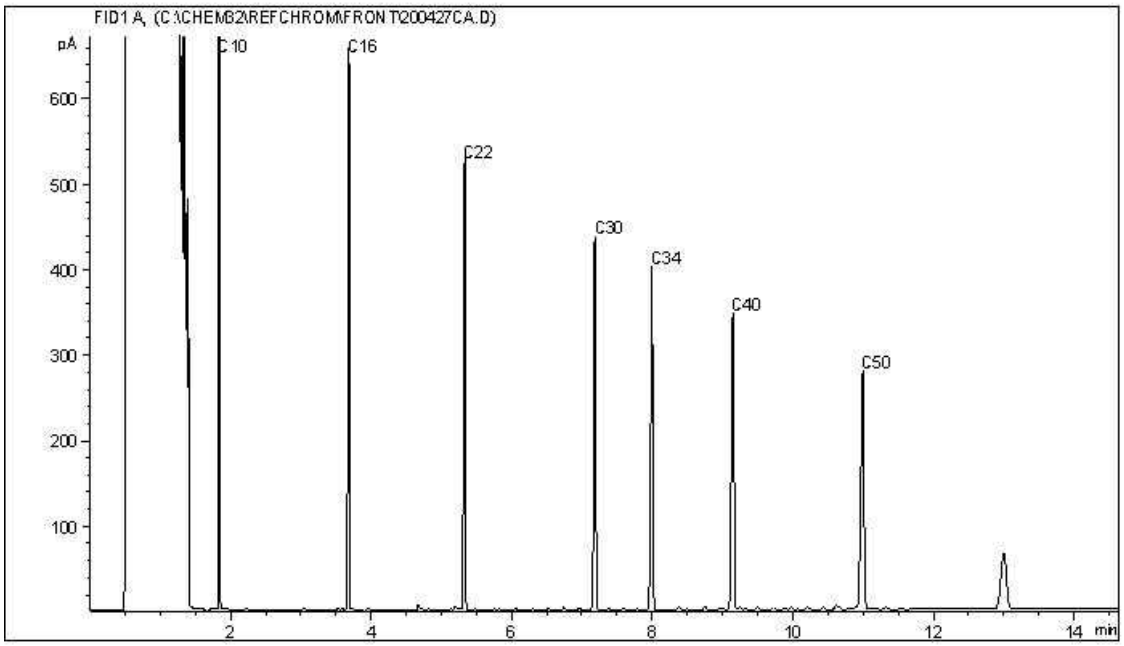
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



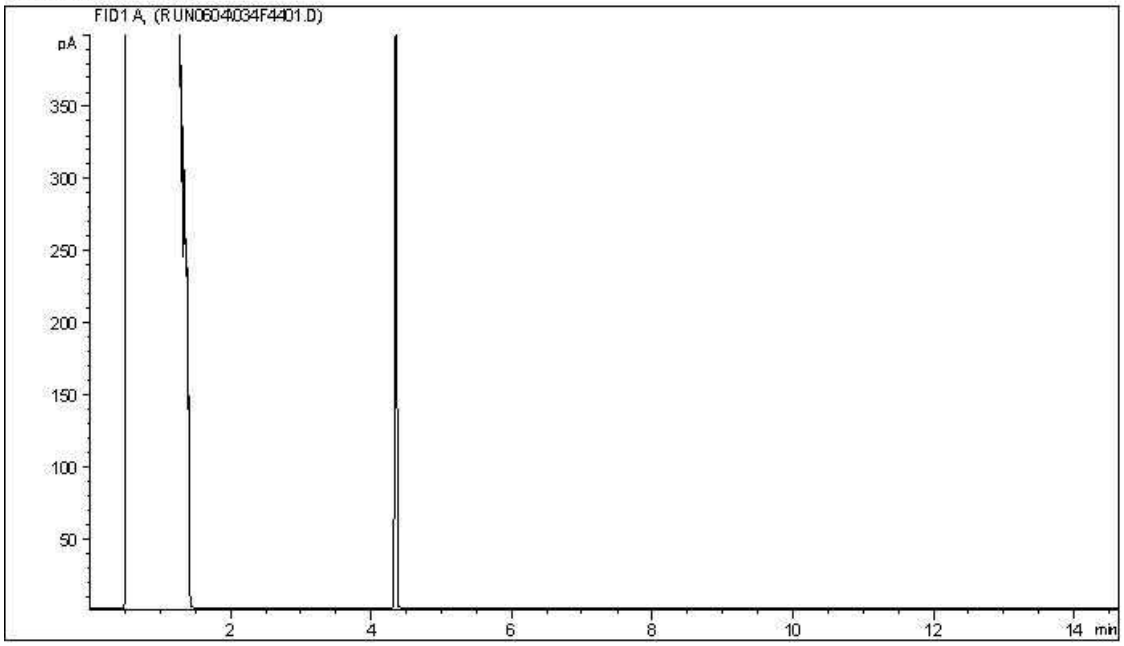

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

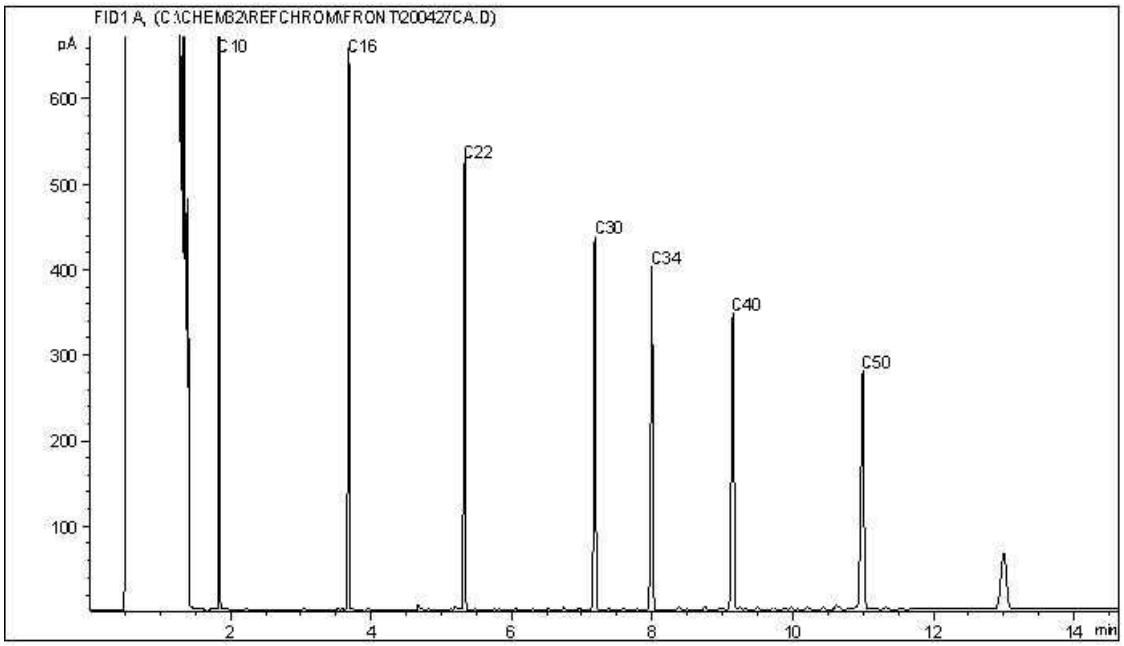
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

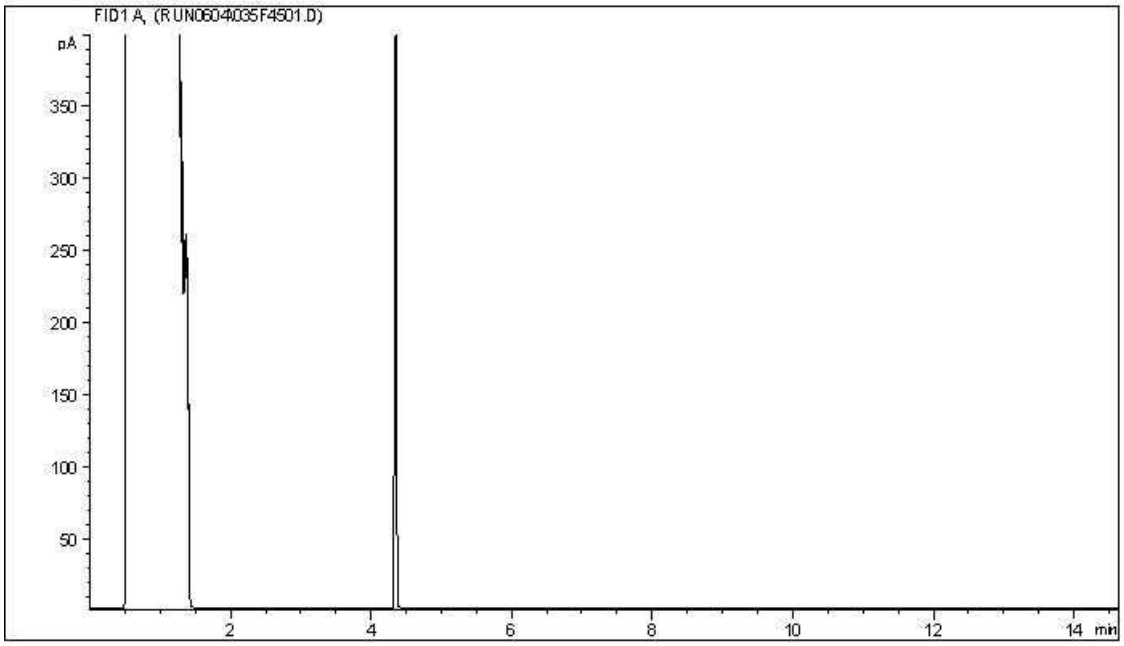
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C036476
Report Date: 2020/06/08
BV Labs Sample: XV5291

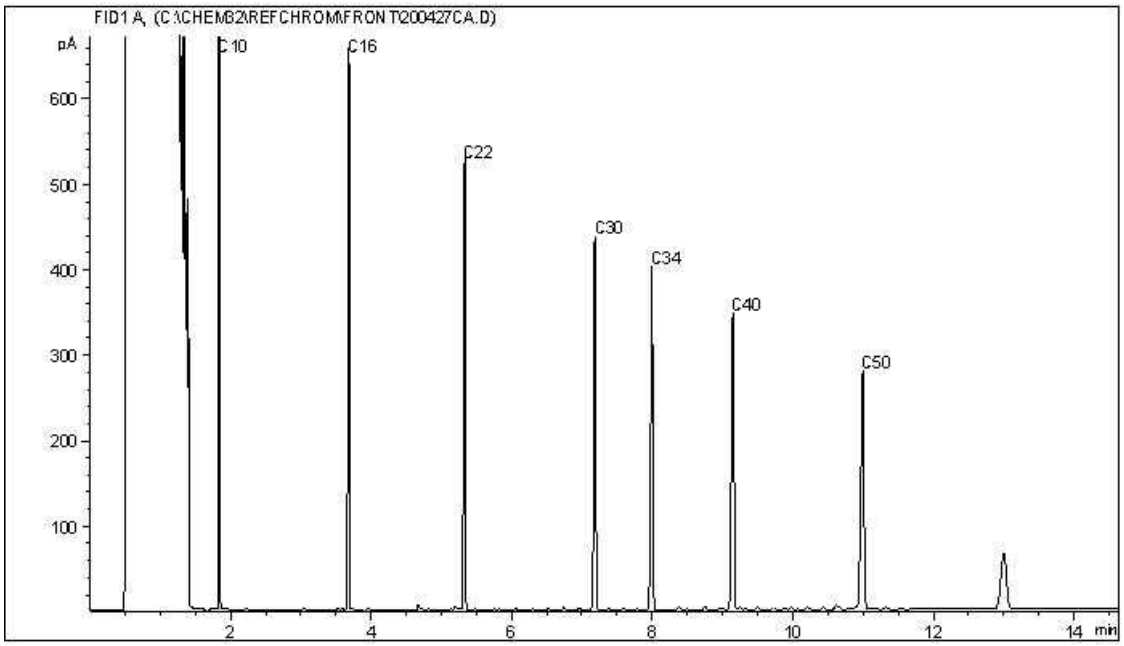
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1957

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

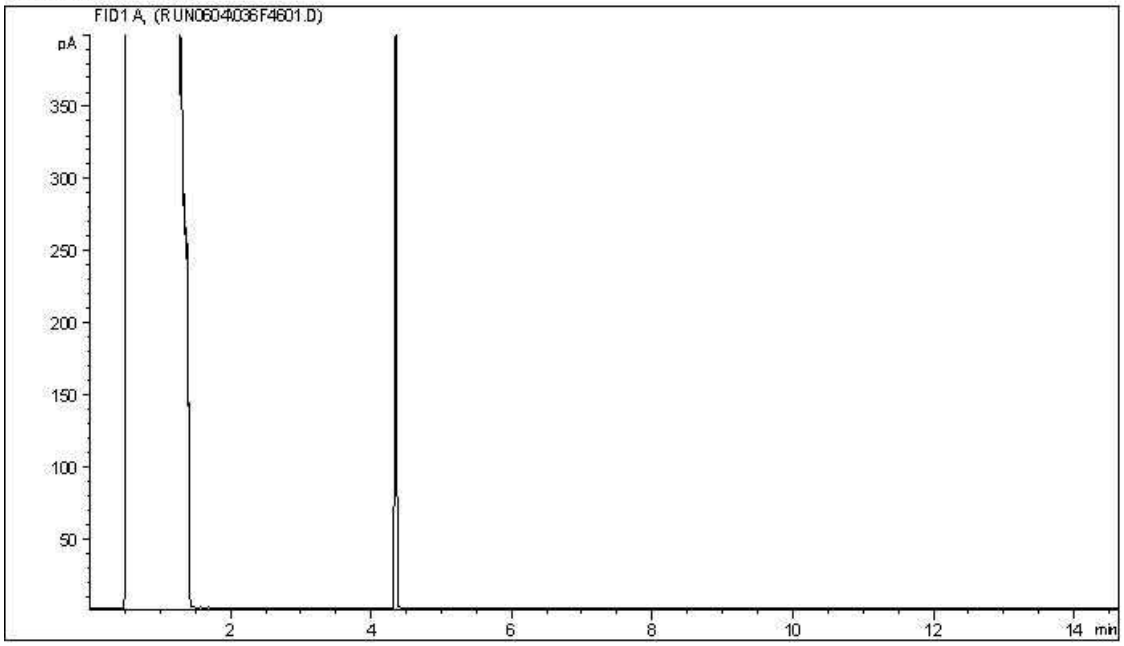
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C036476
Report Date: 2020/06/08
BV Labs Sample: XV5292

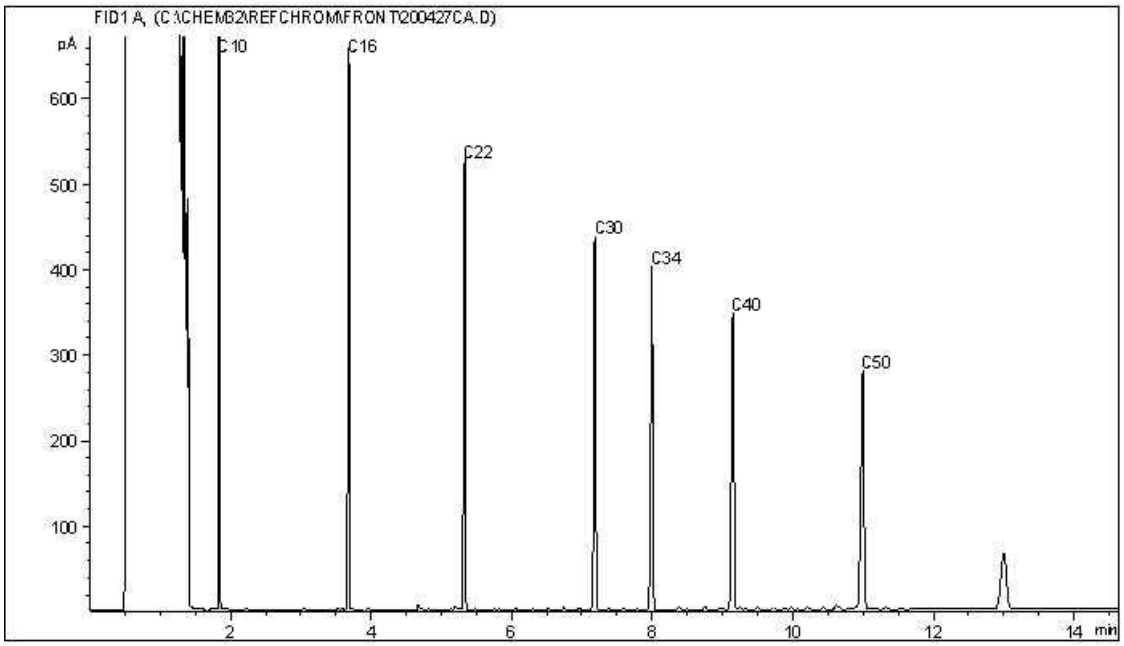
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1959

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

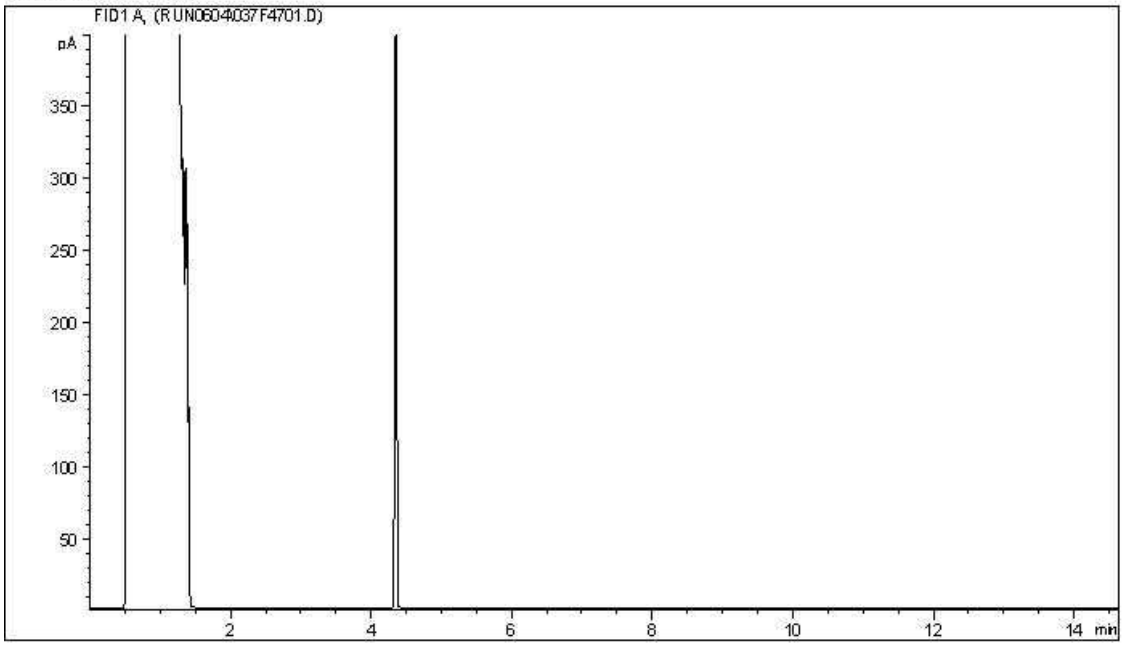
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C036476
Report Date: 2020/06/08
BV Labs Sample: XV5293

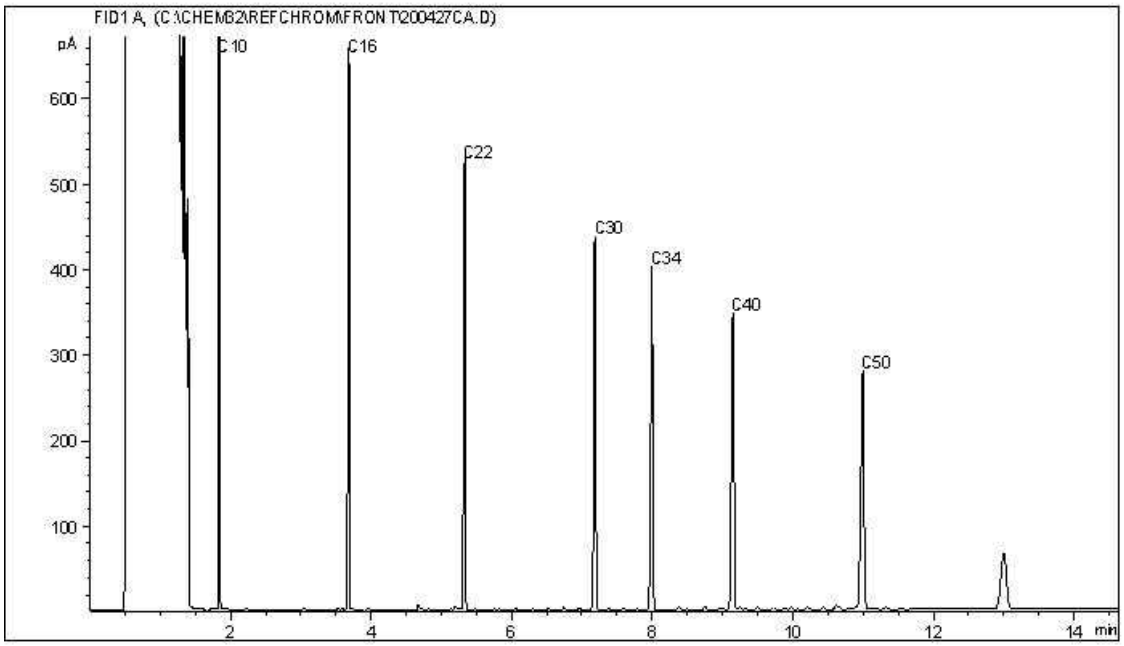
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1983A

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061076

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/10**
Report #: R2888677
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037583**
**Received: 2020/06/02, 14:45**

Sample Matrix: Water
# Samples Received: 10

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/06/05 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 6 | N/A | 2020/06/08 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| BTEX/F1 in Water by HS GC/MS/FID | 3 | N/A | 2020/06/09 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 9 | N/A | 2020/06/09 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 1 | N/A | 2020/06/10 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 1 | N/A | 2020/06/05 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 6 | 2020/06/05 | 2020/06/06 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 3 | 2020/06/05 | 2020/06/07 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 1 | N/A | 2020/06/07 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 1 | N/A | 2020/06/06 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 1 | N/A | 2020/06/10 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/06/07 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/06/09 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/06/09 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/06/06 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 1 | N/A | 2020/06/05 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 1 | N/A | 2020/06/10 | | Auto Calc |
| Total Trihalomethanes Calculation | 10 | N/A | 2020/06/09 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 8 | N/A | 2020/06/08 | AB SOP-00056 | EPA 5021a/8260d m |
| VOCs in Water by HS GC/MS (Std List) | 2 | N/A | 2020/06/09 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061076

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/10**
Report #: R2888677
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037583**
**Received: 2020/06/02, 14:45**

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW1145 | XW1146 | XW1147 | XW1148 | XW1149 | XW1150 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 10:00 | 2020/06/02 09:00 | 2020/06/02 08:30 | 2020/06/02 07:45 | 2020/06/02 07:30 | 2020/06/02 06:45 | | |
| **COC Number** | | M061076 | M061076 | M061076 | M061076 | M061076 | M061076 | | |
| | **UNITS** | **4007** | **2007** | **4004B** | **4004A** | **4006** | **4005** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 0.10 | <0.10 | <0.10 | <0.10 | 0.15 | <0.10 | 0.10 | 9874595 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | 0.71 | 0.0011 | <0.00040 | <0.00040 | 0.11 | 0.016 | 0.00040 | 9873594 |
| Toluene | mg/L | 0.0015 | <0.00040 | <0.00040 | <0.00040 | 0.0011 | 0.0018 | 0.00040 | 9873594 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.019 | 0.00040 | 9873594 |
| m & p-Xylene | mg/L | 0.0013 | <0.00080 | <0.00080 | <0.00080 | 0.0013 | 0.0040 | 0.00080 | 9873594 |
| o-Xylene | mg/L | 0.026 | <0.00040 | <0.00040 | <0.00040 | 0.065 | 0.0050 | 0.00040 | 9873594 |
| Xylenes (Total) | mg/L | 0.027 | <0.00089 | <0.00089 | <0.00089 | 0.066 | 0.0090 | 0.00089 | 9872182 |
| F1 (C6-C10) - BTEX | mg/L | 0.61 | <0.10 | <0.10 | <0.10 | 0.74 | 0.14 | 0.10 | 9872182 |
| F1 (C6-C10) | mg/L | 1.4 | <0.10 | <0.10 | <0.10 | 0.92 | 0.19 | 0.10 | 9873594 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 103 | 102 | 102 | 98 | 103 | N/A | 9873594 |
| 4-Bromofluorobenzene (sur.) | % | 99 | 99 | 100 | 100 | 98 | 99 | N/A | 9873594 |
| D4-1,2-Dichloroethane (sur.) | % | 107 | 103 | 105 | 106 | 112 | 99 | N/A | 9873594 |
| O-TERPHENYL (sur.) | % | 108 | 108 | 108 | 109 | 107 | 108 | N/A | 9874595 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW1151 | XW1152 | XW1153 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 06:15 | 2020/06/02 06:15 | 2020/06/02 12:00 | | |
| **COC Number** | | M061076 | M061076 | M061076 | | |
| | **UNITS** | **1905** | **9905** | **1922** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 2.9 | 3.1 | <0.10 | 0.10 | 9874595 |
| **Volatiles** | | | | | | |
| Benzene | mg/L | 0.018 | 0.018 | <0.00040 | 0.00040 | 9873594 |
| Toluene | mg/L | 0.0014 | 0.0013 | <0.00040 | 0.00040 | 9873594 |
| Ethylbenzene | mg/L | 0.14 | 0.13 | <0.00040 | 0.00040 | 9873594 |
| m & p-Xylene | mg/L | 0.59 | 0.59 | <0.00080 | 0.00080 | 9873594 |
| o-Xylene | mg/L | 0.051 | 0.051 | <0.00040 | 0.00040 | 9873594 |
| Xylenes (Total) | mg/L | 0.65 | 0.64 | <0.00089 | 0.00089 | 9872182 |
| F1 (C6-C10) - BTEX | mg/L | 1.8 | 1.9 | <0.10 | 0.10 | 9872182 |
| F1 (C6-C10) | mg/L | 2.6 | 2.7 | <0.10 | 0.10 | 9873594 |
| **Surrogate Recovery (%)** | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 98 | 103 | N/A | 9873594 |
| 4-Bromofluorobenzene (sur.) | % | 98 | 101 | 99 | N/A | 9873594 |
| D4-1,2-Dichloroethane (sur.) | % | 104 | 116 | 105 | N/A | 9873594 |
| O-TERPHENYL (sur.) | % | 108 | 108 | 109 | N/A | 9874595 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XW1145 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 10:00 | | |
| **COC Number** | | M061076 | | |
| | **UNITS** | **4007** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 27 | N/A | 9871012 |
| Cation Sum | meq/L | 28 | N/A | 9871012 |
| Hardness (CaCO3) | mg/L | 1200 | 0.50 | 9871006 |
| Ion Balance (% Difference) | % | 0.98 | N/A | 9871008 |
| Dissolved Nitrate (NO3) | mg/L | 92 | 0.22 | 9870980 |
| Nitrate plus Nitrite (N) | mg/L | 25 | 0.051 | 9870981 |
| Dissolved Nitrite (NO2) | mg/L | 15 | 0.033 | 9870980 |
| Calculated Total Dissolved Solids | mg/L | 1400 | 10 | 9871017 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 2600 | 2.0 | 9873915 |
| pH | pH | 7.92 | N/A | 9873914 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9873910 |
| Alkalinity (Total as CaCO3) | mg/L | 650 | 1.0 | 9873910 |
| Bicarbonate (HCO3) | mg/L | 790 | 1.0 | 9873910 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9873910 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9873910 |
| Dissolved Chloride (Cl) | mg/L | 410 (1) | 5.0 | 9879154 |
| Dissolved Sulphate (SO4) | mg/L | 37 (1) | 2.0 | 9879154 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | 4.6 | 0.010 | 9874045 |
| Dissolved Nitrate (N) | mg/L | 21 (1) | 0.050 | 9874045 |
| **Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 100 | 0.30 | 9876216 |
| Dissolved Iron (Fe) | mg/L | 0.32 | 0.060 | 9876216 |
| Dissolved Magnesium (Mg) | mg/L | 230 | 0.20 | 9876216 |
| Dissolved Manganese (Mn) | mg/L | 0.35 | 0.0040 | 9876216 |
| Dissolved Potassium (K) | mg/L | 5.0 | 0.30 | 9876216 |
| Dissolved Sodium (Na) | mg/L | 75 | 0.50 | 9876216 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1145 | XW1145 | XW1146 | XW1147 | XW1148 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 10:00 | 2020/06/02 10:00 | 2020/06/02 09:00 | 2020/06/02 08:30 | 2020/06/02 07:45 | | |
| **COC Number** | | M061076 | M061076 | M061076 | M061076 | M061076 | | |
| | **UNITS** | **4007** | **4007 Lab-Dup** | **2007** | **4004B** | **4004A** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | N/A | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9871024 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9873603 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,2-dichloroethane | mg/L | 0.037 | 0.039 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 (1) | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Matrix spike recovery is above acceptance criteria. This may represent a high bias for the parameters in this sample. However, since the results are non-detect, there is no impact on data quality.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1145 | XW1145 | XW1146 | XW1147 | XW1148 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 10:00 | 2020/06/02 10:00 | 2020/06/02 09:00 | 2020/06/02 08:30 | 2020/06/02 07:45 | | |
| **COC Number** | | M061076 | M061076 | M061076 | M061076 | M061076 | | |
| | **UNITS** | **4007** | **4007 Lab-Dup** | **2007** | **4004B** | **4004A** | **RDL** | **QC Batch** |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00083 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 105 | 104 | 103 | 102 | 102 | N/A | 9873603 |
| 4-Bromofluorobenzene (sur.) | % | 86 | 87 | 88 | 89 | 88 | N/A | 9873603 |
| D4-1,2-Dichloroethane (sur.) | % | 138 | 139 | 103 | 103 | 99 | N/A | 9873603 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1149 | XW1150 | XW1151 | XW1152 | XW1153 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 07:30 | 2020/06/02 06:45 | 2020/06/02 06:15 | 2020/06/02 06:15 | 2020/06/02 12:00 | | |
| **COC Number** | | M061076 | M061076 | M061076 | M061076 | M061076 | | |
| | **UNITS** | **4006** | **4005** | **1905** | **9905** | **1922** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9871024 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.0022 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9873603 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,2-dichloroethane | mg/L | 0.011 | <0.00050 | 0.030 | 0.030 | <0.00050 | 0.00050 | 9873603 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873603 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873603 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1149 | XW1150 | XW1151 | XW1152 | XW1153 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 07:30 | 2020/06/02 06:45 | 2020/06/02 06:15 | 2020/06/02 06:15 | 2020/06/02 12:00 | | |
| **COC Number** | | M061076 | M061076 | M061076 | M061076 | M061076 | | |
| | **UNITS** | **4006** | **4005** | **1905** | **9905** | **1922** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.0018 | 0.33 | 0.32 | 0.00063 | 0.00050 | 9873603 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.0024 | 0.10 | 0.096 | <0.00050 | 0.00050 | 9873603 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873603 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 101 | 102 | 103 | 101 | N/A | 9873603 |
| 4-Bromofluorobenzene (sur.) | % | 86 | 89 | 93 | 92 | 88 | N/A | 9873603 |
| D4-1,2-Dichloroethane (sur.) | % | 113 | 107 | 111 | 113 | 103 | N/A | 9873603 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1154 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 | | |
| **COC Number** | | M061076 | | |
| | **UNITS** | **TRIP BLANK 10** | **RDL** | **QC Batch** |
| **Volatiles** | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | 0.0013 | 9871024 |
| Bromodichloromethane | mg/L | <0.00050 | 0.00050 | 9873603 |
| Bromoform | mg/L | <0.00050 | 0.00050 | 9873603 |
| Bromomethane | mg/L | <0.0020 | 0.0020 | 9873603 |
| Carbon tetrachloride | mg/L | <0.00050 | 0.00050 | 9873603 |
| Chlorobenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| Chlorodibromomethane | mg/L | <0.0010 | 0.0010 | 9873603 |
| Chloroethane | mg/L | <0.0010 | 0.0010 | 9873603 |
| Chloroform | mg/L | <0.00050 | 0.00050 | 9873603 |
| Chloromethane | mg/L | <0.0020 | 0.0020 | 9873603 |
| 1,2-dibromoethane | mg/L | <0.00020 | 0.00020 | 9873603 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,1-dichloroethane | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,1-dichloroethene | mg/L | <0.00050 | 0.00050 | 9873603 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9873603 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9873603 |
| Dichloromethane | mg/L | <0.0020 | 0.0020 | 9873603 |
| 1,2-dichloropropane | mg/L | <0.00050 | 0.00050 | 9873603 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9873603 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9873603 |
| Methyl methacrylate | mg/L | <0.00050 | 0.00050 | 9873603 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.00050 | 9873603 |
| Styrene | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | 0.0010 | 9873603 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | 0.0020 | 9873603 |
| Tetrachloroethene | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9873603 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9873603 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| RDL = Reportable Detection Limit | | | | |



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1154 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 | | |
| **COC Number** | | M061076 | | |
| | **UNITS** | **TRIP BLANK 10** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00050 | 9873603 |
| Trichloroethene | mg/L | <0.00050 | 0.00050 | 9873603 |
| Trichlorofluoromethane | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9873603 |
| Vinyl chloride | mg/L | <0.00050 | 0.00050 | 9873603 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | N/A | 9873603 |
| 4-Bromofluorobenzene (sur.) | % | 88 | N/A | 9873603 |
| D4-1,2-Dichloroethane (sur.) | % | 103 | N/A | 9873603 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 4.7°C |

Sample XW1145 [4007] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**Results relate only to the items tested.**



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# QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9873594 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/08 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/08 | | 91 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/08 | | 108 | % | 50 - 140 |
| | | | Benzene | 2020/06/08 | | 96 | % | 50 - 140 |
| | | | Toluene | 2020/06/08 | | 91 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/08 | | 94 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/08 | | 93 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/08 | | 96 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/08 | | 91 | % | 60 - 140 |
| 9873594 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/08 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/08 | | 91 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/08 | | 109 | % | 50 - 140 |
| | | | Benzene | 2020/06/08 | | 94 | % | 60 - 130 |
| | | | Toluene | 2020/06/08 | | 89 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/08 | | 93 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/08 | | 92 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/08 | | 93 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/08 | | 80 | % | 60 - 140 |
| 9873594 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/08 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/08 | | 92 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/08 | | 103 | % | 50 - 140 |
| | | | Benzene | 2020/06/08 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/08 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/08 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/08 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/08 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/08 | <0.10 | | mg/L | |
| 9873594 | DO1 | RPD | F1 (C6-C10) | 2020/06/08 | NC | | % | 30 |
| 9873603 | GP4 | Matrix Spike [XW1146-02] | 1,4-Difluorobenzene (sur.) | 2020/06/08 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/08 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/08 | | 112 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/08 | | 115 | % | 50 - 140 |
| | | | Bromoform | 2020/06/08 | | 141 (1) | % | 50 - 140 |
| | | | Bromomethane | 2020/06/08 | | 105 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/08 | | 103 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/08 | | 108 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/08 | | 132 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/08 | | 85 | % | 50 - 140 |
| | | | Chloroform | 2020/06/08 | | 97 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/08 | | 85 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/08 | | 119 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/08 | | 104 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/08 | | 97 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/08 | | 96 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/08 | | 94 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/08 | | 113 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/08 | | 92 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/08 | | 104 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/08 | | 88 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/08 | | 100 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/08 | | 101 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/08 | | 134 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/08 | | 157 (1) | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/08 | | 114 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Methyl-tert-butylether (MTBE) | 2020/06/08 | | 103 | % | 50 - 140 |
| | | | Styrene | 2020/06/08 | | 107 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/08 | | 113 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/08 | | 122 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/08 | | 100 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/08 | | 102 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/08 | | 99 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/08 | | 95 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/08 | | 104 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/08 | | 121 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/08 | | 110 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/08 | | 93 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/08 | | 89 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/08 | | 90 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/08 | | 76 | % | 50 - 140 |
| 9873603 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/08 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/08 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/08 | | 120 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/08 | | 95 | % | 60 - 130 |
| | | | Bromoform | 2020/06/08 | | 118 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/08 | | 81 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/08 | | 87 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/08 | | 94 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/08 | | 113 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/08 | | 72 | % | 60 - 130 |
| | | | Chloroform | 2020/06/08 | | 82 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/08 | | 73 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/08 | | 101 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/08 | | 92 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/08 | | 88 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/08 | | 86 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/08 | | 79 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/08 | | 92 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/08 | | 78 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/08 | | 87 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/08 | | 75 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/08 | | 83 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/08 | | 84 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/08 | | 103 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/08 | | 115 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/08 | | 93 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/08 | | 87 | % | 60 - 130 |
| | | | Styrene | 2020/06/08 | | 94 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/08 | | 99 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/08 | | 103 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/08 | | 89 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/08 | | 91 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/08 | | 88 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/08 | | 86 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/08 | | 87 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/08 | | 99 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/08 | | 93 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/08 | | 78 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/08 | | 80 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/08 | | 81 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Vinyl chloride | 2020/06/08 | | 65 | % | 60 - 130 |
| 9873603 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/08 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/08 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/08 | | 119 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/08 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/08 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/08 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/08 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/08 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/08 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/08 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/08 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/08 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/08 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/08 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/08 | <0.00050 | | mg/L | |
| 9873603 | GP4 | RPD [XW1145-02] | Bromodichloromethane | 2020/06/08 | NC | | % | 30 |
| | | | Bromoform | 2020/06/08 | NC | | % | 30 |
| | | | Bromomethane | 2020/06/08 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/06/08 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/06/08 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/06/08 | NC | | % | 30 |
| | | | Chloroethane | 2020/06/08 | NC | | % | 30 |
| | | | Chloroform | 2020/06/08 | NC | | % | 30 |
| | | | Chloromethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/06/08 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/06/08 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/06/08 | NC | | % | 30 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1-dichloroethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/08 | 6.6 | | % | 30 |
| | | | 1,1-dichloroethene | 2020/06/08 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/06/08 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/06/08 | NC | | % | 30 |
| | | | Dichloromethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/06/08 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/06/08 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/06/08 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/06/08 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/08 | NC | | % | 30 |
| | | | Styrene | 2020/06/08 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/08 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/06/08 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/06/08 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/06/08 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/06/08 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/06/08 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/08 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/06/08 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/06/08 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/06/08 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/06/08 | NC | | % | 30 |
| 9873910 | KD9 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/05 | | 94 | % | 80 - 120 |
| 9873910 | KD9 | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/05 | <1.0 | | mg/L | |
| 9873910 | KD9 | RPD | Alkalinity (PP as CaCO3) | 2020/06/05 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/06/05 | 0.33 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/06/05 | 0.33 | | % | 20 |
| | | | Carbonate (CO3) | 2020/06/05 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/06/05 | NC | | % | 20 |
| 9873914 | KD9 | Spiked Blank | pH | 2020/06/05 | | 100 | % | 97 - 103 |
| 9873914 | KD9 | RPD | pH | 2020/06/05 | 0.055 | | % | N/A |
| 9873915 | KD9 | Spiked Blank | Conductivity | 2020/06/05 | | 102 | % | 90 - 110 |
| 9873915 | KD9 | Method Blank | Conductivity | 2020/06/05 | <2.0 | | uS/cm | |
| 9873915 | KD9 | RPD | Conductivity | 2020/06/05 | 0.057 | | % | 10 |
| 9874045 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/06/05 | | 93 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/05 | | 103 | % | 80 - 120 |
| 9874045 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/06/05 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/05 | | 102 | % | 80 - 120 |
| 9874045 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/06/05 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/05 | <0.010 | | mg/L | |
| 9874045 | IBL | RPD | Dissolved Nitrite (N) | 2020/06/05 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/05 | 0.32 | | % | 20 |
| 9874595 | MHF | Matrix Spike | O-TERPHENYL (sur.) | 2020/06/06 | | 108 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/06 | | NC | % | 60 - 140 |
| 9874595 | MHF | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/06 | | 110 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/06 | | 96 | % | 60 - 140 |
| 9874595 | MHF | Method Blank | O-TERPHENYL (sur.) | 2020/06/06 | | 109 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/06 | <0.10 | | mg/L | |



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BV Labs Job #: C037583
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9874595 | MHF | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/06 | NC | | % | 30 |
| 9876216 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/06/06 | | 98 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/06 | | 103 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/06 | | 96 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/06 | | 98 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/06 | | 98 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/06 | | 95 | % | 80 - 120 |
| 9876216 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/06/06 | | 100 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/06 | | 106 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/06 | | 97 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/06 | | 101 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/06 | | 98 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/06 | | 100 | % | 80 - 120 |
| 9876216 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/06/06 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/06/06 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/06/06 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/06/06 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/06/06 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/06/06 | <0.50 | | mg/L | |
| 9876216 | JAB | RPD | Dissolved Calcium (Ca) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/06/06 | NC | | % | 20 |
| 9879154 | CCQ | Matrix Spike | Dissolved Chloride (Cl) | 2020/06/10 | | 108 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | | NC | % | 80 - 120 |
| 9879154 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/10 | | 105 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | | 105 | % | 80 - 120 |
| 9879154 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/06/10 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | <1.0 | | mg/L | |
| 9879154 | CCQ | RPD | Dissolved Chloride (Cl) | 2020/06/10 | 2.4 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | 1.7 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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A Bureau Veritas Group Company

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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

# CHAIN OF CUSTODY RECORD

66

M 061076

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☒ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 - 30 Ave NE Calgary, Ab | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-6228 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Bryn | Rush Confirmation #: |

## Laboratory Use Only

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 1 | 9 | 4 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

Depot Reception

## Analysis Requested

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☒ VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4007 | | 2020/06/02 | 10:00 | GW | 8 | ✓ | ✓ | | ✓ | | | | | | | |
| 2 | 2007 | | 2020/06/02 | 09:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 3 | 4004B | | 2020/06/02 | 08:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 4 | 4004A | | 2020/06/02 | 07:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 5 | 4006 | | 2020/06/02 | 07:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 6 | 4005 | | 2020/06/02 | 06:45 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | 1905 | | 2020/06/02 | 06:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 8 | 9905 | | 2020/06/02 | 06:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 9 | 1922 | | 2020/06/02 | 12:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 10 | Trip Blank 10 | | 2020/06/02 | | W | 2 | ✓ | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | F/P | | | | | | | |

## Regulatory Criteria

- ☒ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

## Special Instructions

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/06/02 | 14:30 | SARA BISCHOFF | 2020/06/02 | 14:45 |
| | | | | | |

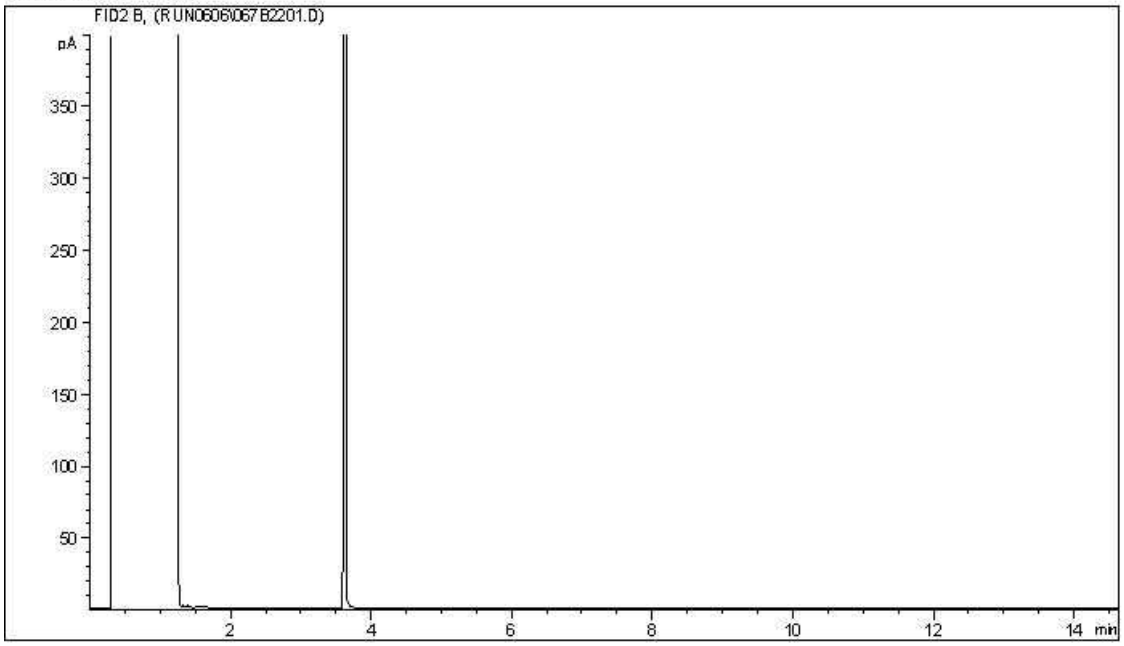
02-Jun-20 14:45
Linsay Sunderman
C037583
SBZ INS-0147

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.ma

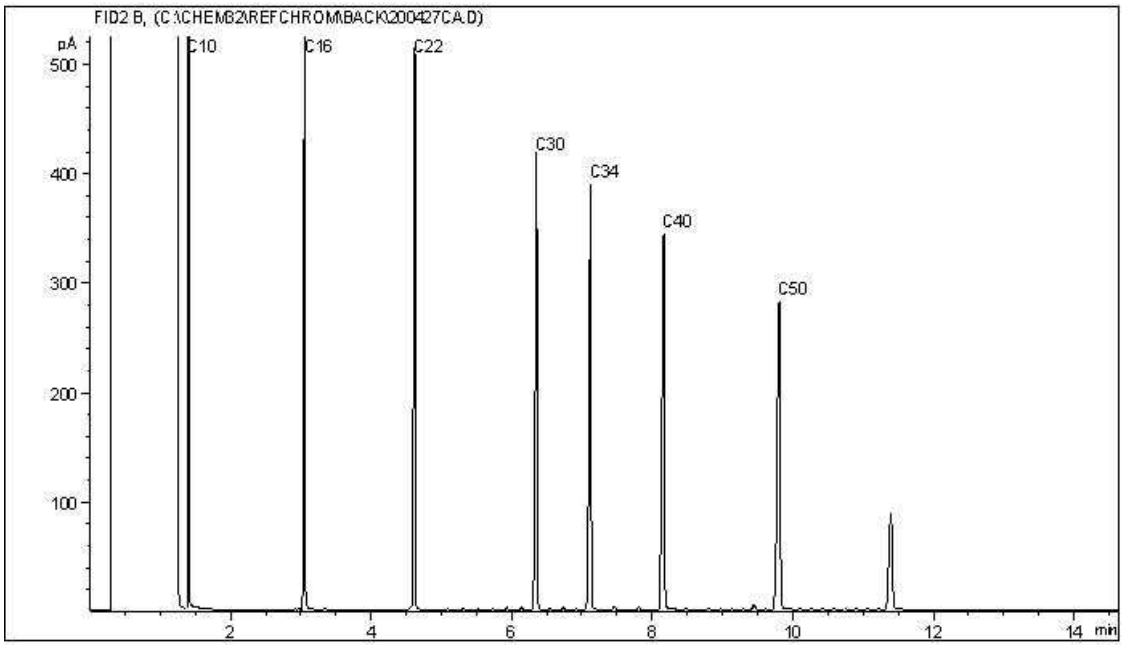
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



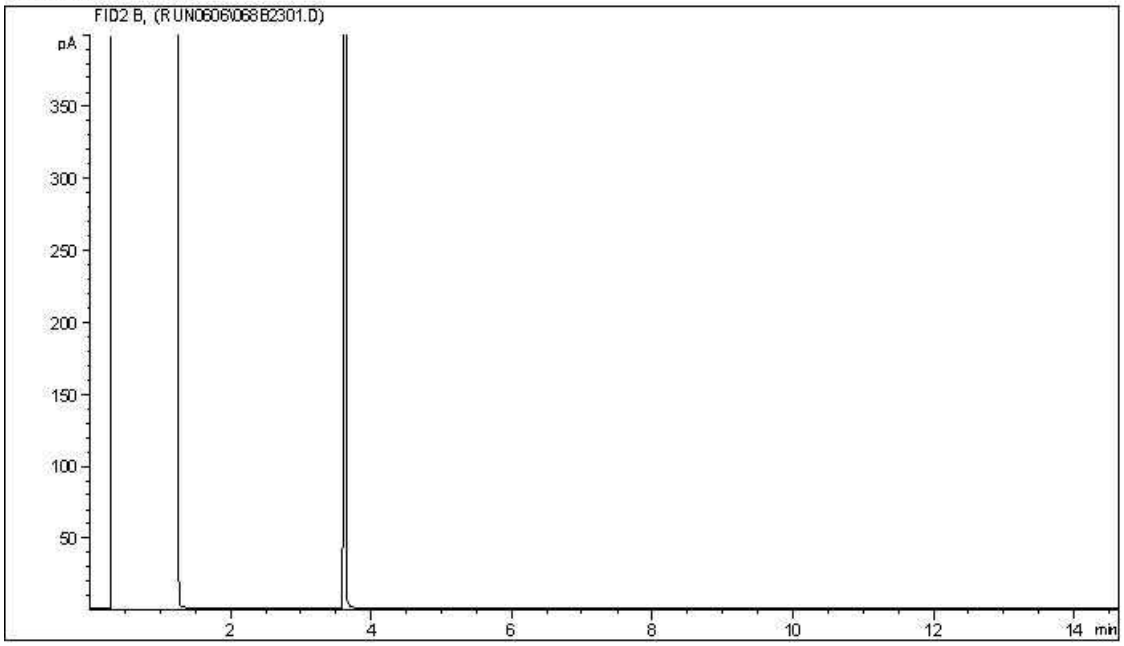

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

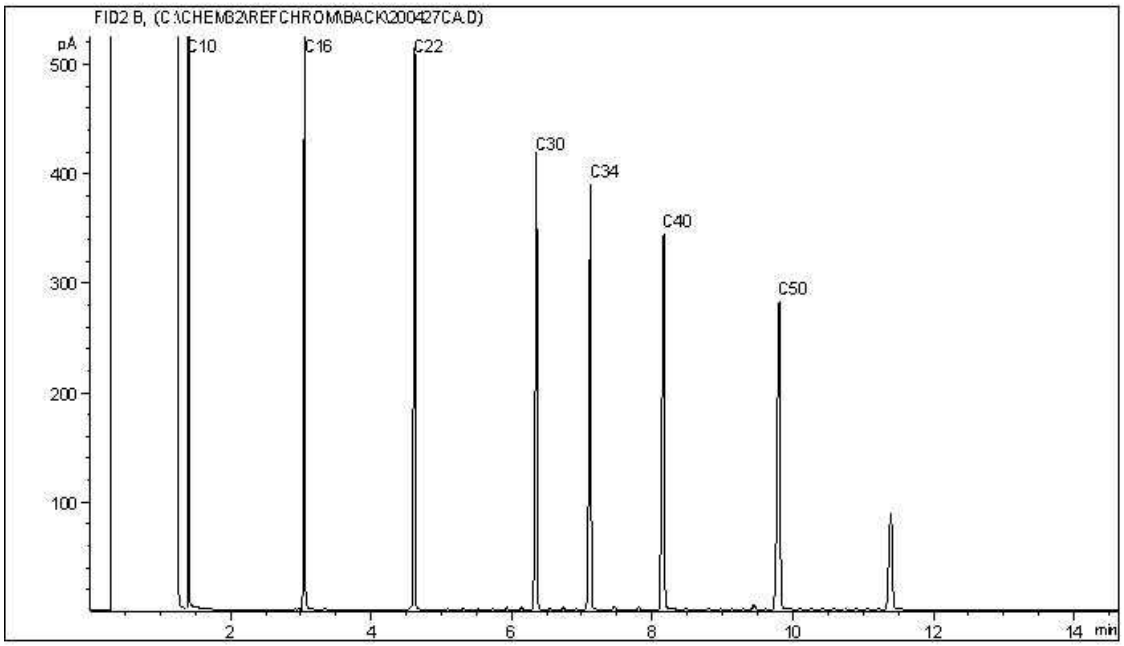
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

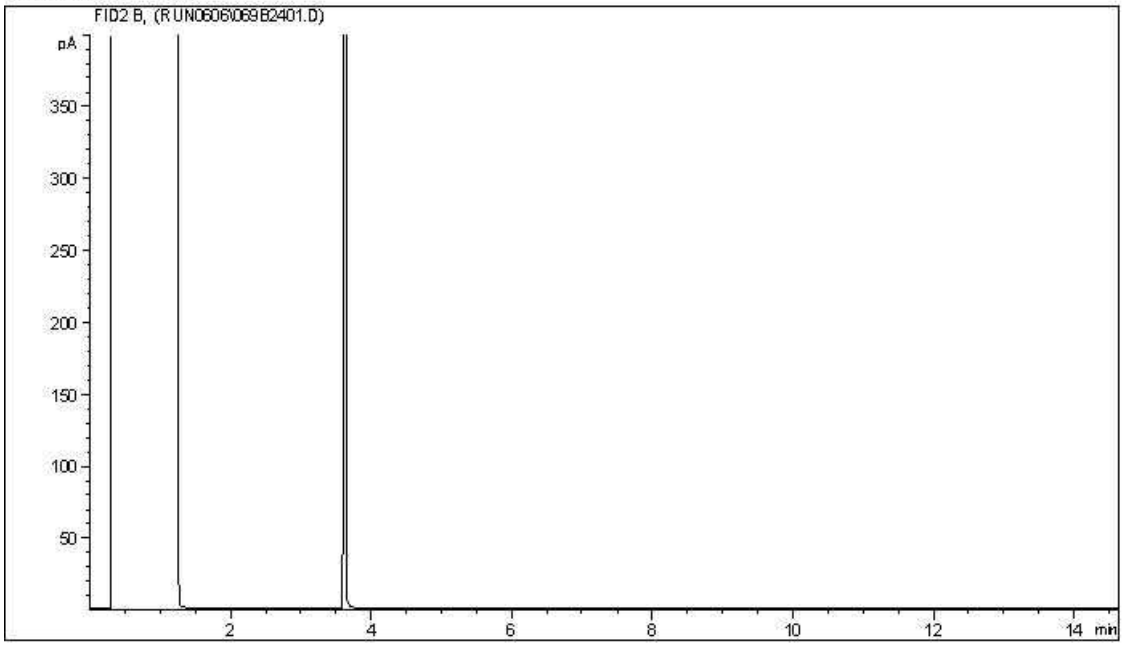
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037583
Report Date: 2020/06/10
BV Labs Sample: XW1147

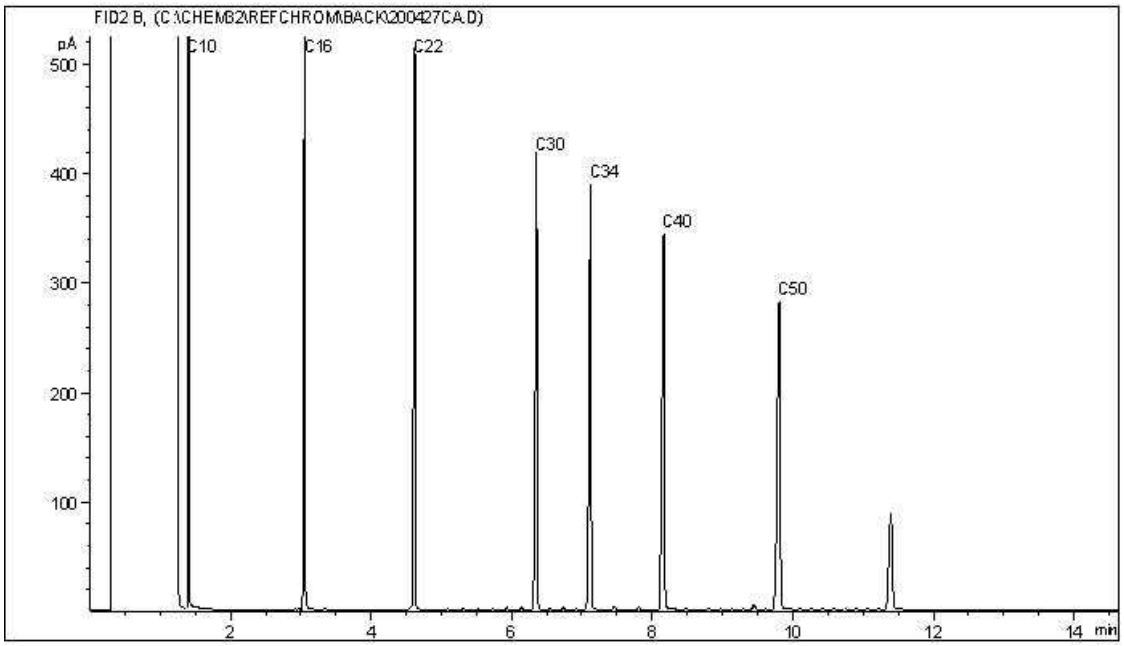
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 4004B

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

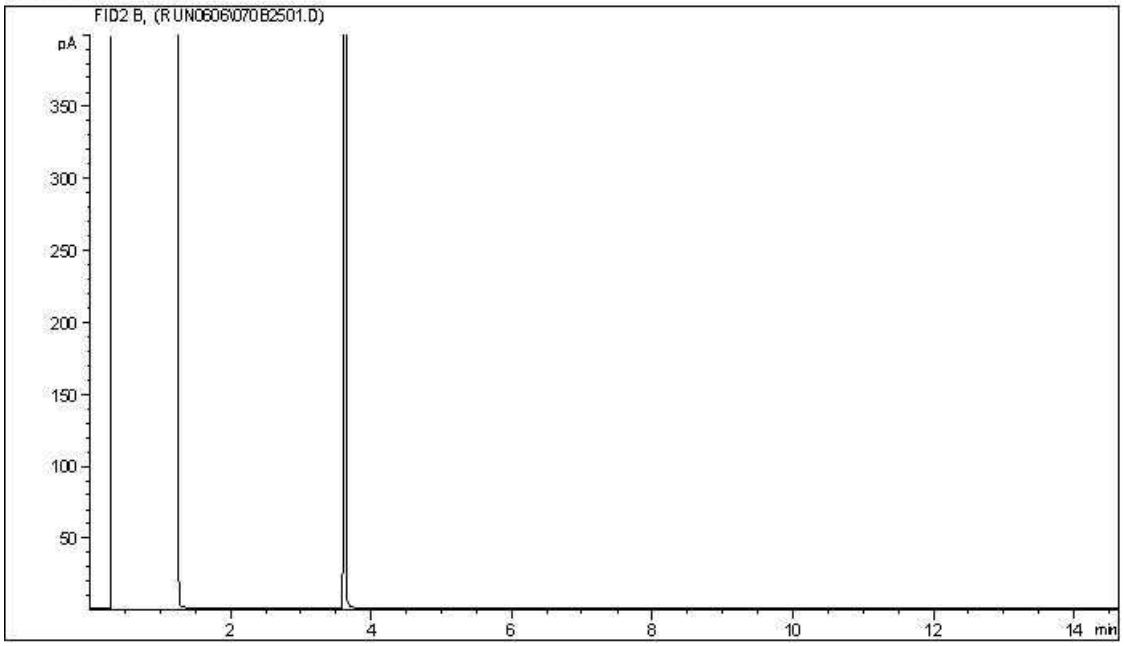
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037583
Report Date: 2020/06/10
BV Labs Sample: XW1148

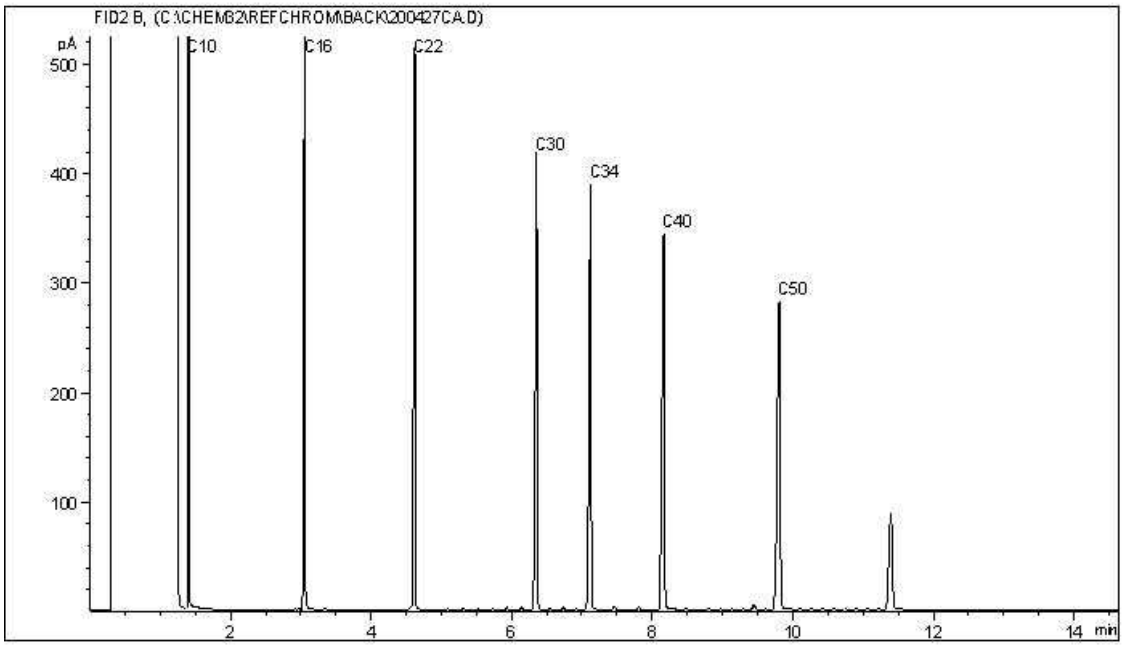
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 4004A

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

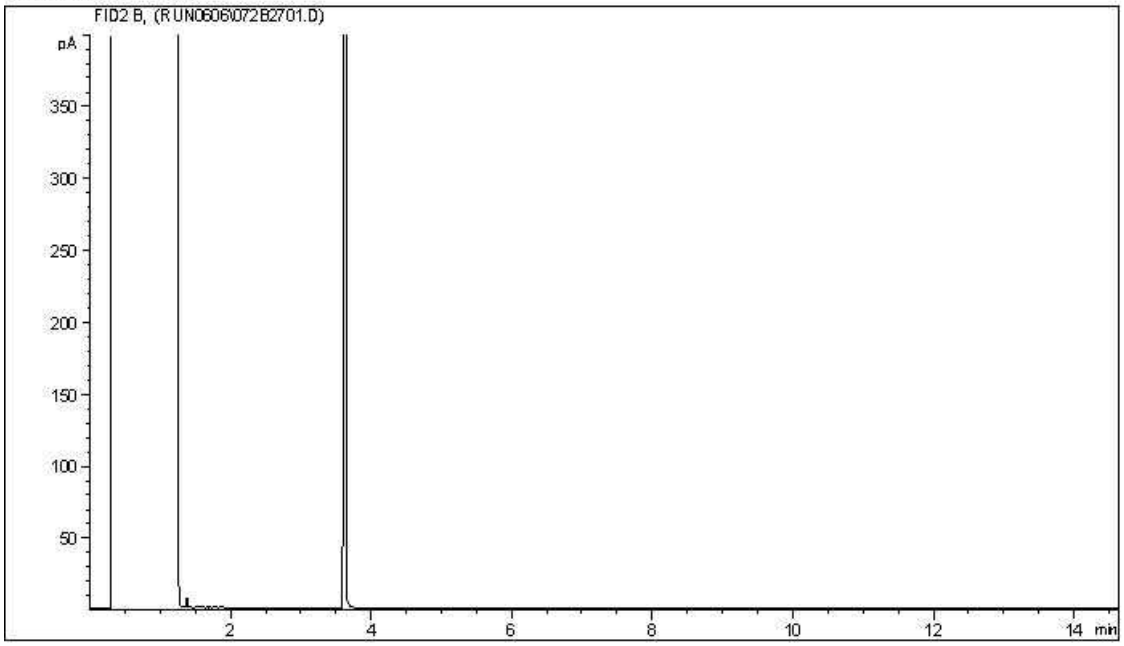
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037583
Report Date: 2020/06/10
BV Labs Sample: XW1149

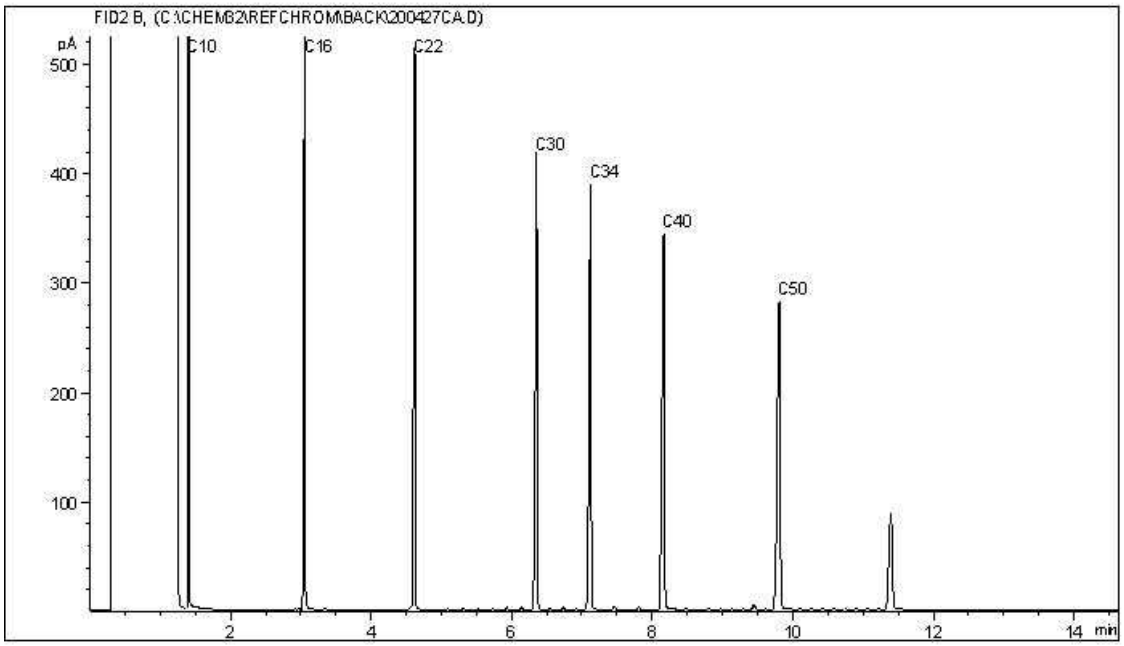
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 4006

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram



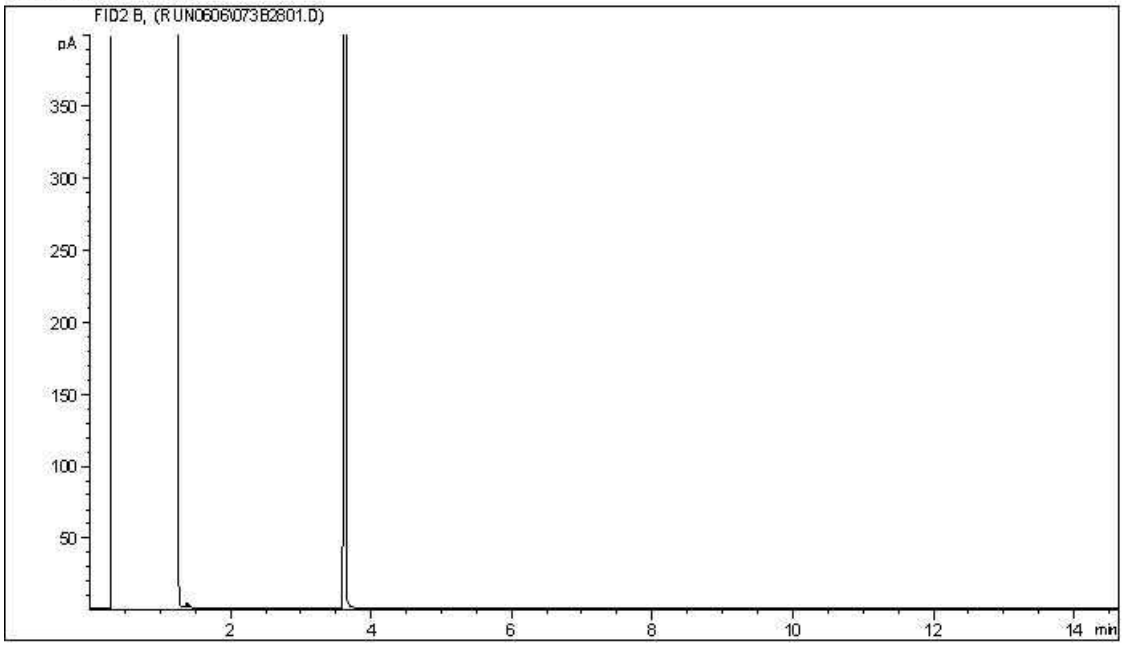

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

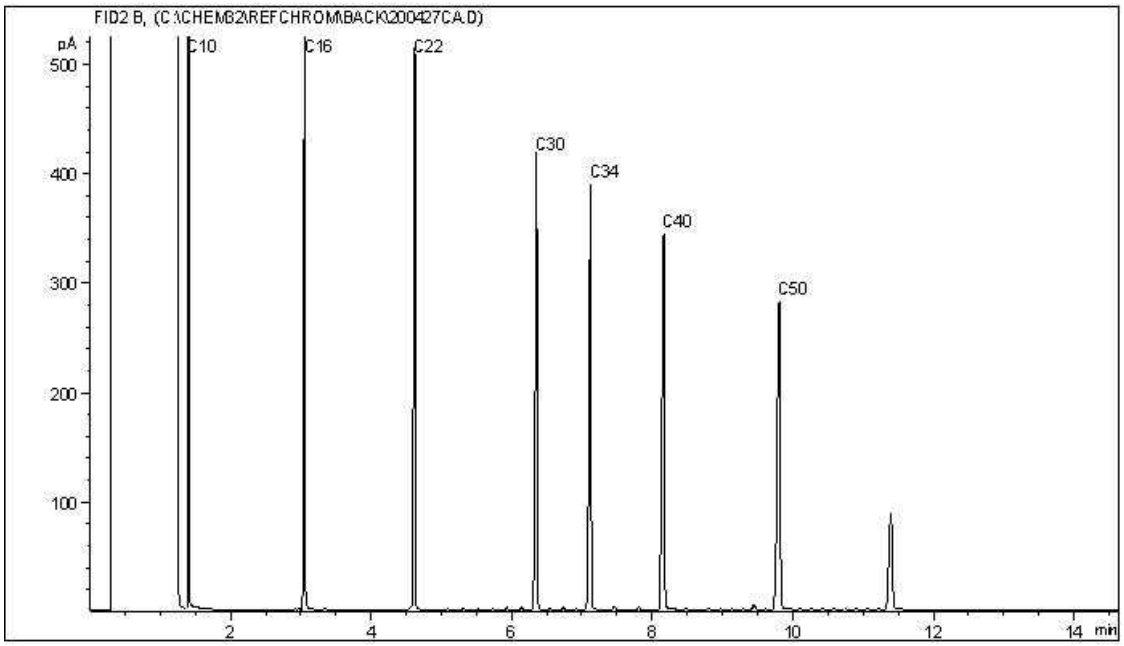
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

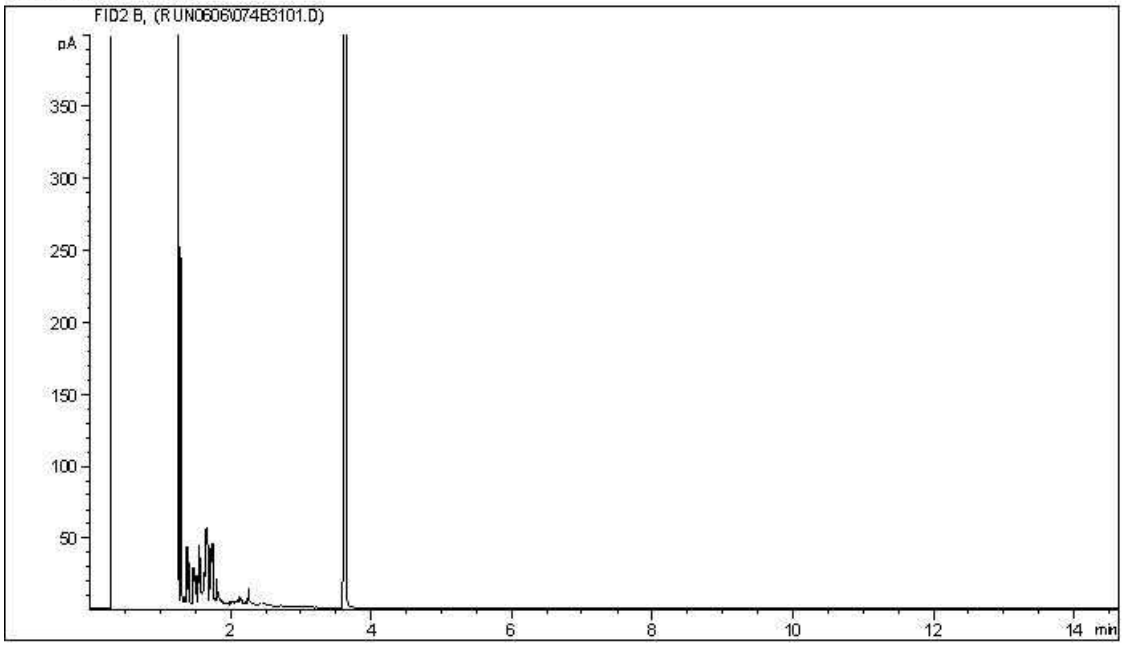
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037583
Report Date: 2020/06/10
BV Labs Sample: XW1151

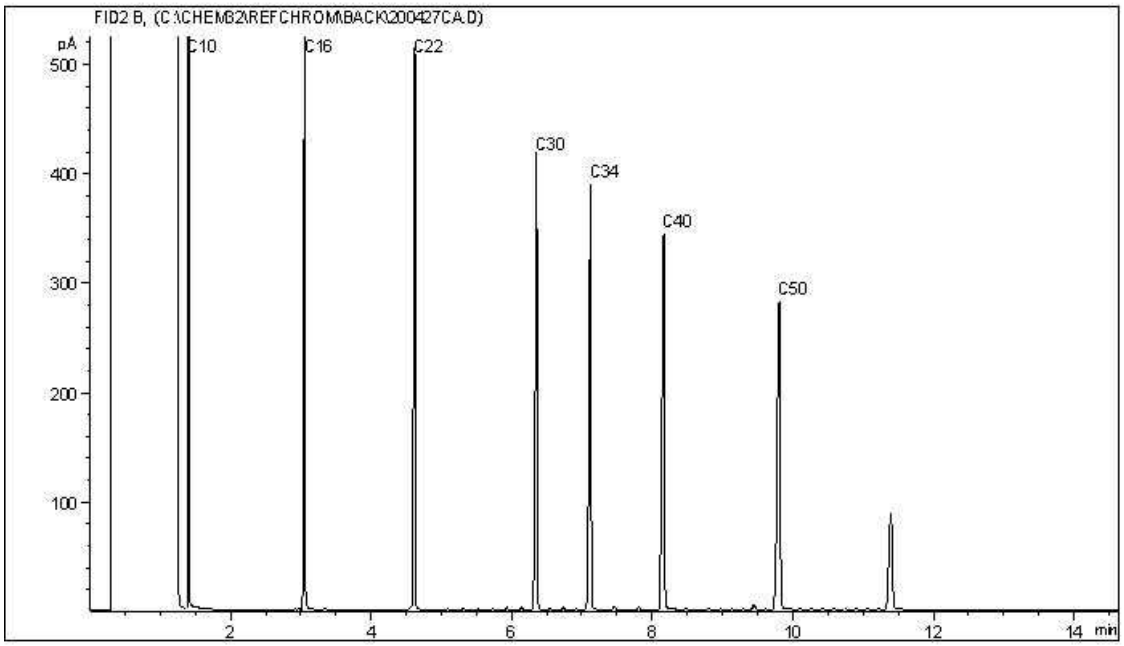
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 1905

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
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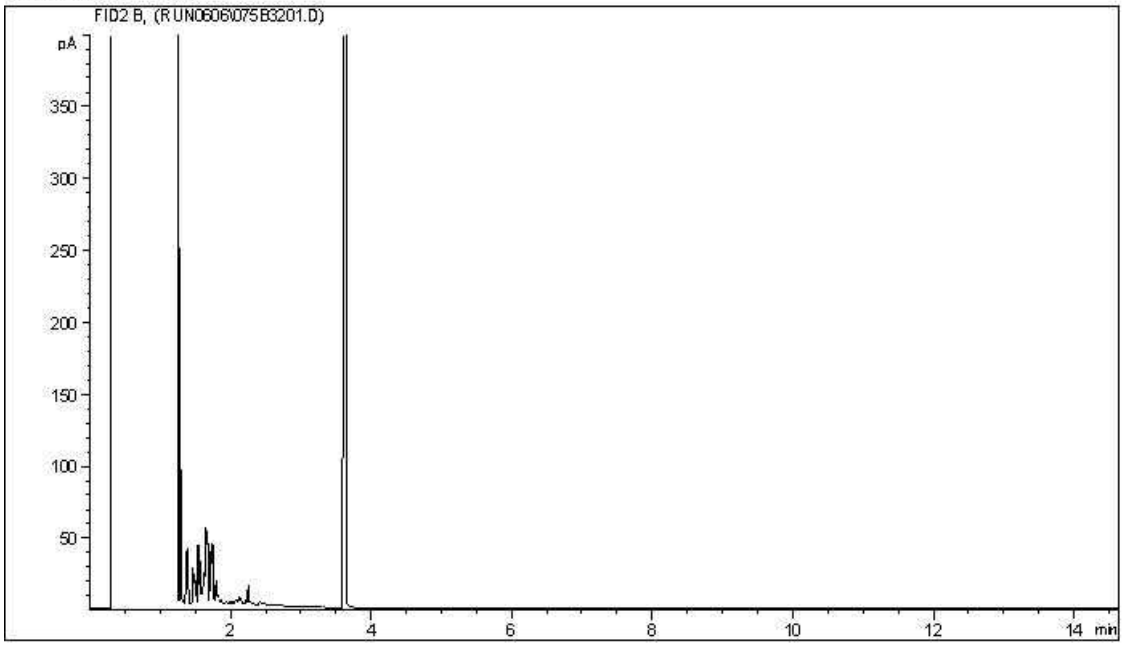
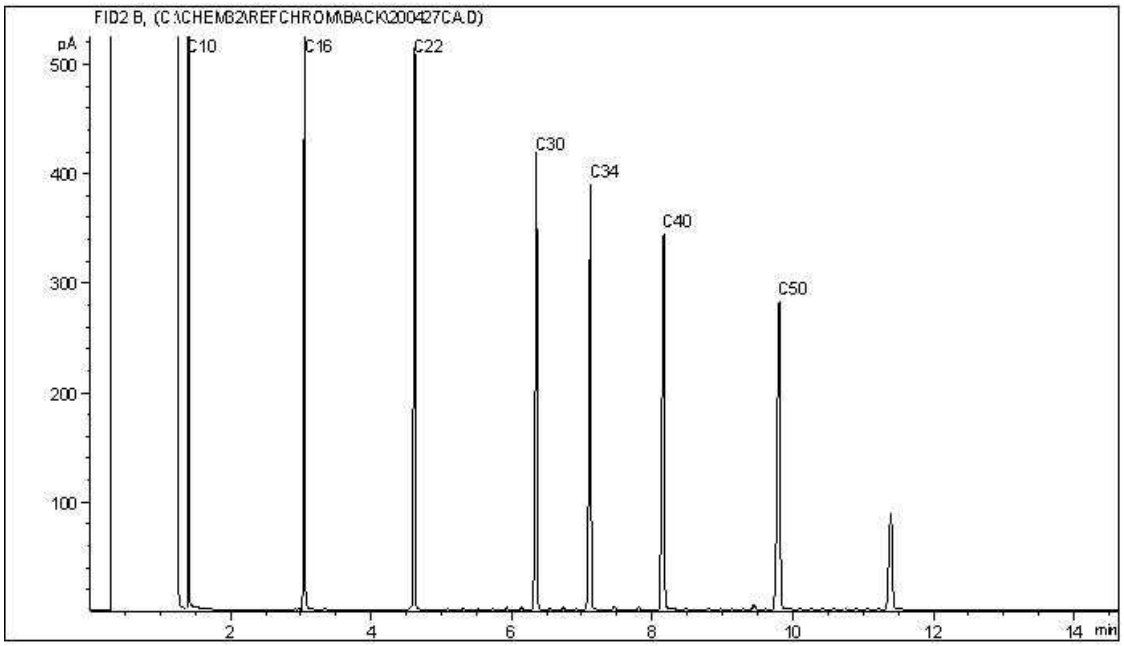
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
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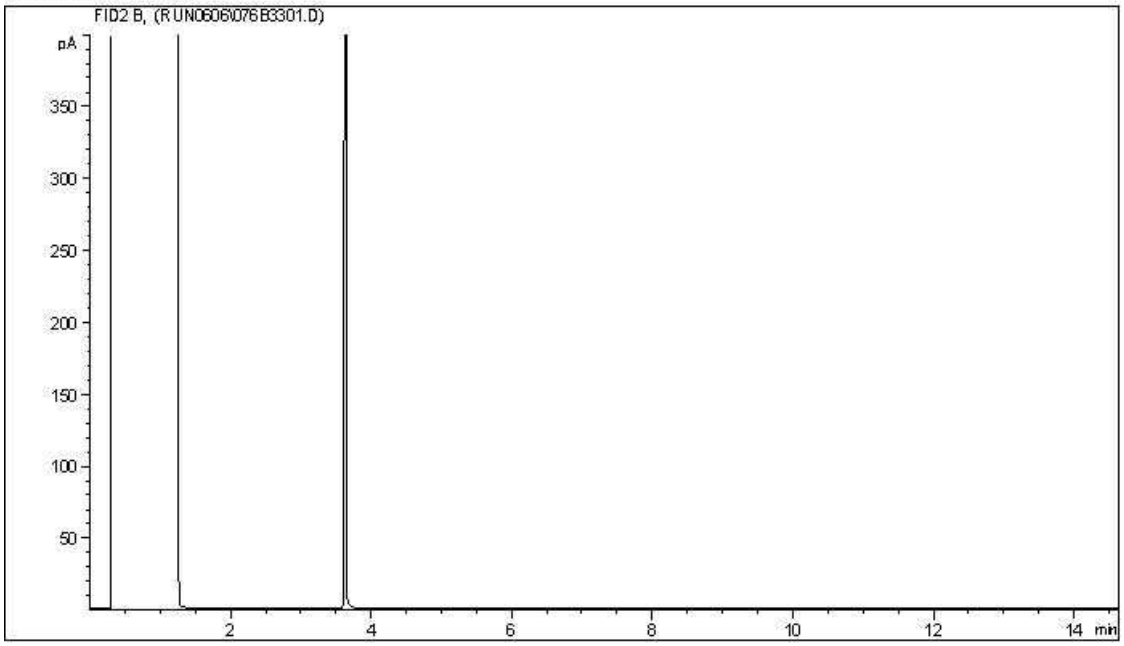
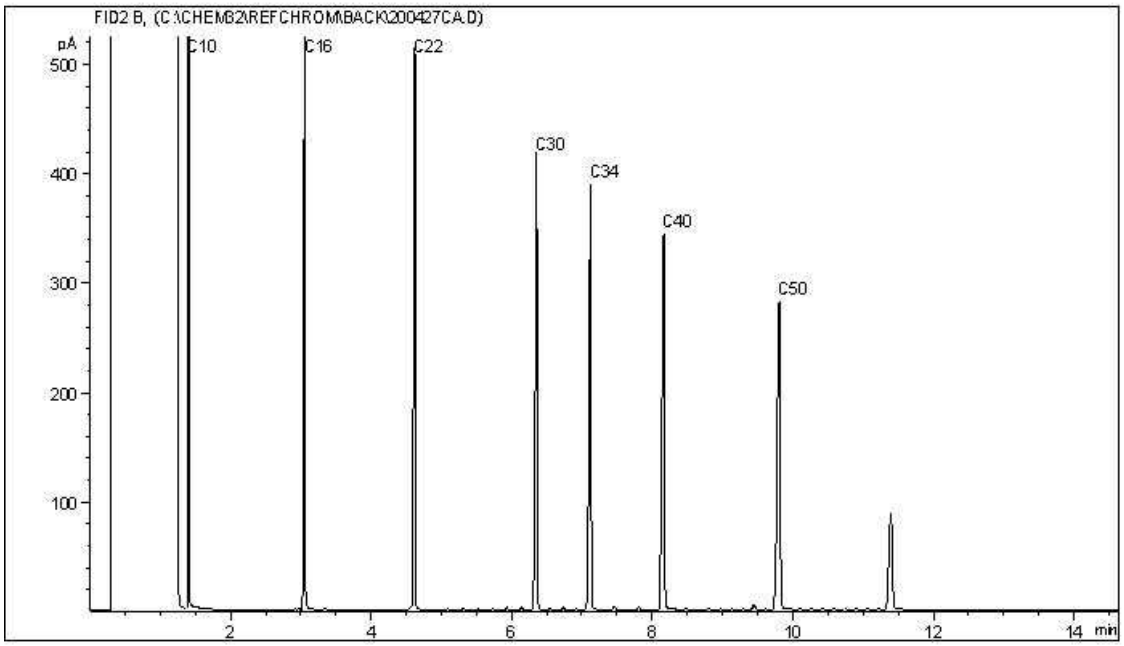
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

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|---|---|---|---|
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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061087, M061026

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/31**
Report #: R2884685
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C034646**
**Received: 2020/05/22, 15:50**

Sample Matrix: Water
# Samples Received: 14

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 4 | N/A | 2020/05/26 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 9 | N/A | 2020/05/27 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| BTEX/F1 in Water by HS GC/MS/FID | 3 | N/A | 2020/05/28 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 12 | N/A | 2020/05/28 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 4 | N/A | 2020/05/29 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 4 | N/A | 2020/05/26 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 2 | 2020/05/27 | 2020/05/27 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 10 | 2020/05/27 | 2020/05/28 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 2 | N/A | 2020/05/28 | | Auto Calc |
| Hardness | 2 | N/A | 2020/05/29 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 2 | N/A | 2020/05/28 | AB SOP-00042 | EPA 6010d R5 m |
| Elements by ICP - Dissolved (2) | 2 | N/A | 2020/05/29 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 4 | N/A | 2020/05/30 | | Auto Calc |
| Sum of cations, anions | 2 | N/A | 2020/05/28 | | Auto Calc |
| Sum of cations, anions | 2 | N/A | 2020/05/29 | | Auto Calc |
| Nitrate and Nitrite | 4 | N/A | 2020/05/28 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 4 | N/A | 2020/05/28 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 4 | N/A | 2020/05/25 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 4 | N/A | 2020/05/26 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 4 | N/A | 2020/05/30 | | Auto Calc |
| Total Trihalomethanes Calculation | 13 | N/A | 2020/05/28 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 11 | N/A | 2020/05/26 | AB SOP-00056 | EPA 5021a/8260d m |
| VOCs in Water by HS GC/MS (Std List) | 2 | N/A | 2020/05/27 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061087, M061026

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/31**
Report #: R2884685
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C034646**
**Received: 2020/05/22, 15:50**

data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU7119 | | XU7120 | XU7121 | | XU7122 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 10:15 | | 2020/05/22 09:30 | 2020/05/22 09:30 | | 2020/05/22 11:15 | | |
| **COC Number** | | M061087 | | M061087 | M061087 | | M061087 | | |
| | **UNITS** | **1908** | **RDL** | **1907** | **9907** | **RDL** | **1966** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | 0.10 | 0.48 | 0.48 | 0.10 | <0.10 | 0.10 | 9861028 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | 0.00040 | 0.52 | 0.52 | 0.00040 | <0.00040 | 0.00040 | 9860825 |
| Toluene | mg/L | <0.00040 | 0.00040 | 2.0 (1) | 2.0 (1) | 0.0020 | <0.00040 | 0.00040 | 9860825 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 0.29 | 0.29 | 0.00040 | <0.00040 | 0.00040 | 9860825 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | 1.9 | 1.9 | 0.00080 | <0.00080 | 0.00080 | 9860825 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 0.69 | 0.68 | 0.00040 | <0.00040 | 0.00040 | 9860825 |
| Xylenes (Total) | mg/L | <0.00089 | 0.00089 | 2.6 | 2.6 | 0.00089 | <0.00089 | 0.00089 | 9859942 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | 0.10 | 3.4 | 4.2 | 0.10 | <0.10 | 0.10 | 9859942 |
| F1 (C6-C10) | mg/L | <0.10 | 0.10 | 8.8 | 9.6 | 0.10 | <0.10 | 0.10 | 9860825 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | N/A | 104 | 102 | N/A | 105 | N/A | 9860825 |
| 4-Bromofluorobenzene (sur.) | % | 98 | N/A | 97 | 97 | N/A | 89 | N/A | 9860825 |
| D4-1,2-Dichloroethane (sur.) | % | 99 | N/A | 99 | 99 | N/A | 103 | N/A | 9860825 |
| O-TERPHENYL (sur.) | % | 109 | N/A | 105 | 100 | N/A | 103 | N/A | 9861028 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU7123 | | XU7125 | XU7126 | XU7127 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:00 | | 2020/05/22 09:30 | 2020/05/22 10:40 | 2020/05/22 11:15 | | |
| **COC Number** | | M061087 | | M061087 | M061087 | M061087 | | |
| | **UNITS** | **1924** | **RDL** | **1925** | **1946** | **1955A** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | 0.14 | 0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9861028 |
| **Volatiles** | | | | | | | | |
| Benzene | mg/L | 1.5 (1) | 0.0020 | 0.025 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| Toluene | mg/L | 0.0023 | 0.00040 | 0.00081 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 0.24 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| m & p-Xylene | mg/L | 0.0015 | 0.00080 | 0.0012 | <0.00080 | <0.00080 | 0.00080 | 9860825 |
| o-Xylene | mg/L | 0.17 | 0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| Xylenes (Total) | mg/L | 0.17 | 0.00089 | 0.0012 | <0.00089 | <0.00089 | 0.00089 | 9860078 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | 0.10 | 0.64 | <0.10 | <0.10 | 0.10 | 9860078 |
| F1 (C6-C10) | mg/L | 1.6 | 0.10 | 0.91 | <0.10 | <0.10 | 0.10 | 9860825 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | N/A | 99 | 102 | 104 | N/A | 9860825 |
| 4-Bromofluorobenzene (sur.) | % | 94 | N/A | 96 | 97 | 98 | N/A | 9860825 |
| D4-1,2-Dichloroethane (sur.) | % | 110 | N/A | 98 | 100 | 99 | N/A | 9860825 |
| O-TERPHENYL (sur.) | % | 116 | N/A | 109 | 104 | 104 | N/A | 9861028 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.


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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XU7128 | XU7129 | XU7130 | XU7131 | | |
|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:00 | 2020/05/22 11:30 | 2020/05/22 14:40 | 2020/05/22 12:40 | | |
| **COC Number** | | M061026 | M061026 | M061026 | M061026 | | |
| | **UNITS** | **2001** | **2006** | **2010** | **2012** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9861028 |
| **Volatiles** | | | | | | | |
| Benzene | mg/L | 0.00042 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9860825 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9860825 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9859942 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9859942 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9860825 |
| **Surrogate Recovery (%)** | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 101 | 101 | 99 | N/A | 9860825 |
| 4-Bromofluorobenzene (sur.) | % | 95 | 97 | 98 | 97 | N/A | 9860825 |
| D4-1,2-Dichloroethane (sur.) | % | 98 | 99 | 100 | 103 | N/A | 9860825 |
| O-TERPHENYL (sur.) | % | 103 | 102 | 118 | 106 | N/A | 9861028 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C034646
Report Date: 2020/05/31

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XU7124 | | | XU7125 | | | XU7130 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:00 | | | 2020/05/22 09:30 | | | 2020/05/22 14:40 | | |
| **COC Number** | | M061087 | | | M061087 | | | M061026 | | |
| | **UNITS** | **EX7** | **RDL** | **QC Batch** | **1925** | **RDL** | **QC Batch** | **2010** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | | | | | | |
| Anion Sum | meq/L | 19 | N/A | 9859996 | 22 | N/A | 9859996 | 13 | N/A | 9859996 |
| Cation Sum | meq/L | 22 | N/A | 9859996 | 23 | N/A | 9859996 | 14 | N/A | 9859996 |
| Hardness (CaCO3) | mg/L | 930 | 0.50 | 9860067 | 1000 | 0.50 | 9860067 | 630 | 0.50 | 9860067 |
| Ion Balance (% Difference) | % | 5.7 | N/A | 9860068 | 0.83 | N/A | 9860068 | 1.6 | N/A | 9860068 |
| Dissolved Nitrate (NO3) | mg/L | <0.044 | 0.044 | 9860069 | 0.29 | 0.044 | 9860069 | 21 | 0.044 | 9860069 |
| Nitrate plus Nitrite (N) | mg/L | <0.014 | 0.014 | 9860070 | 0.065 | 0.014 | 9860070 | 4.7 | 0.014 | 9860070 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 0.033 | 9860069 | <0.033 | 0.033 | 9860069 | 0.062 | 0.033 | 9860069 |
| Calculated Total Dissolved Solids | mg/L | 1000 | 10 | 9860035 | 1100 | 10 | 9860035 | 680 | 10 | 9860035 |
| **Misc. Inorganics** | | | | | | | | | | |
| Conductivity | uS/cm | 1900 | 2.0 | 9861157 | 2100 | 2.0 | 9861157 | 1200 | 2.0 | 9861157 |
| pH | pH | 7.25 | N/A | 9861156 | 7.20 | N/A | 9861156 | 7.55 | N/A | 9861156 |
| **Anions** | | | | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9861155 | <1.0 | 1.0 | 9861155 | <1.0 | 1.0 | 9861155 |
| Alkalinity (Total as CaCO3) | mg/L | 520 | 1.0 | 9861155 | 560 | 1.0 | 9861155 | 370 | 1.0 | 9861155 |
| Bicarbonate (HCO3) | mg/L | 640 | 1.0 | 9861155 | 690 | 1.0 | 9861155 | 450 | 1.0 | 9861155 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9861155 | <1.0 | 1.0 | 9861155 | <1.0 | 1.0 | 9861155 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9861155 | <1.0 | 1.0 | 9861155 | <1.0 | 1.0 | 9861155 |
| Dissolved Chloride (Cl) | mg/L | 310 (1) | 2.0 | 9864459 | 360 (1) | 5.0 | 9864459 | 160 | 1.0 | 9864459 |
| Dissolved Sulphate (SO4) | mg/L | 11 | 1.0 | 9864459 | 45 | 1.0 | 9864459 | 51 | 1.0 | 9864459 |
| **Nutrients** | | | | | | | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 0.010 | 9860728 | <0.010 | 0.010 | 9860728 | 0.019 | 0.010 | 9860728 |
| Dissolved Nitrate (N) | mg/L | <0.010 | 0.010 | 9860728 | 0.065 | 0.010 | 9860728 | 4.6 | 0.010 | 9860728 |
| **Elements** | | | | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 190 | 0.30 | 9865167 | 190 | 0.30 | 9864353 | 140 | 0.30 | 9865167 |
| Dissolved Iron (Fe) | mg/L | 12 | 0.060 | 9865167 | 1.1 | 0.060 | 9864353 | 0.096 | 0.060 | 9865167 |
| Dissolved Magnesium (Mg) | mg/L | 110 | 0.20 | 9865167 | 130 | 0.20 | 9864353 | 69 | 0.20 | 9865167 |
| Dissolved Manganese (Mn) | mg/L | 1.2 | 0.0040 | 9865167 | 0.55 | 0.0040 | 9864353 | 0.023 | 0.0040 | 9865167 |
| Dissolved Potassium (K) | mg/L | 2.9 | 0.30 | 9865167 | 2.9 | 0.30 | 9864353 | 3.5 | 0.30 | 9865167 |
| Dissolved Sodium (Na) | mg/L | 55 | 0.50 | 9865167 | 40 | 0.50 | 9864353 | 20 | 0.50 | 9865167 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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Report Date: 2020/05/31

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XU7131 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:40 | | |
| **COC Number** | | M061026 | | |
| | **UNITS** | **2012** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 17 | N/A | 9859996 |
| Cation Sum | meq/L | 18 | N/A | 9859996 |
| Hardness (CaCO3) | mg/L | 790 | 0.50 | 9860067 |
| Ion Balance (% Difference) | % | 1.5 | N/A | 9860068 |
| Dissolved Nitrate (NO3) | mg/L | 64 | 0.44 | 9860069 |
| Nitrate plus Nitrite (N) | mg/L | 14 | 0.14 | 9860070 |
| Dissolved Nitrite (NO2) | mg/L | <0.33 | 0.33 | 9860069 |
| Calculated Total Dissolved Solids | mg/L | 880 | 10 | 9860035 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 1600 | 2.0 | 9861157 |
| pH | pH | 7.61 | N/A | 9861156 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9861155 |
| Alkalinity (Total as CaCO3) | mg/L | 410 | 1.0 | 9861155 |
| Bicarbonate (HCO3) | mg/L | 500 | 1.0 | 9861155 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9861155 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9861155 |
| Dissolved Chloride (Cl) | mg/L | 230 (1) | 2.0 | 9864459 |
| Dissolved Sulphate (SO4) | mg/L | 66 | 1.0 | 9864459 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | <0.10 (2) | 0.10 | 9860728 |
| Dissolved Nitrate (N) | mg/L | 14 (3) | 0.10 | 9860728 |
| **Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 110 | 0.30 | 9864353 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9864353 |
| Dissolved Magnesium (Mg) | mg/L | 120 | 0.20 | 9864353 |
| Dissolved Manganese (Mn) | mg/L | 0.14 | 0.0040 | 9864353 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.
(2) Detection limit raised due to matrix interference.
(3) Detection limits raised due to dilution to bring analyte within the calibrated range


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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XU7131 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:40 | | |
| **COC Number** | | M061026 | | |
| | **UNITS** | **2012** | **RDL** | **QC Batch** |
| Dissolved Potassium (K) | mg/L | 3.9 | 0.30 | 9864353 |
| Dissolved Sodium (Na) | mg/L | 40 | 0.50 | 9864353 |
| RDL = Reportable Detection Limit | | | | |



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BV Labs Job #: C034646
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Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU7118 | XU7119 | XU7120 | XU7120 | XU7121 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 | 2020/05/22 10:15 | 2020/05/22 09:30 | 2020/05/22 09:30 | 2020/05/22 09:30 | | |
| **COC Number** | | M061087 | M061087 | M061087 | M061087 | M061087 | | |
| | **UNITS** | **TRIP BLANK4** | **1908** | **1907** | **1907 Lab-Dup** | **9907** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | N/A | <0.0013 | 0.0013 | 9860052 |
| Benzene | mg/L | <0.00040 | N/A | N/A | N/A | N/A | 0.00040 | 9860829 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.0015 (1) | 0.0015 | 0.0015 | 0.00020 | 9860829 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00079 (1) | 0.00077 | 0.00072 (1) | 0.00050 | 9860829 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.00095 | 0.015 | 0.016 | 0.015 | 0.00050 | 9860829 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Ethylbenzene | mg/L | <0.00040 | N/A | N/A | N/A | N/A | 0.00040 | 9860829 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.


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BV Labs Job #: C034646
Report Date: 2020/05/31

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU7118 | XU7119 | XU7120 | XU7120 | XU7121 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 | 2020/05/22 10:15 | 2020/05/22 09:30 | 2020/05/22 09:30 | 2020/05/22 09:30 | | |
| **COC Number** | | M061087 | M061087 | M061087 | M061087 | M061087 | | |
| | **UNITS** | **TRIP BLANK4** | **1908** | **1907** | **1907 Lab-Dup** | **9907** | **RDL** | **QC Batch** |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Toluene | mg/L | <0.00040 | N/A | N/A | N/A | N/A | 0.00040 | 9860829 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.21 | 0.20 | 0.20 | 0.00050 | 9860829 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.087 | 0.084 | 0.085 | 0.00050 | 9860829 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Xylenes (Total) | mg/L | <0.00080 | N/A | N/A | N/A | N/A | 0.00080 | 9860829 |
| m & p-Xylene | mg/L | <0.00080 | N/A | N/A | N/A | N/A | 0.00080 | 9860829 |
| o-Xylene | mg/L | <0.00040 | N/A | N/A | N/A | N/A | 0.00040 | 9860829 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 101 | 104 | 104 | 105 | N/A | 9860829 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 90 | 90 | 90 | 90 | N/A | 9860829 |
| D4-1,2-Dichloroethane (sur.) | % | 94 | 95 | 94 | 100 | 90 | N/A | 9860829 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU7122 | XU7123 | XU7125 | XU7126 | XU7127 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 11:15 | 2020/05/22 12:00 | 2020/05/22 09:30 | 2020/05/22 10:40 | 2020/05/22 11:15 | | |
| **COC Number** | | M061087 | M061087 | M061087 | M061087 | M061087 | | |
| | **UNITS** | **1966** | **1924** | **1925** | **1946** | **1955A** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9860052 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chloromethane | mg/L | <0.0020 | 0.0030 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9860829 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.11 | 0.018 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU7122 | XU7123 | XU7125 | XU7126 | XU7127 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 11:15 | 2020/05/22 12:00 | 2020/05/22 09:30 | 2020/05/22 10:40 | 2020/05/22 11:15 | | |
| **COC Number** | | M061087 | M061087 | M061087 | M061087 | M061087 | | |
| | **UNITS** | **1966** | **1924** | **1925** | **1946** | **1955A** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.0028 (1) | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 105 | 103 | 102 | 101 | N/A | 9860829 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 84 | 87 | 90 | 89 | N/A | 9860829 |
| D4-1,2-Dichloroethane (sur.) | % | 93 | 128 | 104 | 96 | 103 | N/A | 9860829 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU7128 | XU7129 | XU7130 | XU7131 | | |
|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:00 | 2020/05/22 11:30 | 2020/05/22 14:40 | 2020/05/22 12:40 | | |
| **COC Number** | | M061026 | M061026 | M061026 | M061026 | | |
| | **UNITS** | **2001** | **2006** | **2010** | **2012** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9860052 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9860829 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2-dichloroethane | mg/L | 0.0018 | 0.0015 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00093 | <0.00050 | 0.00050 | 9860829 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9860829 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9860829 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| RDL = Reportable Detection Limit | | | | | | | |



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XU7128 | XU7129 | XU7130 | XU7131 | | |
|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/22 12:00 | 2020/05/22 11:30 | 2020/05/22 14:40 | 2020/05/22 12:40 | | |
| **COC Number** | | M061026 | M061026 | M061026 | M061026 | | |
| | **UNITS** | **2001** | **2006** | **2010** | **2012** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9860829 |
| **Surrogate Recovery (%)** | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 101 | 102 | 101 | N/A | 9860829 |
| 4-Bromofluorobenzene (sur.) | % | 90 | 90 | 90 | 91 | N/A | 9860829 |
| D4-1,2-Dichloroethane (sur.) | % | 96 | 94 | 101 | 98 | N/A | 9860829 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 4.0°C |

**Results relate only to the items tested.**



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9860728 | KD9 | Matrix Spike | Dissolved Nitrite (N) | 2020/05/25 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/25 | | 103 | % | 80 - 120 |
| 9860728 | KD9 | Spiked Blank | Dissolved Nitrite (N) | 2020/05/25 | | 100 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/25 | | 101 | % | 80 - 120 |
| 9860728 | KD9 | Method Blank | Dissolved Nitrite (N) | 2020/05/25 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/25 | <0.010 | | mg/L | |
| 9860728 | KD9 | RPD | Dissolved Nitrite (N) | 2020/05/25 | 0.60 | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/25 | 9.9 | | % | 20 |
| 9860825 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 99 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 100 | % | 50 - 140 |
| | | | Benzene | 2020/05/26 | | 89 | % | 50 - 140 |
| | | | Toluene | 2020/05/26 | | 85 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/26 | | 88 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/26 | | 88 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/26 | | 89 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/26 | | 82 | % | 60 - 140 |
| 9860825 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 99 | % | 50 - 140 |
| | | | Benzene | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | Toluene | 2020/05/26 | | 86 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/26 | | 91 | % | 60 - 140 |
| 9860825 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/27 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/27 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/27 | | 102 | % | 50 - 140 |
| | | | Benzene | 2020/05/27 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/27 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/27 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/27 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/27 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/27 | <0.10 | | mg/L | |
| 9860825 | DO1 | RPD | Benzene | 2020/05/27 | 1.7 | | % | 30 |
| | | | Toluene | 2020/05/27 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/27 | 4.2 | | % | 30 |
| | | | m & p-Xylene | 2020/05/27 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/27 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/27 | 1.3 | | % | 30 |
| 9860829 | QW1 | Matrix Spike [XU7119-01] | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 112 | % | 50 - 140 |
| | | | Benzene | 2020/05/26 | | 83 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/26 | | 94 | % | 50 - 140 |
| | | | Bromoform | 2020/05/26 | | 111 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/26 | | 84 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/26 | | 100 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/26 | | 110 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/26 | | 80 | % | 50 - 140 |
| | | | Chloroform | 2020/05/26 | | 83 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/26 | | 72 | % | 50 - 140 |



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BV Labs Job #: C034646
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dibromoethane | 2020/05/26 | | 99 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/26 | | 96 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/26 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/26 | | 89 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/26 | | 84 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/26 | | 79 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/26 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/26 | | 89 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/26 | | 105 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/26 | | 124 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | | 89 | % | 50 - 140 |
| | | | Styrene | 2020/05/26 | | 98 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | | 99 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | | 101 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/26 | | 95 | % | 50 - 140 |
| | | | Toluene | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | | 93 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | | 92 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/26 | | 98 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/26 | | 81 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | | 88 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | | 90 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/26 | | 69 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/26 | | 91 | % | 50 - 140 |
| 9860829 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 104 | % | 50 - 140 |
| | | | Benzene | 2020/05/26 | | 82 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | Bromoform | 2020/05/26 | | 103 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/26 | | 79 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/26 | | 91 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/26 | | 100 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/26 | | 105 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/26 | | 78 | % | 60 - 130 |
| | | | Chloroform | 2020/05/26 | | 81 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/26 | | 71 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/26 | | 91 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/26 | | 94 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/26 | | 92 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/26 | | 82 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/26 | | 82 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/26 | | 85 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/26 | | 87 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | trans-1,2-dichloroethene | 2020/05/26 | | 80 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/26 | | 80 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/26 | | 85 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/26 | | 93 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/26 | | 103 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/26 | | 94 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/26 | | 83 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | | 85 | % | 60 - 130 |
| | | | Styrene | 2020/05/26 | | 98 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | | 99 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | | 93 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/26 | | 99 | % | 60 - 130 |
| | | | Toluene | 2020/05/26 | | 93 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | | 92 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | | 92 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | | 92 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/26 | | 90 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/26 | | 97 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/26 | | 83 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | | 89 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | | 91 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/26 | | 70 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/26 | | 93 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/26 | | 92 | % | 60 - 130 |
| 9860829 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/26 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/26 | | 91 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/26 | | 99 | % | 50 - 140 |
| | | | Benzene | 2020/05/26 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/26 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/26 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/26 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/05/26 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | <0.00050 | | mg/L | |



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Styrene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/05/26 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/26 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/05/26 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/05/26 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/26 | <0.00040 | | mg/L | |
| 9860829 | QW1 | RPD [XU7120-01] | Bromodichloromethane | 2020/05/26 | NC | | % | 30 |
| | | | Bromoform | 2020/05/26 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/26 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/26 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/26 | NC | | % | 30 |
| | | | Chloroethane | 2020/05/26 | NC | | % | 30 |
| | | | Chloroform | 2020/05/26 | NC | | % | 30 |
| | | | Chloromethane | 2020/05/26 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/05/26 | 0.66 | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/26 | 2.4 | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/26 | 0.65 | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/26 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/26 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/26 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/26 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/26 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/26 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/26 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/26 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/26 | NC | | % | 30 |
| | | | Styrene | 2020/05/26 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/26 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/26 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/26 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/26 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/26 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/26 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/26 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/26 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/26 | 3.9 | | % | 30 |



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,3,5-trimethylbenzene | 2020/05/26 | 3.7 | | % | 30 |
| | | | Vinyl chloride | 2020/05/26 | NC | | % | 30 |
| 9861028 | LSH | Matrix Spike [XU7119-02] | O-TERPHENYL (sur.) | 2020/05/27 | | 105 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/27 | | 100 | % | 60 - 140 |
| 9861028 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/27 | | 118 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/27 | | 113 | % | 60 - 140 |
| 9861028 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/05/27 | | 106 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/27 | <0.10 | | mg/L | |
| 9861028 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/05/27 | NC | | % | 30 |
| 9861155 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/26 | | 91 | % | 80 - 120 |
| 9861155 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/26 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/26 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/26 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/26 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/26 | <1.0 | | mg/L | |
| 9861155 | IK0 | RPD | Alkalinity (PP as CaCO3) | 2020/05/26 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/26 | 0.24 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/26 | 0.24 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/26 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/26 | NC | | % | 20 |
| 9861156 | IK0 | Spiked Blank | pH | 2020/05/26 | | 100 | % | 97 - 103 |
| 9861156 | IK0 | RPD | pH | 2020/05/26 | 2.0 | | % | N/A |
| 9861157 | IK0 | Spiked Blank | Conductivity | 2020/05/26 | | 100 | % | 90 - 110 |
| 9861157 | IK0 | Method Blank | Conductivity | 2020/05/26 | <2.0 | | uS/cm | |
| 9861157 | IK0 | RPD | Conductivity | 2020/05/26 | 0.25 | | % | 10 |
| 9864353 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/28 | | 100 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/28 | | 105 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/28 | | 102 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/28 | | 105 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/28 | | 100 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/28 | | 97 | % | 80 - 120 |
| 9864353 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/28 | | 101 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/28 | | 110 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/28 | | 104 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/28 | | 104 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/28 | | 101 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/28 | | 99 | % | 80 - 120 |
| 9864353 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/28 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/28 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/28 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/28 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/28 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/28 | <0.50 | | mg/L | |
| 9864353 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/28 | 0.37 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/05/28 | 0.16 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/28 | 0.89 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/05/28 | 0.24 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/28 | 8.4 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/28 | 0.74 | | % | 20 |
| 9864459 | CCQ | Matrix Spike | Dissolved Chloride (Cl) | 2020/05/29 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/29 | | NC | % | 80 - 120 |
| 9864459 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/05/29 | | 102 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/29 | | 106 | % | 80 - 120 |
| 9864459 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/05/30 | <1.0 | | mg/L | |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Sulphate (SO4) | 2020/05/30 | <1.0 | | mg/L | |
| 9864459 | CCQ | RPD | Dissolved Chloride (Cl) | 2020/05/29 | 0.83 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/05/29 | 6.5 (1) | | % | 20 |
| 9865167 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/29 | | 105 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/29 | | 99 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/29 | | 102 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/29 | | 98 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/29 | | 99 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/29 | | NC | % | 80 - 120 |
| 9865167 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/29 | | 106 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/29 | | 108 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/29 | | 103 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/29 | | 103 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/29 | | 99 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/29 | | 101 | % | 80 - 120 |
| 9865167 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/29 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/29 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/29 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/29 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/29 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/29 | <0.50 | | mg/L | |
| 9865167 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/29 | 4.4 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/05/29 | NC | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/29 | 15 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/05/29 | 12 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/29 | 8.9 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/29 | 2.0 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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BV Labs Job #: C034646
Report Date: 2020/05/31

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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866

# CHAIN OF CUSTODY RECORD

M061087



| Invoice Information | Report Information (if differs from invoice) | Project Information | Turnaround Time (TAT) Required |
|---|---|---|---|
| Company: Clifton | Company: | Quotation #: | ☒ 5 - 7 Days Regular (Most analyses) |
| Contact Name: Stephen d'Abadie | Contact Name: | P.O. #/ AFE#: | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: 2222 - 30 Ave NE Calgary, Ab | Address: | Project #: CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | Phone: | Site Location: | |
| Email: stephen_dabadie@clifton.ca | Email: | Site #: | Date Required: |
| Copies: austin_mei@clifton.ca | Copies: | Sampled By: Bryn / Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | | Temp | 6 | 6 | 0 |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

**Regulatory Criteria**: ☒ AT1 ☐ CCME ☐ Drinking Water ☐ D50 (Drilling Waste) ☐ Saskatchewan ☐ Other:

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☒ VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Trip Blank 4 | | 2020/05/22 | | W | 2 | ✓ | ✓ | | | | | | | | | |
| 2 | 1908 | | 2020/05/22 | 10:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 3 | 1907 | | 2020/05/22 | 09:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 4 | 9907 | | 2020/05/22 | 09:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 5 | 1966 | | 2020/05/22 | 11:15 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 6 | 1924 | | 2020/05/22 | 12:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | ~~[illegible]~~ Ex 7 | | 2020/05/22 | 12:00 | GW | 2 | | | | ✓ | | | | | | | |
| 8 | 1925 | | 2020/05/22 | 9:30 | GW | 5 | ✓ | ✓ | | ✓ | | | | | | | |
| 9 | 1946 | | 2020/05/22 | 10:40 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 10 | 1955A | | 2020/05/22 | 11:15 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | F/P | F/P | | | | | | | |

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/22 | 15:25 | Jessica Lee | 20200522 | 15:50 | C034646 |
| | | | | | | |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

AB FCD-00331/7

Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

# CHAIN OF CUSTODY RECORD

M 061026



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | [X] 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave. NE Calgary AB | Address: | | Project #: | C42430.1 E49 | Rush TAT (Surcharges will be applied): [ ] Same Day [ ] 2 Days [ ] 1 Day [ ] 3-4 Days |
| Phone: | 403-701-6228 | Phone: | | Site Location: | | |
| Email: | stephen.dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin.mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | / | Temp | 6 | 6 | 0 |
| Seal Intact | | / | | | | |
| Cooling Media | / | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 [X] VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot [ ] Diss | Mercury Total [ ] Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2001 | | 2020/05/22 | 12:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 2006 | | ↓ | 11:30 | ↓ | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 2010 | | ↓ | 14:40 | ↓ | 5 | ✓ | ✓ | | ✓ | | | | | | | |
| 4 | 2012 | | 2020/05/22 | 12:40 | GW | 5 | ✓ | ✓ | | ✓ | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | F/P | | | | | | | |

**Regulatory Criteria**

- [X] AT1
- [ ] CCME
- [ ] Drinking Water
- [ ] D50 (Drilling Waste)
- [ ] Saskatchewan
- [ ] Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/22 | 15:25 | Jessica Lee | 20200522 | 15:30 | C034646 |
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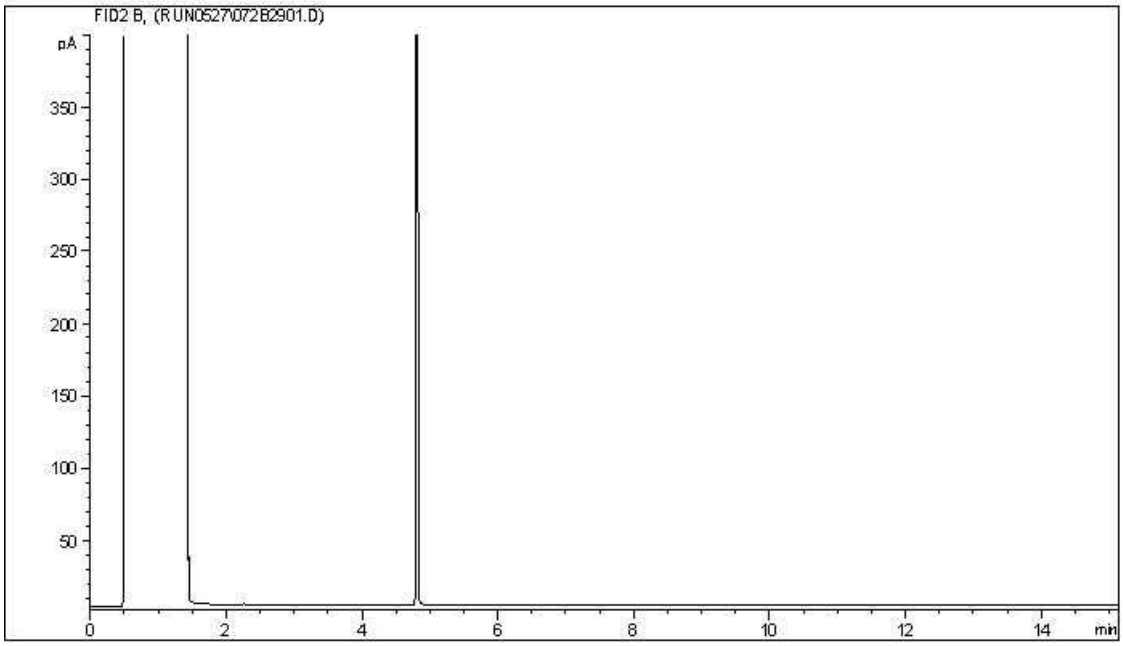
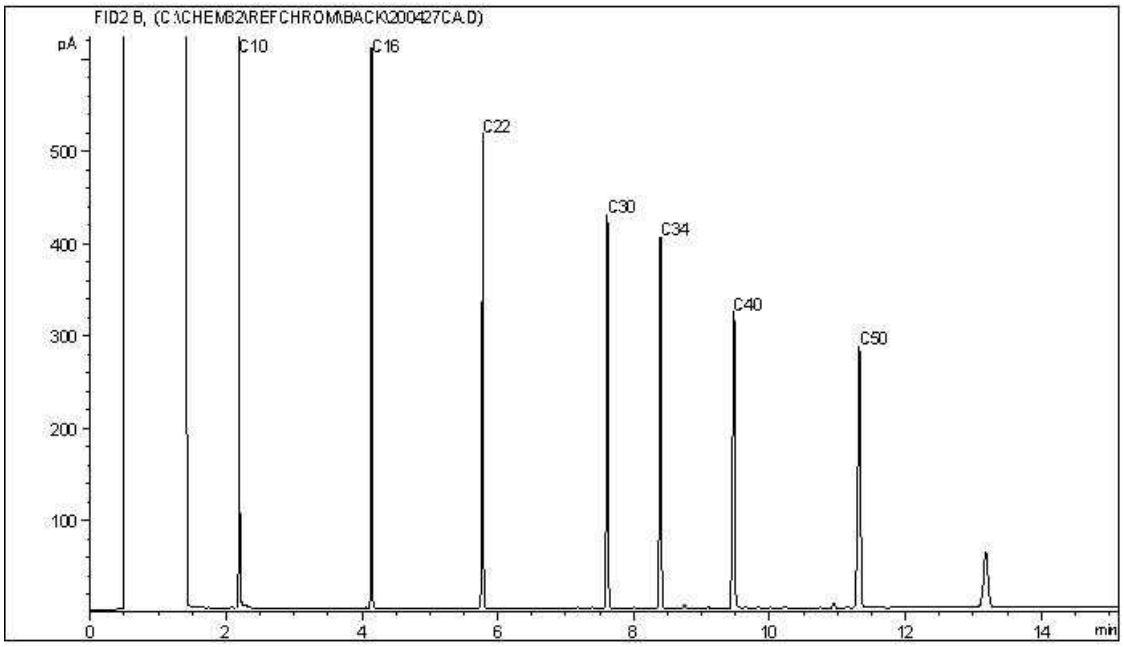
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
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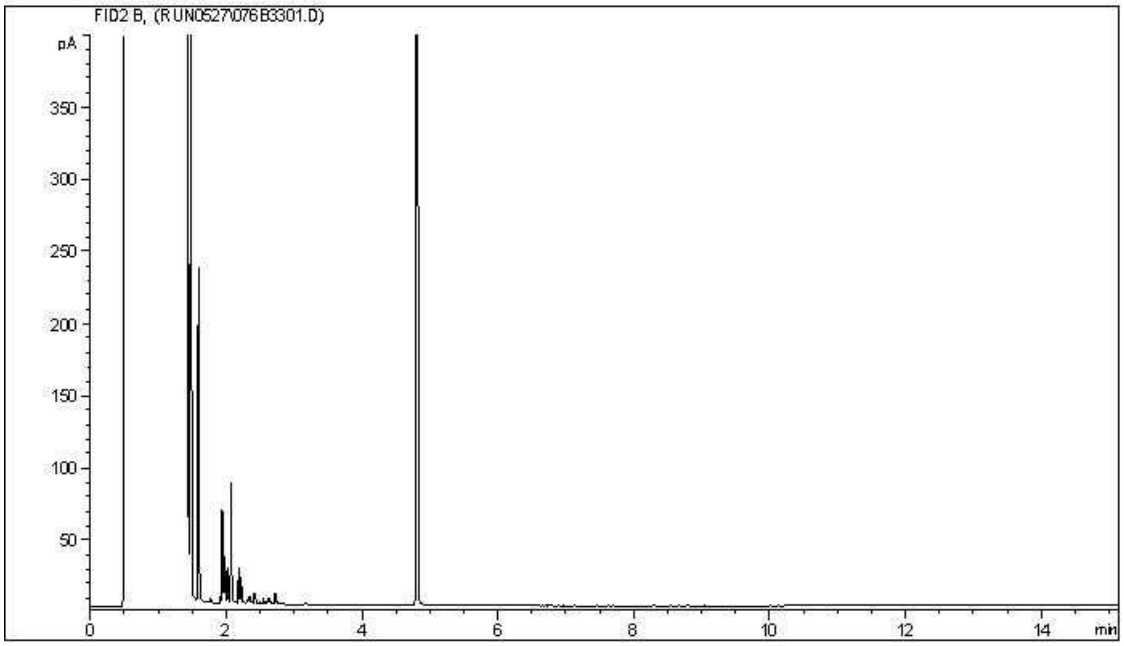


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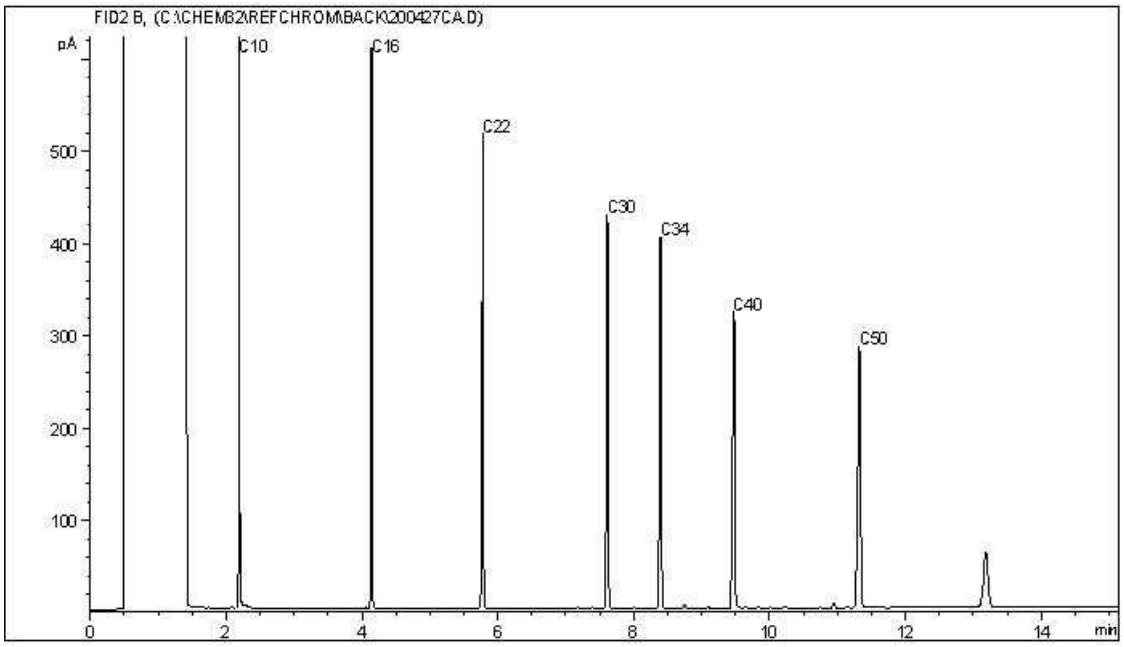


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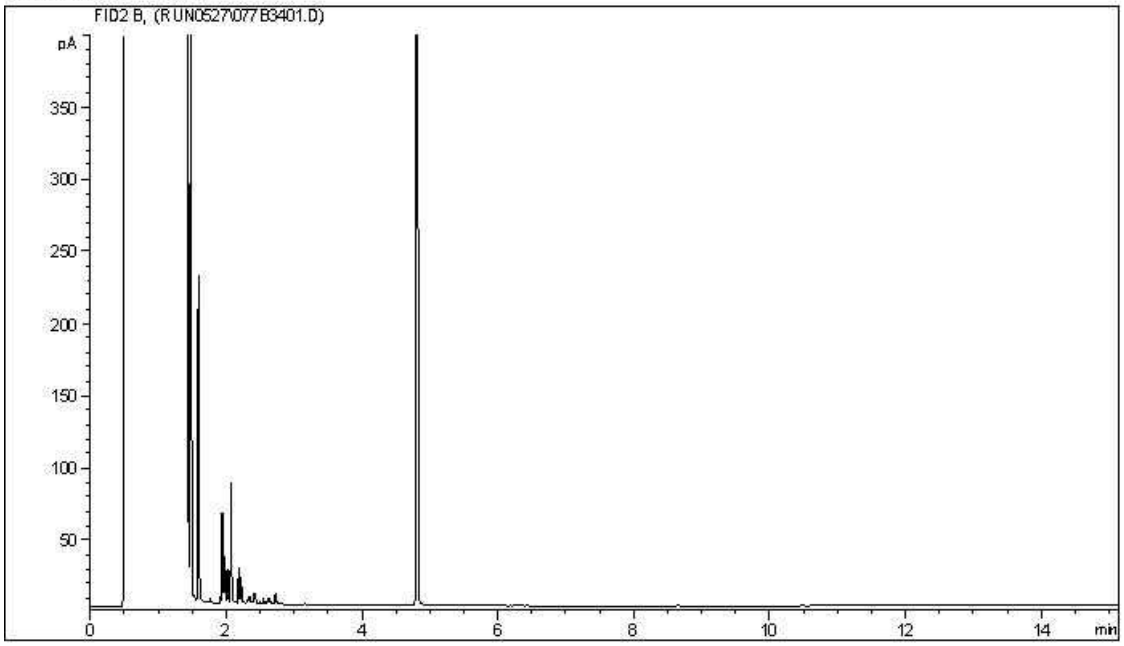


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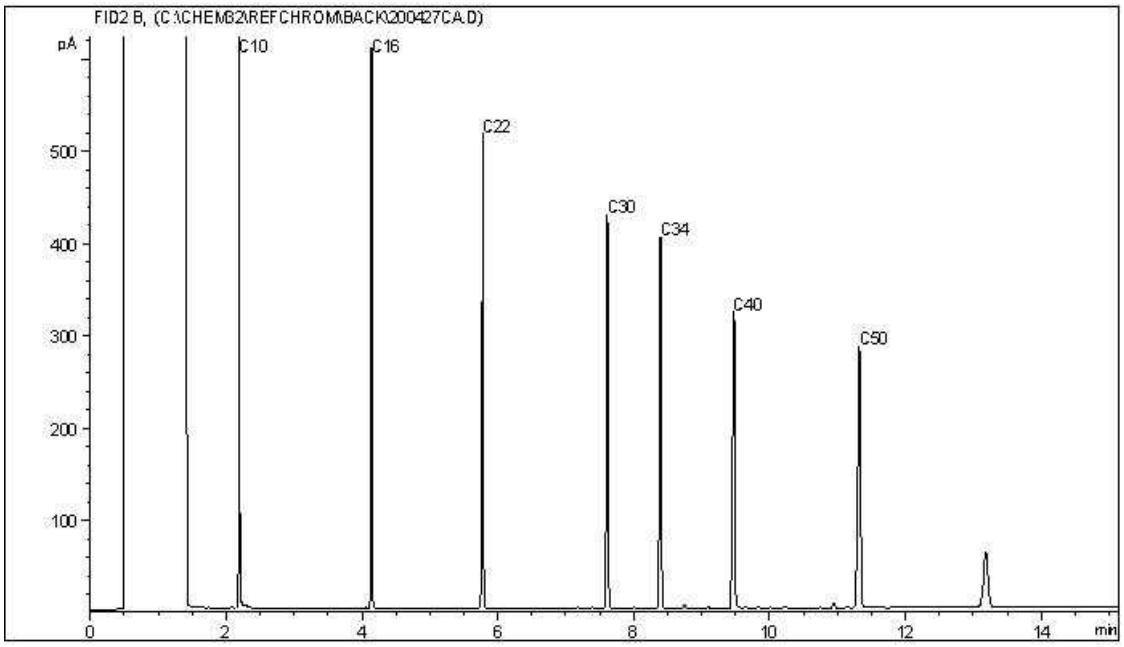


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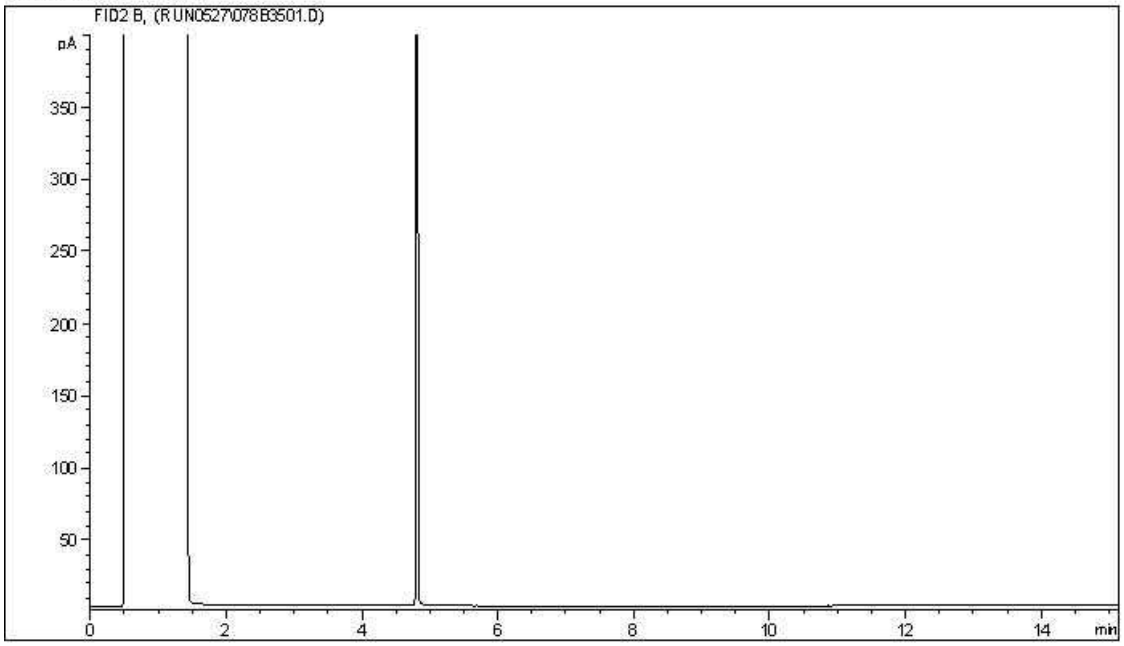


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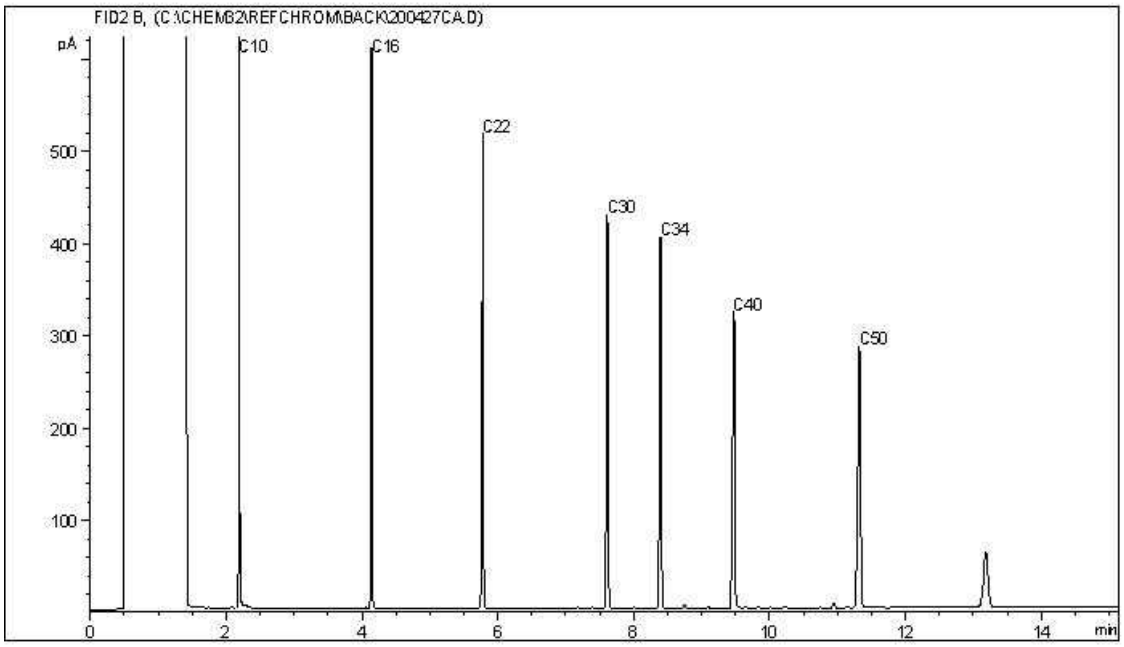


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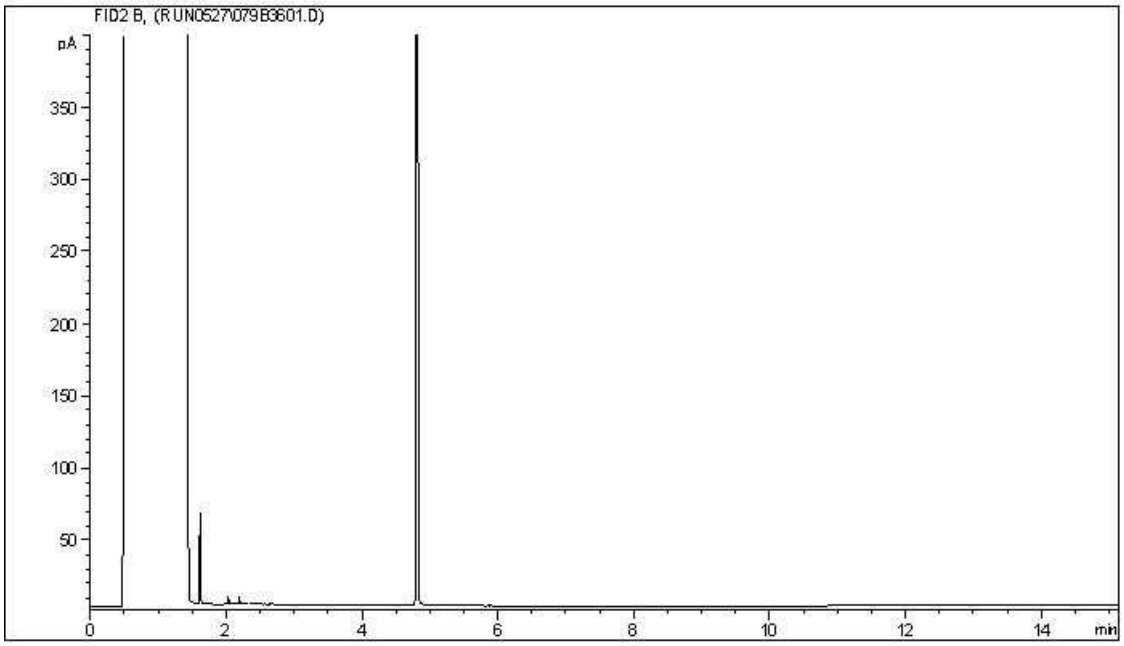


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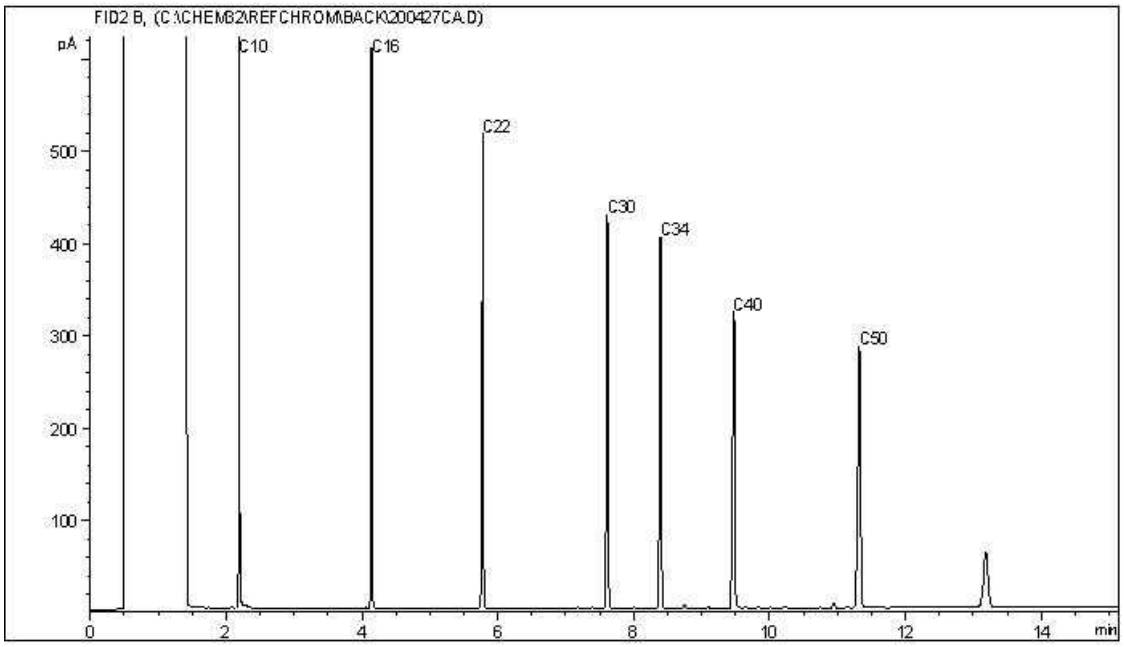


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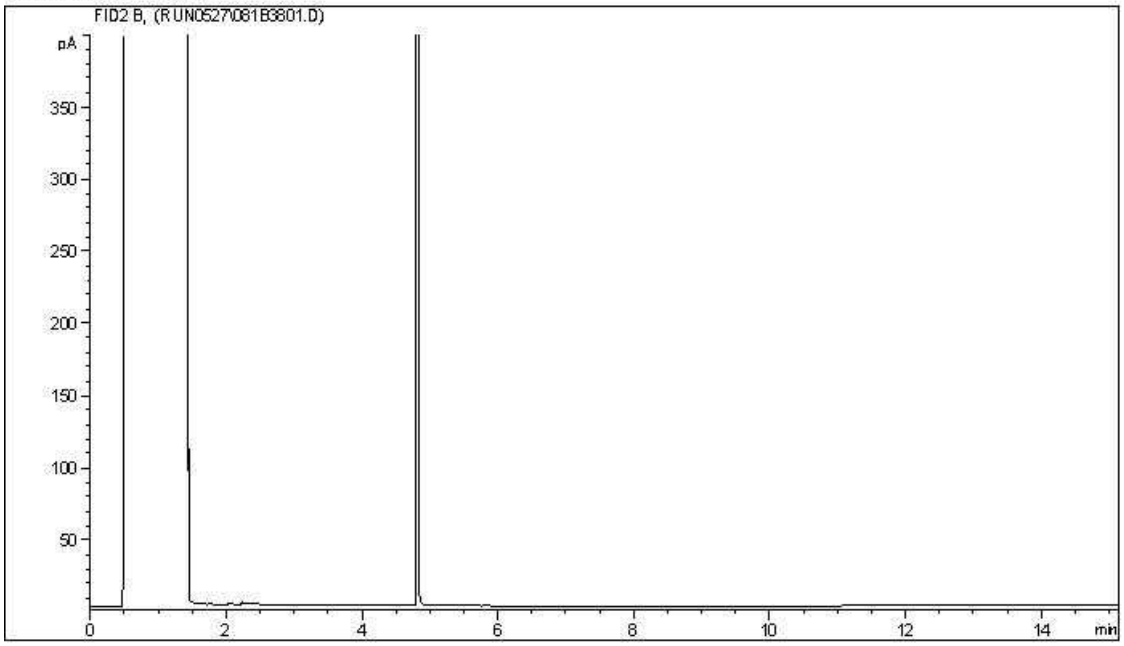


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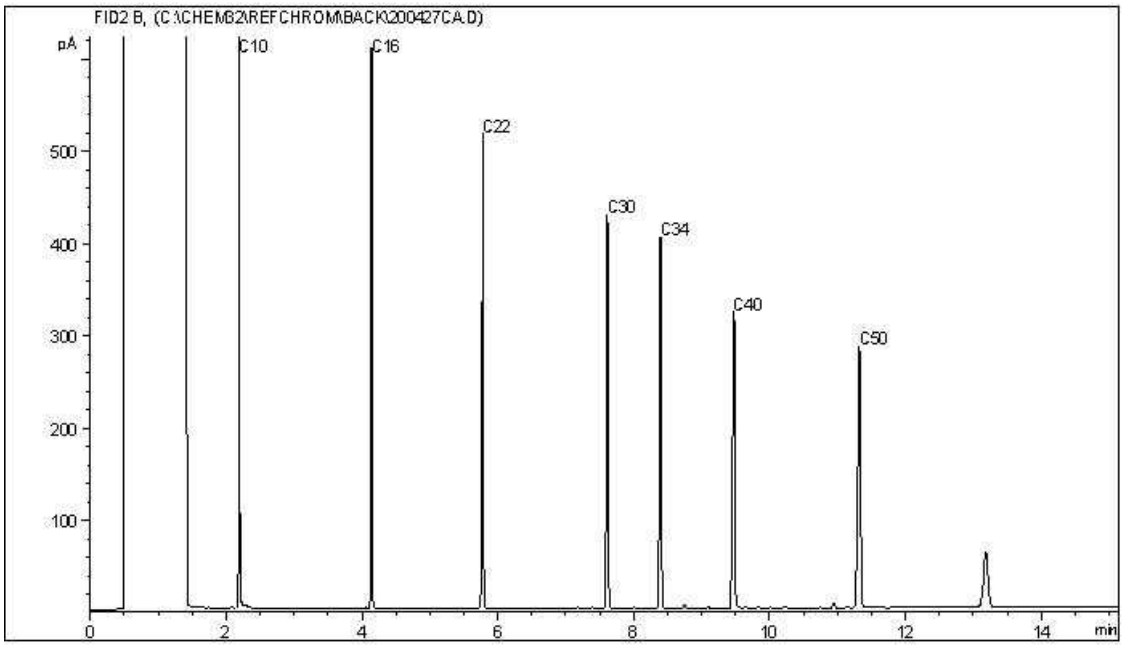


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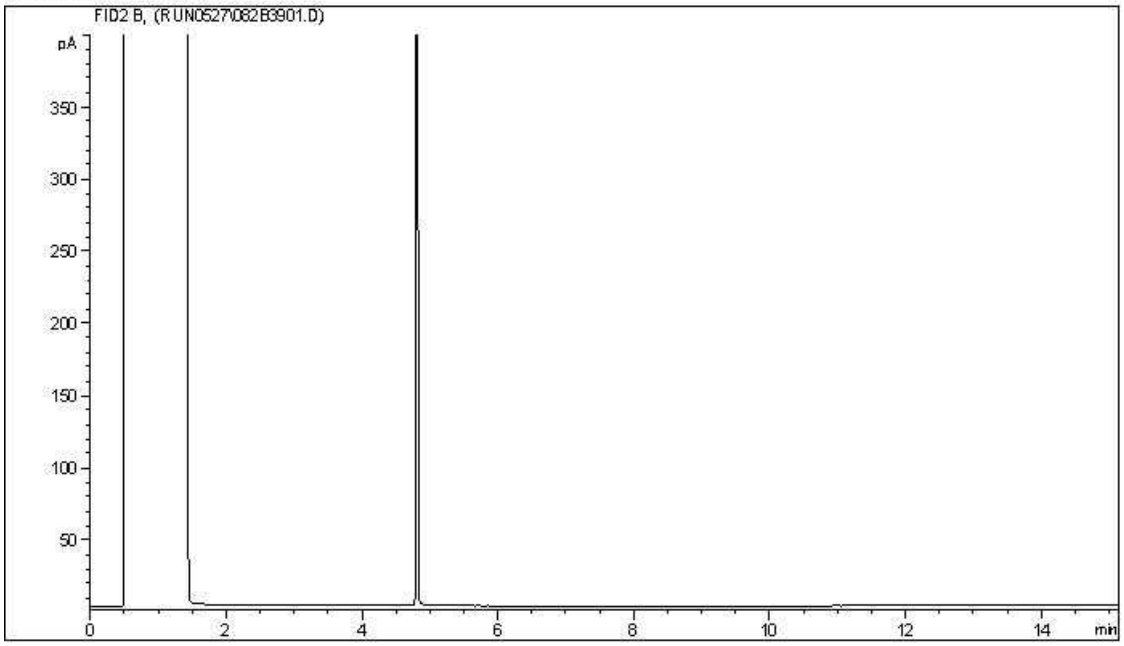


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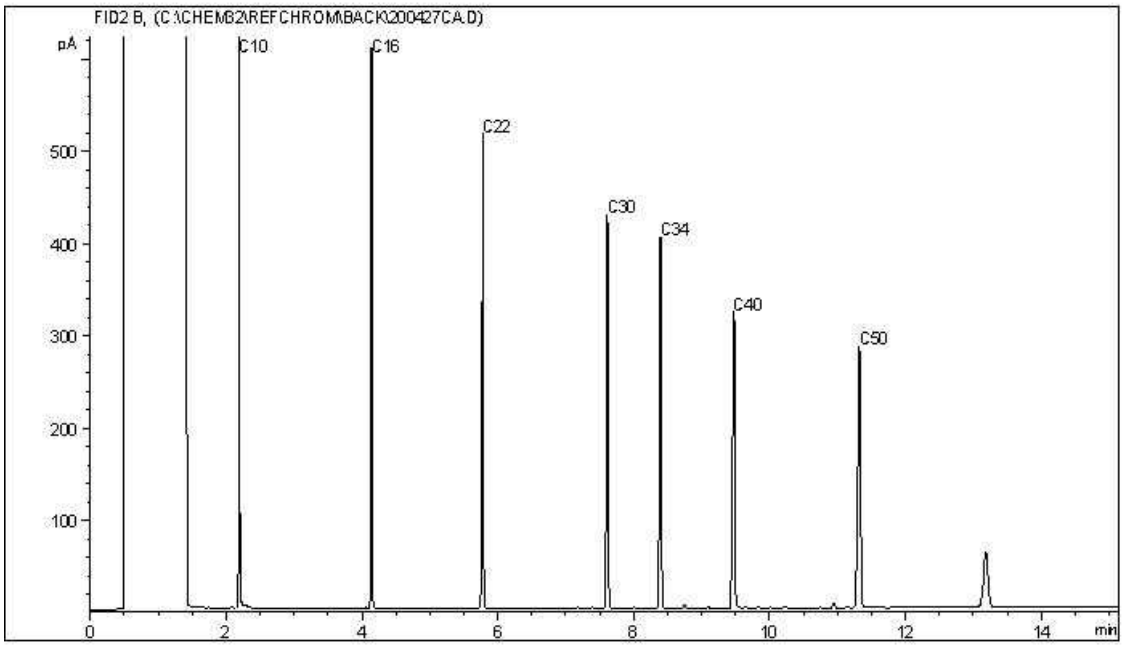


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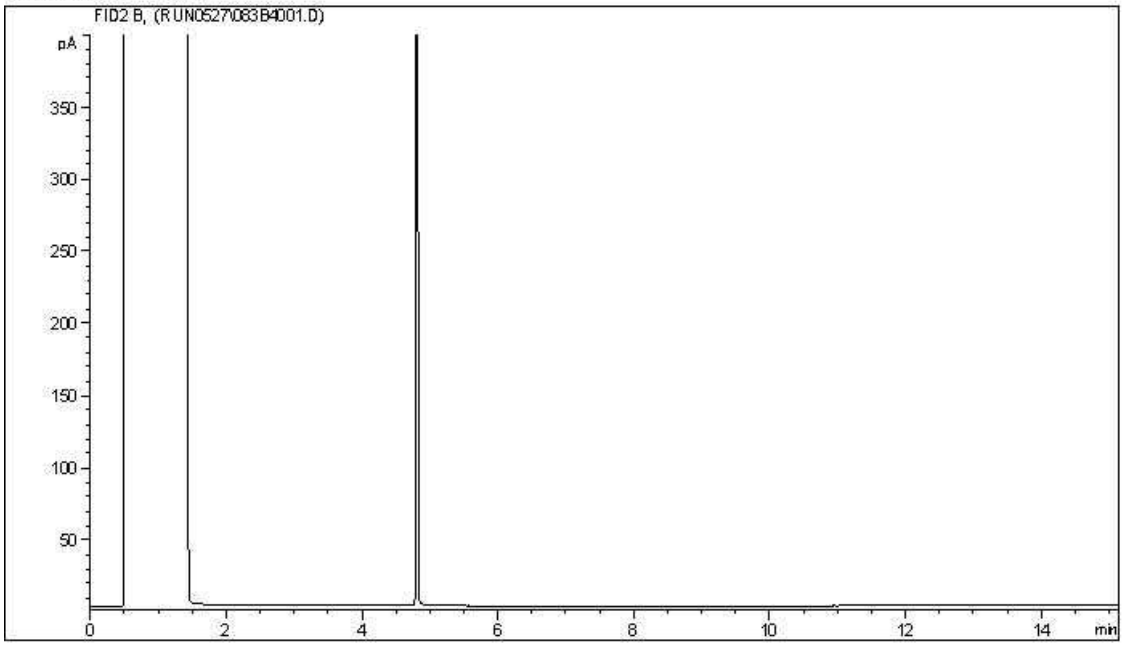


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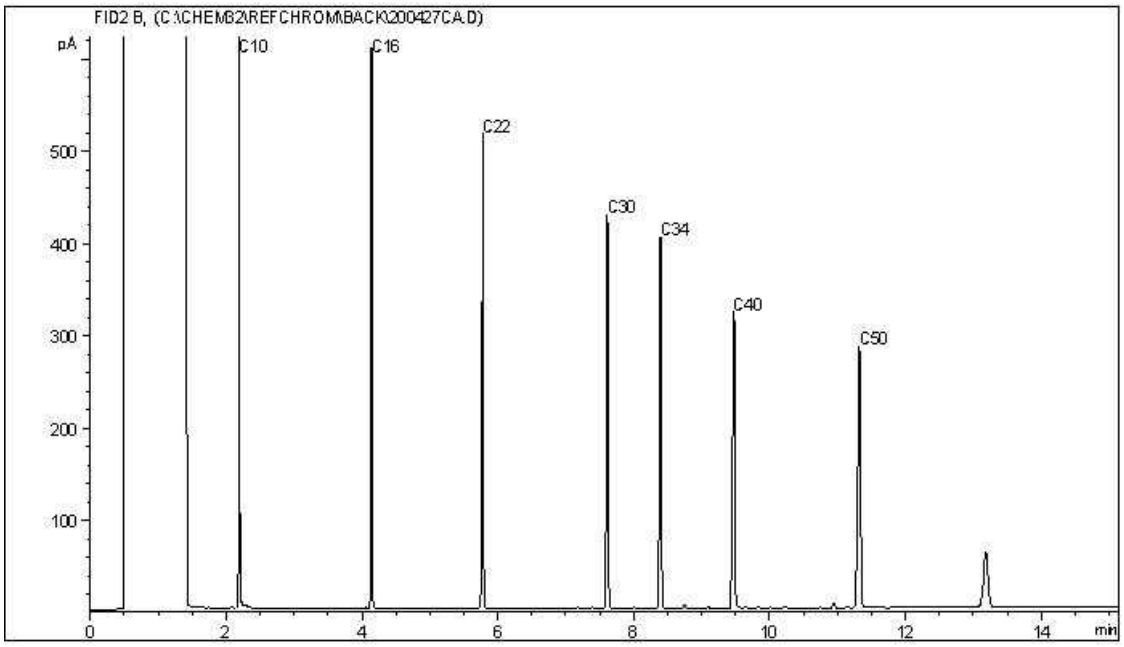


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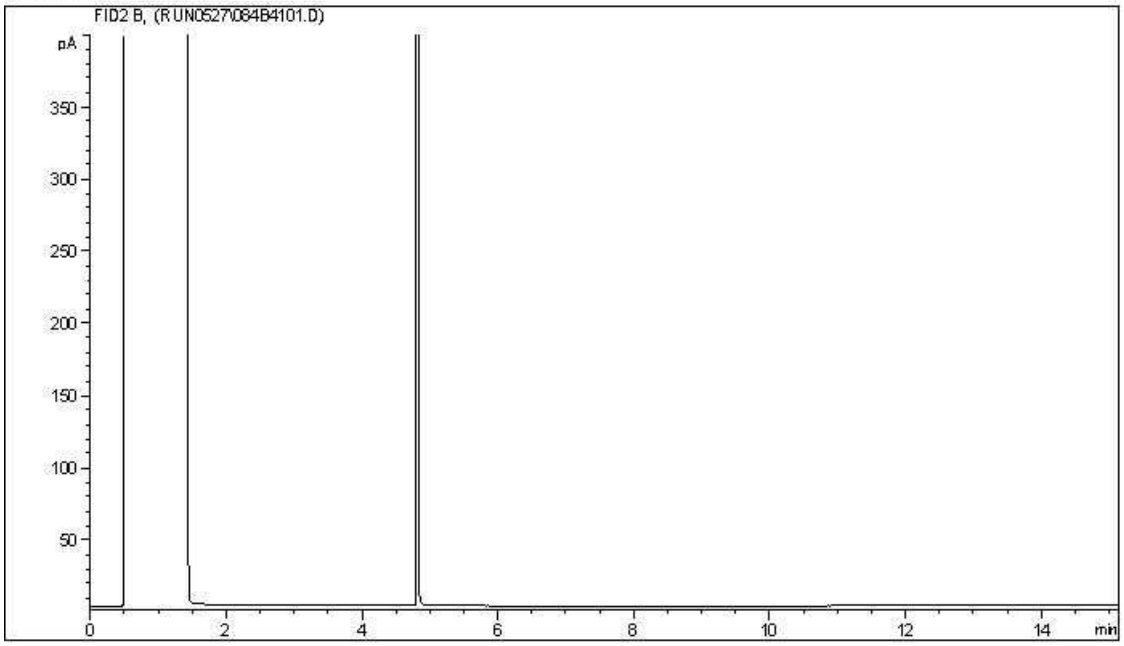


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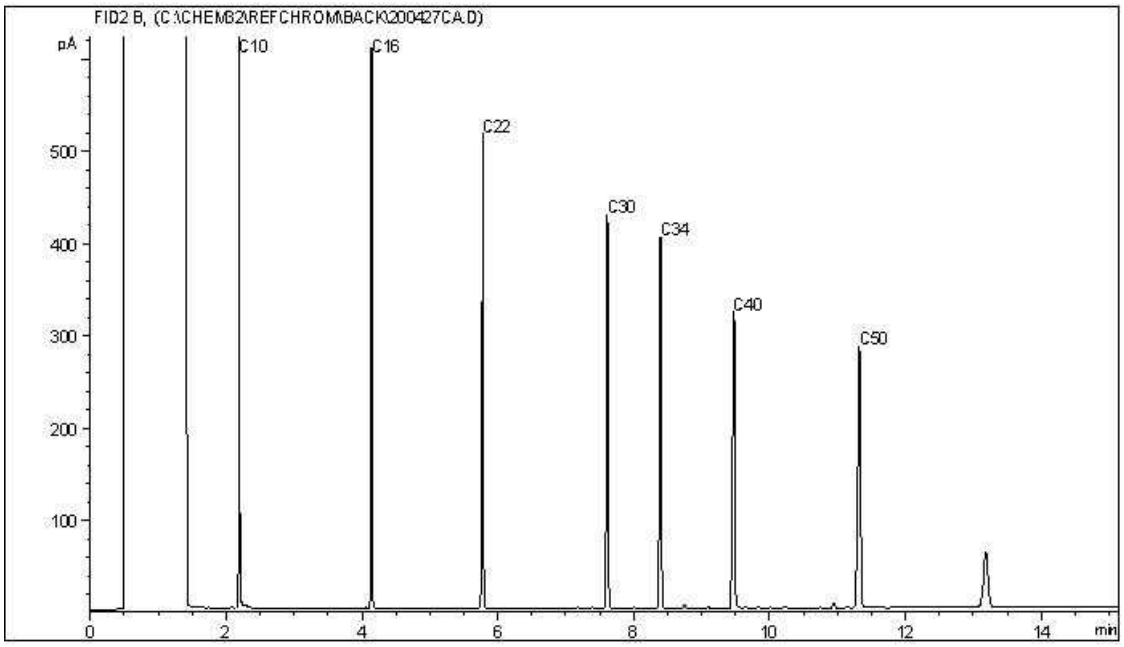


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BV Labs Job #: C034646
Report Date: 2020/05/31
BV Labs Sample: XU7129

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: 2006

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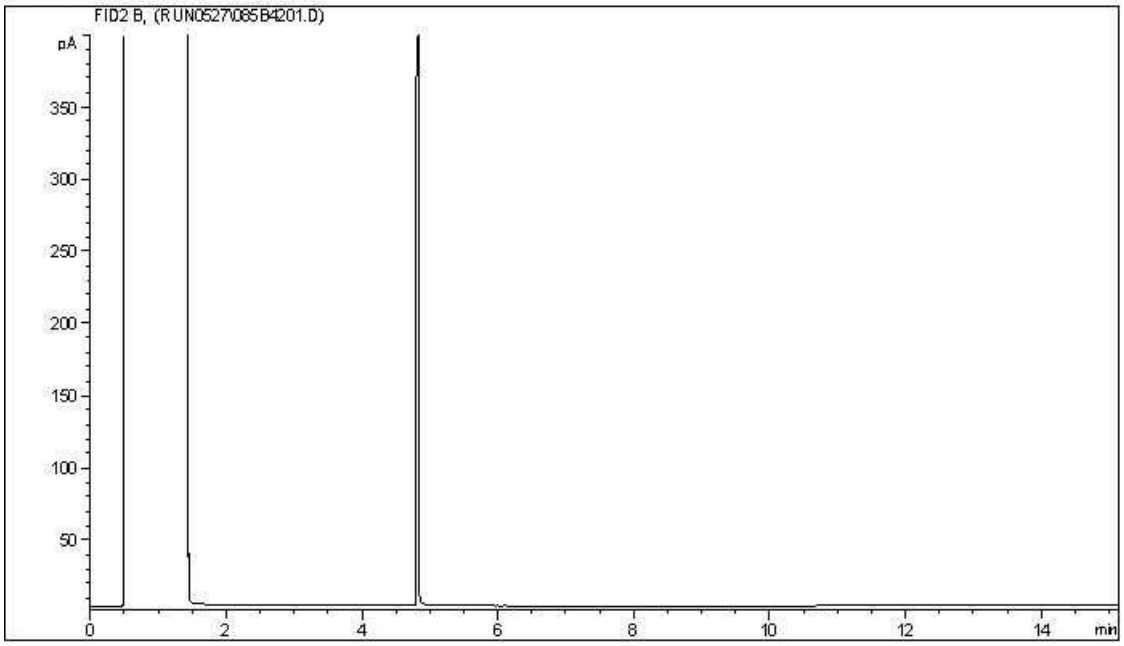
Instrument: GC12

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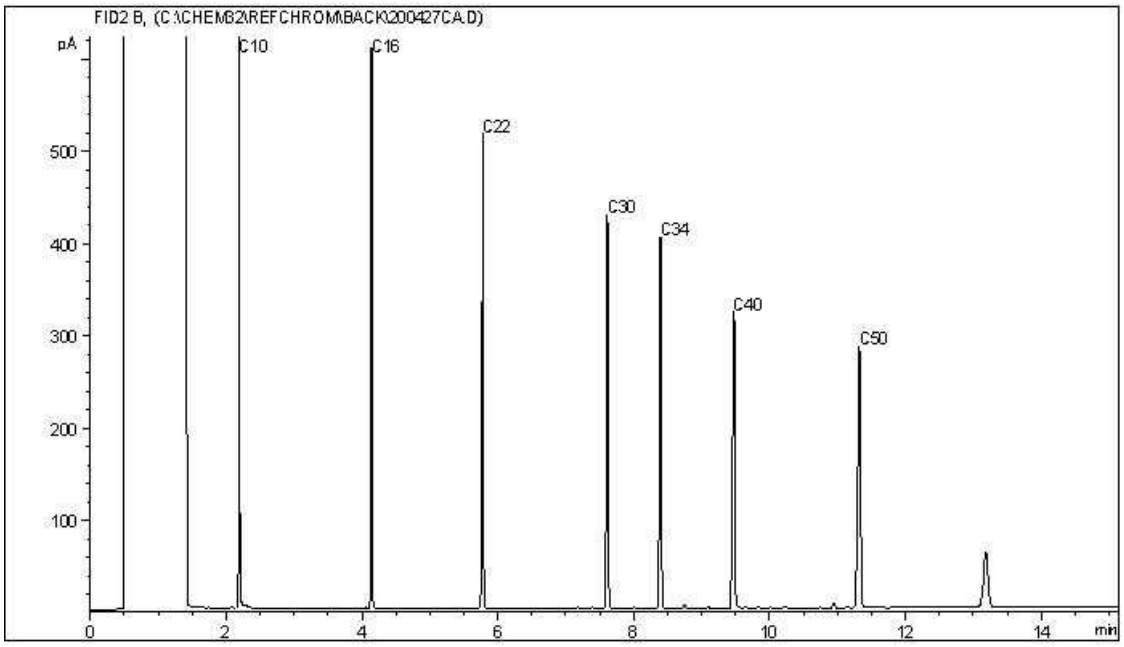


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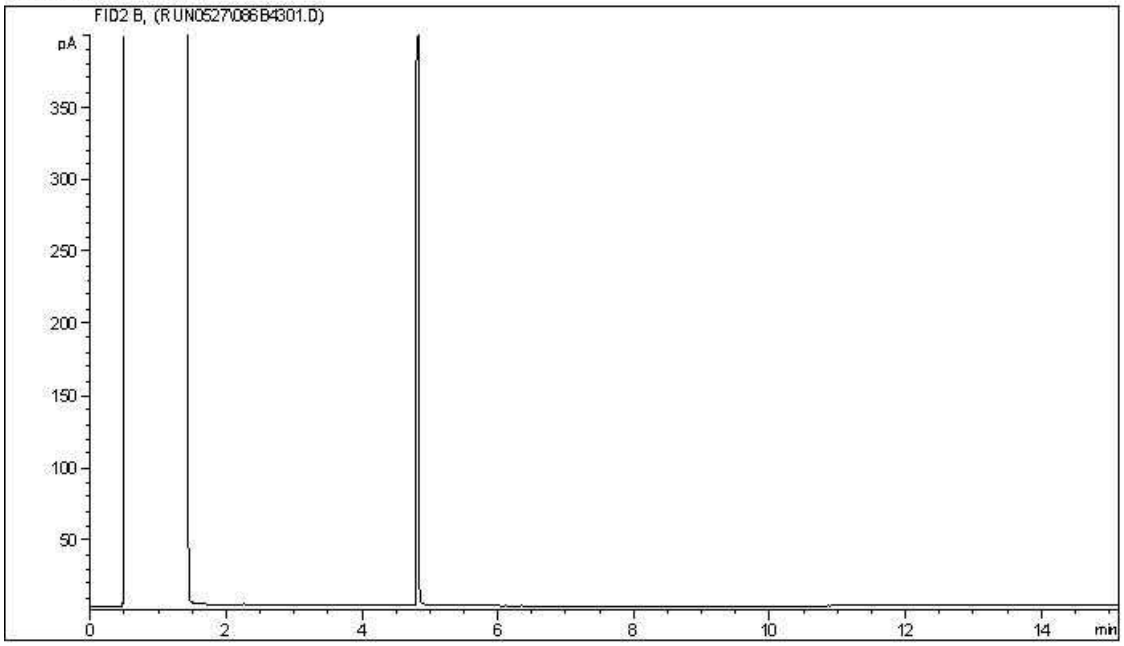


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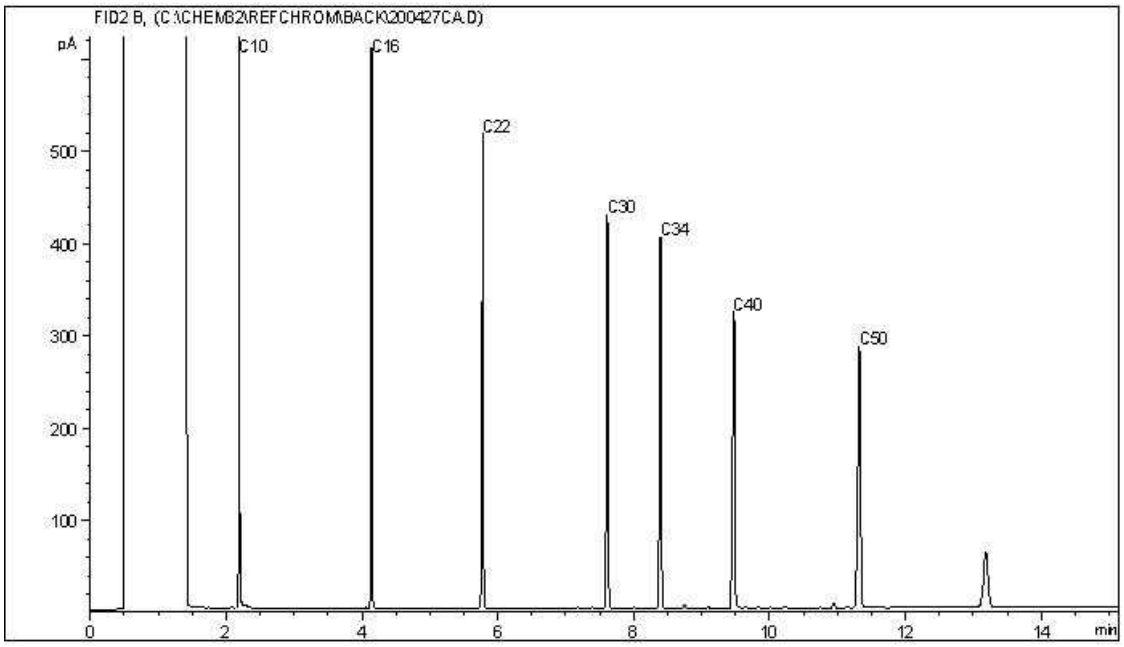


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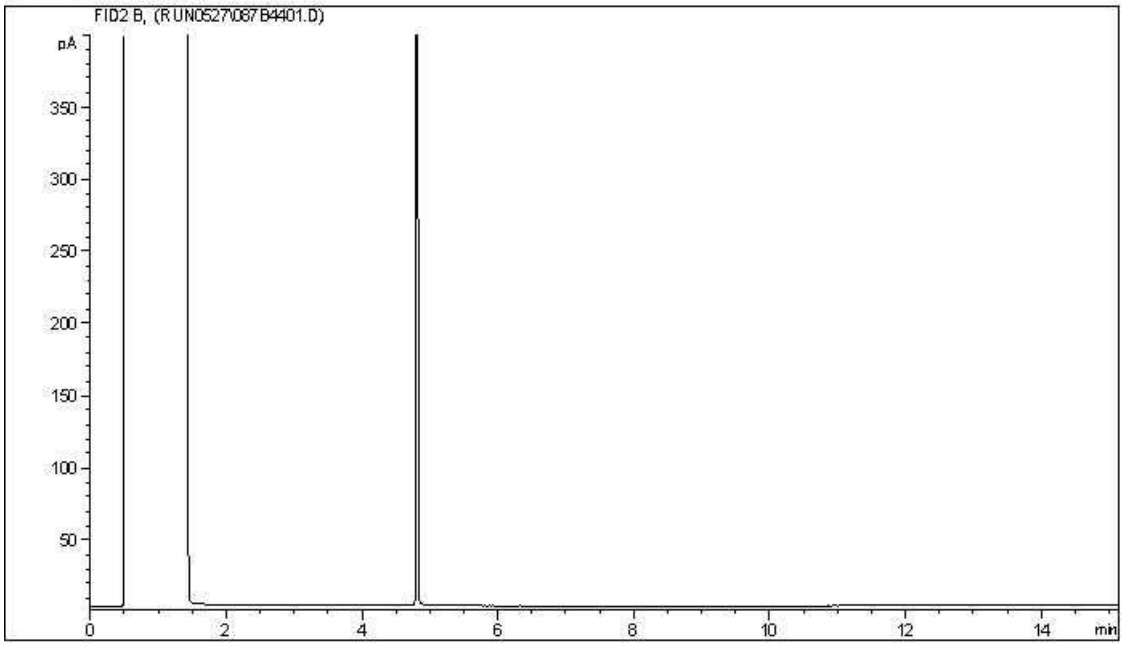


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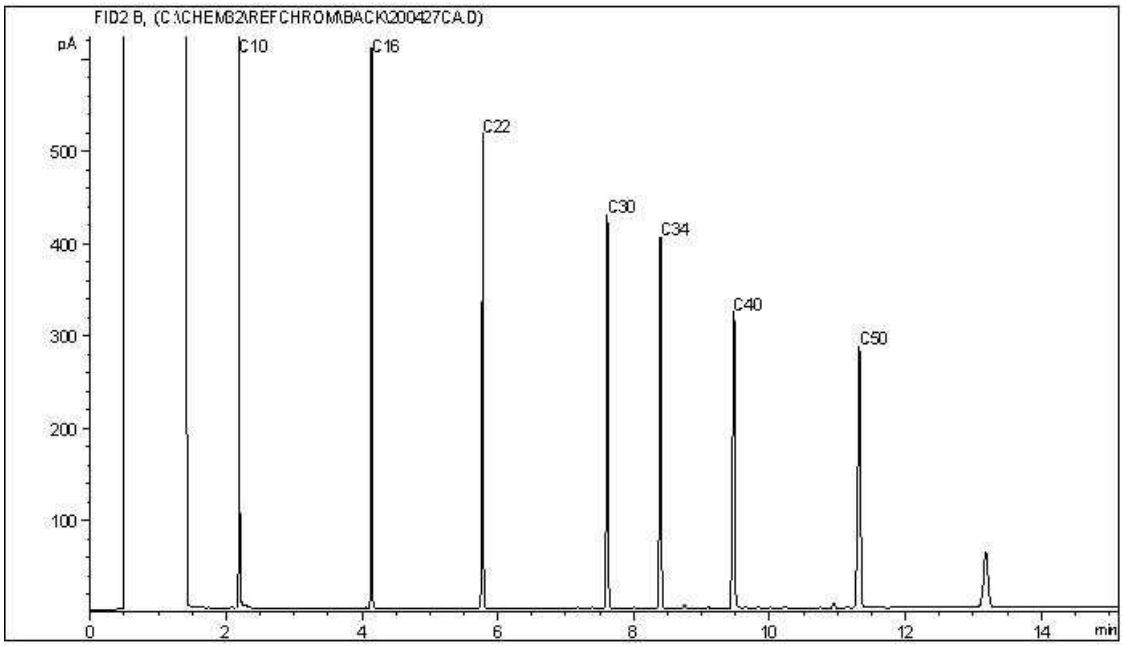


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Your Project #: CG2430.1 E45
Your C.O.C. #: M061031

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/10**
Report #: R2888743
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037589**
**Received: 2020/06/02, 14:45**

Sample Matrix: Water
# Samples Received: 7

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 3 | N/A | 2020/06/05 | AB SOP-00005 | SM 23 2320 B m |
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 3 | N/A | 2020/06/06 | AB SOP-00005 | SM 23 2320 B m |
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/06/09 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 7 | N/A | 2020/06/09 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 7 | N/A | 2020/06/10 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 1 | N/A | 2020/06/09 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Chloride/Sulphate by Auto Colourimetry | 6 | N/A | 2020/06/10 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 3 | N/A | 2020/06/05 | AB SOP-00005 | SM 23 2510 B m |
| Conductivity @25C | 3 | N/A | 2020/06/06 | AB SOP-00005 | SM 23 2510 B m |
| Conductivity @25C | 1 | N/A | 2020/06/09 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 7 | 2020/06/08 | 2020/06/08 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 7 | N/A | 2020/06/10 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 7 | N/A | 2020/06/09 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 7 | N/A | 2020/06/10 | | Auto Calc |
| Sum of cations, anions | 7 | N/A | 2020/06/10 | | Auto Calc |
| Nitrate and Nitrite | 3 | N/A | 2020/06/06 | | Auto Calc |
| Nitrate and Nitrite | 4 | N/A | 2020/06/09 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 3 | N/A | 2020/06/06 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 4 | N/A | 2020/06/09 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 5 | N/A | 2020/06/06 | AB SOP-00023 | SM 23 4110 B m |
| Nitrogen (Nitrite - Nitrate) by IC | 2 | N/A | 2020/06/07 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 3 | N/A | 2020/06/05 | AB SOP-00005 | SM 23 4500-H+B m |
| pH @25°C (3) | 3 | N/A | 2020/06/06 | AB SOP-00005 | SM 23 4500-H+B m |
| pH @25°C (3) | 1 | N/A | 2020/06/09 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 7 | N/A | 2020/06/10 | | Auto Calc |
| Total Trihalomethanes Calculation | 6 | N/A | 2020/06/09 | | Auto Calc |
| Total Trihalomethanes Calculation | 1 | N/A | 2020/06/10 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 6 | N/A | 2020/06/09 | AB SOP-00056 | EPA 5021a/8260d m |
| VOCs in Water by HS GC/MS (Std List) | 1 | N/A | 2020/06/10 | AB SOP-00056 | EPA 5021a/8260d m |


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Your Project #: CG2430.1 E45
Your C.O.C. #: M061031

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/10**
Report #: R2888743
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037589**
**Received: 2020/06/02, 14:45**

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
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BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW1170 | XW1170 | | XW1171 | XW1172 | XW1173 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 13:15 | 2020/06/02 13:15 | | 2020/06/02 10:15 | 2020/06/02 11:00 | 2020/06/02 11:30 | | |
| **COC Number** | | M061031 | M061031 | | M061031 | M061031 | M061031 | | |
| | **UNITS** | **1928** | **1928 Lab-Dup** | **RDL** | **1929** | **1936** | **1937** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | N/A | 0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9874670 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.0040 (1) | <0.0040 | 0.0040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9875021 |
| Toluene | mg/L | <0.0040 (1) | <0.0040 | 0.0040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9875021 |
| Ethylbenzene | mg/L | <0.0040 (1) | <0.0040 | 0.0040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9875021 |
| m & p-Xylene | mg/L | <0.0080 (1) | <0.0080 | 0.0080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9875021 |
| o-Xylene | mg/L | <0.0040 (1) | <0.0040 | 0.0040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9875021 |
| Xylenes (Total) | mg/L | <0.0089 | N/A | 0.0089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9872544 |
| F1 (C6-C10) - BTEX | mg/L | <1.0 | N/A | 1.0 | <0.10 | <0.10 | <0.10 | 0.10 | 9872544 |
| F1 (C6-C10) | mg/L | <1.0 (1) | <1.0 | 1.0 | <0.10 | <0.10 | <0.10 | 0.10 | 9875021 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 98 | N/A | 97 | 98 | 98 | N/A | 9875021 |
| 4-Bromofluorobenzene (sur.) | % | 94 | 90 | N/A | 95 | 94 | 94 | N/A | 9875021 |
| D4-1,2-Dichloroethane (sur.) | % | 81 | 80 | N/A | 78 | 82 | 80 | N/A | 9875021 |
| O-TERPHENYL (sur.) | % | 106 | N/A | N/A | 106 | 103 | 106 | N/A | 9874670 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to dilution as a result of sample matrix interference.



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW1174 | XW1175 | XW1176 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 12:15 | 2020/06/02 09:15 | 2020/06/02 12:30 | | |
| **COC Number** | | M061031 | M061031 | M061031 | | |
| | **UNITS** | **1939** | **1954** | **1982** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | 0.10 | 9874670 |
| **Volatiles** | | | | | | |
| Benzene | mg/L | 0.00088 | <0.00040 | 0.61 | 0.00040 | 9875021 |
| Toluene | mg/L | <0.00040 | <0.00040 | 0.0011 | 0.00040 | 9875021 |
| Ethylbenzene | mg/L | 0.00054 | <0.00040 | 0.011 | 0.00040 | 9875021 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9875021 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9875021 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9872544 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | 0.10 | 9872544 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | 0.54 | 0.10 | 9875021 |
| **Surrogate Recovery (%)** | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 99 | 100 | N/A | 9875021 |
| 4-Bromofluorobenzene (sur.) | % | 96 | 93 | 94 | N/A | 9875021 |
| D4-1,2-Dichloroethane (sur.) | % | 90 | 79 | 96 | N/A | 9875021 |
| O-TERPHENYL (sur.) | % | 102 | 104 | 110 | N/A | 9874670 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XW1170 | | | XW1171 | XW1171 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 13:15 | | | 2020/06/02 10:15 | 2020/06/02 10:15 | | |
| **COC Number** | | M061031 | | | M061031 | M061031 | | |
| | **UNITS** | **1928** | **RDL** | **QC Batch** | **1929** | **1929 Lab-Dup** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | | | | |
| Anion Sum | meq/L | 110 | N/A | 9872596 | 45 | N/A | N/A | 9872596 |
| Cation Sum | meq/L | 110 | N/A | 9872596 | 49 | N/A | N/A | 9872596 |
| Hardness (CaCO3) | mg/L | 4900 | 0.50 | 9873620 | 2300 | N/A | 0.50 | 9873620 |
| Ion Balance (% Difference) | % | 2.0 | N/A | 9872587 | 3.8 | N/A | N/A | 9872587 |
| Dissolved Nitrate (NO3) | mg/L | 190 | 0.22 | 9872603 | 110 | N/A | 0.22 | 9873643 |
| Nitrate plus Nitrite (N) | mg/L | 45 | 0.051 | 9872608 | 26 | N/A | 0.051 | 9873647 |
| Dissolved Nitrite (NO2) | mg/L | 9.8 | 0.033 | 9872603 | <0.033 | N/A | 0.033 | 9873643 |
| Calculated Total Dissolved Solids | mg/L | 6100 | 20 | 9872619 | 2500 | N/A | 10 | 9872619 |
| **Misc. Inorganics** | | | | | | | | |
| Conductivity | uS/cm | 11000 | 2.0 | 9877482 | 8800 | N/A | 2.0 | 9875955 |
| pH | pH | 7.36 | N/A | 9877481 | 12.3 | N/A | N/A | 9875954 |
| **Anions** | | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9877479 | 1900 | N/A | 1.0 | 9875952 |
| Alkalinity (Total as CaCO3) | mg/L | 710 | 1.0 | 9877479 | 1900 | N/A | 1.0 | 9875952 |
| Bicarbonate (HCO3) | mg/L | 870 | 1.0 | 9877479 | <1.0 | N/A | 1.0 | 9875952 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9877479 | 12 | N/A | 1.0 | 9875952 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9877479 | 640 | N/A | 1.0 | 9875952 |
| Dissolved Chloride (Cl) | mg/L | 3200 (1) | 20 | 9878192 | 180 | N/A | 1.0 | 9879435 |
| Dissolved Sulphate (SO4) | mg/L | 81 | 1.0 | 9878192 | 20 | N/A | 1.0 | 9879435 |
| **Nutrients** | | | | | | | | |
| Dissolved Nitrite (N) | mg/L | 3.0 | 0.010 | 9876504 | <0.010 | N/A | 0.010 | 9875975 |
| Dissolved Nitrate (N) | mg/L | 42 (1) | 0.050 | 9876504 | 26 (1) | N/A | 0.050 | 9875975 |
| **Elements** | | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 1500 (1) | 1.5 | 9877480 | 930 (1) | 920 | 1.5 | 9878491 |
| Dissolved Iron (Fe) | mg/L | 0.31 | 0.060 | 9877480 | <0.060 | <0.060 | 0.060 | 9878491 |
| Dissolved Magnesium (Mg) | mg/L | 280 | 0.20 | 9877480 | <0.20 | <0.20 | 0.20 | 9878491 |
| Dissolved Manganese (Mn) | mg/L | 3.1 | 0.0040 | 9877480 | <0.0040 | <0.0040 | 0.0040 | 9878491 |
| Dissolved Potassium (K) | mg/L | 95 | 0.30 | 9877480 | 11 | 11 | 0.30 | 9878491 |
| Dissolved Sodium (Na) | mg/L | 340 | 0.50 | 9877480 | 56 | 56 | 0.50 | 9878491 |

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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XW1172 | | | XW1173 | | XW1174 | XW1174 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 11:00 | | | 2020/06/02 11:30 | | 2020/06/02 12:15 | 2020/06/02 12:15 | | |
| **COC Number** | | M061031 | | | M061031 | | M061031 | M061031 | | |
| | **UNITS** | **1936** | **RDL** | **QC Batch** | **1937** | **RDL** | **1939** | **1939 Lab-Dup** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | | | | | | |
| Anion Sum | meq/L | 91 | N/A | 9872596 | 23 | N/A | 14 | N/A | N/A | 9872596 |
| Cation Sum | meq/L | 96 | N/A | 9872596 | 24 | N/A | 14 | N/A | N/A | 9872596 |
| Hardness (CaCO3) | mg/L | 4300 | 0.50 | 9873620 | 1100 | 0.50 | 650 | N/A | 0.50 | 9873620 |
| Ion Balance (% Difference) | % | 2.8 | N/A | 9872587 | 0.99 | N/A | 0.55 | N/A | N/A | 9873638 |
| Dissolved Nitrate (NO3) | mg/L | 1.5 | 0.044 | 9873643 | 2.4 | 0.044 | 0.046 | N/A | 0.044 | 9873643 |
| Nitrate plus Nitrite (N) | mg/L | 0.48 | 0.014 | 9873647 | 0.56 | 0.014 | <0.014 | N/A | 0.014 | 9873647 |
| Dissolved Nitrite (NO2) | mg/L | 0.51 | 0.033 | 9873643 | 0.034 | 0.033 | <0.033 | N/A | 0.033 | 9873643 |
| Calculated Total Dissolved Solids | mg/L | 4900 | 10 | 9872619 | 1200 | 10 | 670 | N/A | 10 | 9872619 |
| **Misc. Inorganics** | | | | | | | | | | |
| Conductivity | uS/cm | 14000 | 2.0 | 9875948 | 4900 | 2.0 | 1200 | N/A | 2.0 | 9875354 |
| pH | pH | 12.4 | N/A | 9875947 | 12.2 | N/A | 7.54 | N/A | N/A | 9875353 |
| **Anions** | | | | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | 2300 | 1.0 | 9875946 | 1100 | 1.0 | <1.0 | N/A | 1.0 | 9875351 |
| Alkalinity (Total as CaCO3) | mg/L | 2400 | 1.0 | 9875946 | 1100 | 1.0 | 540 | N/A | 1.0 | 9875351 |
| Bicarbonate (HCO3) | mg/L | <1.0 | 1.0 | 9875946 | <1.0 | 1.0 | 660 | N/A | 1.0 | 9875351 |
| Carbonate (CO3) | mg/L | 56 | 1.0 | 9875946 | 16 | 1.0 | <1.0 | N/A | 1.0 | 9875351 |
| Hydroxide (OH) | mg/L | 780 | 1.0 | 9875946 | 360 | 1.0 | <1.0 | N/A | 1.0 | 9875351 |
| Dissolved Chloride (Cl) | mg/L | 1500 (1) | 10 | 9879435 | 38 (1) | 2.0 | 64 | 66 | 1.0 | 9879435 |
| Dissolved Sulphate (SO4) | mg/L | <1.0 | 1.0 | 9879435 | 9.6 | 1.0 | 51 | 51 | 1.0 | 9879435 |
| **Nutrients** | | | | | | | | | | |
| Dissolved Nitrite (N) | mg/L | 0.16 | 0.010 | 9875975 | 0.010 | 0.010 | <0.010 | N/A | 0.010 | 9875779 |
| Dissolved Nitrate (N) | mg/L | 0.33 | 0.010 | 9875975 | 0.55 | 0.010 | 0.010 | N/A | 0.010 | 9875779 |
| **Elements** | | | | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 1700 (1) | 1.5 | 9878491 | 440 | 0.30 | 140 | N/A | 0.30 | 9878491 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9878491 | <0.060 | 0.060 | 1.0 | N/A | 0.060 | 9878491 |
| Dissolved Magnesium (Mg) | mg/L | <0.20 | 0.20 | 9878491 | <0.20 | 0.20 | 74 | N/A | 0.20 | 9878491 |
| Dissolved Manganese (Mn) | mg/L | <0.0040 | 0.0040 | 9878491 | <0.0040 | 0.0040 | 0.95 | N/A | 0.0040 | 9878491 |
| Dissolved Potassium (K) | mg/L | 61 | 0.30 | 9878491 | 8.7 | 0.30 | 2.6 | N/A | 0.30 | 9878491 |
| Dissolved Sodium (Na) | mg/L | 200 | 0.50 | 9878491 | 30 | 0.50 | 17 | N/A | 0.50 | 9878491 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XW1175 | | | XW1176 | | |
|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 09:15 | | | 2020/06/02 12:30 | | |
| **COC Number** | | M061031 | | | M061031 | | |
| | **UNITS** | **1954** | **RDL** | **QC Batch** | **1982** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | | | |
| Anion Sum | meq/L | 10 | N/A | 9872596 | 18 | N/A | 9872596 |
| Cation Sum | meq/L | 10 | N/A | 9872596 | 18 | N/A | 9872596 |
| Hardness (CaCO3) | mg/L | 480 | 0.50 | 9873620 | 650 | 0.50 | 9873620 |
| Ion Balance (% Difference) | % | 0.59 | N/A | 9873638 | 0.39 | N/A | 9873638 |
| Dissolved Nitrate (NO3) | mg/L | <0.044 | 0.044 | 9873643 | 32 | 0.044 | 9873643 |
| Nitrate plus Nitrite (N) | mg/L | <0.014 | 0.014 | 9873647 | 7.3 | 0.014 | 9873647 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 0.033 | 9873643 | <0.033 | 0.033 | 9873643 |
| Calculated Total Dissolved Solids | mg/L | 490 | 10 | 9872619 | 920 | 10 | 9872619 |
| **Misc. Inorganics** | | | | | | | |
| Conductivity | uS/cm | 900 | 2.0 | 9875955 | 1700 | 2.0 | 9875354 |
| pH | pH | 7.86 | N/A | 9875954 | 7.60 | N/A | 9875353 |
| **Anions** | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9875952 | <1.0 | 1.0 | 9875351 |
| Alkalinity (Total as CaCO3) | mg/L | 440 | 1.0 | 9875952 | 530 | 1.0 | 9875351 |
| Bicarbonate (HCO3) | mg/L | 530 | 1.0 | 9875952 | 640 | 1.0 | 9875351 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9875952 | <1.0 | 1.0 | 9875351 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9875952 | <1.0 | 1.0 | 9875351 |
| Dissolved Chloride (Cl) | mg/L | 22 | 1.0 | 9879435 | 190 (1) | 2.0 | 9879356 |
| Dissolved Sulphate (SO4) | mg/L | 32 | 1.0 | 9879435 | 72 | 1.0 | 9879356 |
| **Nutrients** | | | | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 0.010 | 9875976 | <0.010 | 0.010 | 9875779 |
| Dissolved Nitrate (N) | mg/L | <0.010 | 0.010 | 9875976 | 7.3 | 0.010 | 9875779 |
| **Elements** | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 110 | 0.30 | 9878491 | 100 | 0.30 | 9878491 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9878491 | 0.071 | 0.060 | 9878491 |
| Dissolved Magnesium (Mg) | mg/L | 49 | 0.20 | 9878491 | 95 | 0.20 | 9878491 |
| Dissolved Manganese (Mn) | mg/L | 0.24 | 0.0040 | 9878491 | 0.45 | 0.0040 | 9878491 |
| Dissolved Potassium (K) | mg/L | 2.8 | 0.30 | 9878491 | 2.7 | 0.30 | 9878491 |
| Dissolved Sodium (Na) | mg/L | 13 | 0.50 | 9878491 | 110 | 0.50 | 9878491 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1170 | | XW1171 | XW1172 | XW1173 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 13:15 | | 2020/06/02 10:15 | 2020/06/02 11:00 | 2020/06/02 11:30 | | |
| **COC Number** | | M061031 | | M061031 | M061031 | M061031 | | |
| | **UNITS** | **1928** | **RDL** | **1929** | **1936** | **1937** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.056 | 0.056 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9871024 |
| Bromodichloromethane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Bromoform | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Bromomethane | mg/L | <0.020 (1) | 0.020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| Carbon tetrachloride | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Chlorobenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Chlorodibromomethane | mg/L | <0.050 (1) | 0.050 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| Chloroethane | mg/L | <0.010 (1) | 0.010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| Chloroform | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Chloromethane | mg/L | <0.020 (1) | 0.020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| 1,2-dibromoethane | mg/L | <0.010 (1) | 0.010 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9875008 |
| 1,2-dichlorobenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,3-dichlorobenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,4-dichlorobenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1-dichloroethane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,2-dichloroethane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1-dichloroethene | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| cis-1,2-dichloroethene | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| trans-1,2-dichloroethene | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Dichloromethane | mg/L | <0.020 (1) | 0.020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| 1,2-dichloropropane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| cis-1,3-dichloropropene | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| trans-1,3-dichloropropene | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Methyl methacrylate | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Styrene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.050 (1) | 0.050 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.10 (1) | 0.10 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| Tetrachloroethene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,2,3-trichlorobenzene | mg/L | <0.050 (1) | 0.050 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| 1,2,4-trichlorobenzene | mg/L | <0.050 (1) | 0.050 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |

RDL = Reportable Detection Limit
(1) Detection limits raised due to dilution as a result of sample matrix interference.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1170 | | XW1171 | XW1172 | XW1173 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 13:15 | | 2020/06/02 10:15 | 2020/06/02 11:00 | 2020/06/02 11:30 | | |
| **COC Number** | | M061031 | | M061031 | M061031 | M061031 | | |
| | **UNITS** | **1928** | **RDL** | **1929** | **1936** | **1937** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1,1-trichloroethane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1,2-trichloroethane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Trichloroethene | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Trichlorofluoromethane | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,2,4-trimethylbenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,3,5-trimethylbenzene | mg/L | <0.025 (1) | 0.025 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Vinyl chloride | mg/L | <0.0050 (1) | 0.0050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 93 | N/A | 103 | 101 | 101 | N/A | 9875008 |
| 4-Bromofluorobenzene (sur.) | % | 98 | N/A | 89 | 90 | 90 | N/A | 9875008 |
| D4-1,2-Dichloroethane (sur.) | % | 119 | N/A | 106 | 110 | 107 | N/A | 9875008 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution as a result of sample matrix interference.



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1174 | XW1175 | XW1176 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 12:15 | 2020/06/02 09:15 | 2020/06/02 12:30 | | |
| **COC Number** | | M061031 | M061031 | M061031 | | |
| | **UNITS** | **1939** | **1954** | **1982** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9873653 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9875008 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,2-dichloroethane | mg/L | 0.050 | 0.00088 | 0.047 | 0.00050 | 9875008 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9875008 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9875008 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| RDL = Reportable Detection Limit | | | | | | |



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW1174 | XW1175 | XW1176 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/02 12:15 | 2020/06/02 09:15 | 2020/06/02 12:30 | | |
| **COC Number** | | M061031 | M061031 | M061031 | | |
| | **UNITS** | **1939** | **1954** | **1982** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,1,2-trichloroethane | mg/L | 0.00060 | <0.00050 | 0.00086 | 0.00050 | 9875008 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9875008 |
| **Surrogate Recovery (%)** | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 102 | 101 | 105 | N/A | 9875008 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 89 | 87 | N/A | 9875008 |
| D4-1,2-Dichloroethane (sur.) | % | 111 | 103 | 139 | N/A | 9875008 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 5.0°C |

Sample XW1170 [1928] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XW1171 [1929] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XW1172 [1936] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XW1173 [1937] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XW1174 [1939] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XW1175 [1954] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XW1176 [1982] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**Results relate only to the items tested.**



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9874670 | LSH | Matrix Spike [XW1170-03] | O-TERPHENYL (sur.) | 2020/06/08 | | 102 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/08 | | 97 | % | 60 - 140 |
| 9874670 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/08 | | 115 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/08 | | 108 | % | 60 - 140 |
| 9874670 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/08 | | 101 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/08 | <0.10 | | mg/L | |
| 9874670 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/08 | 0.98 | | % | 30 |
| 9875008 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 110 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 77 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/09 | | 79 | % | 50 - 140 |
| | | | Bromoform | 2020/06/09 | | 77 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/09 | | 124 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/09 | | 117 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/09 | | 102 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/09 | | 90 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/09 | | 83 | % | 50 - 140 |
| | | | Chloroform | 2020/06/09 | | 81 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/09 | | 83 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/09 | | 67 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/09 | | 88 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/09 | | 96 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/09 | | 91 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/09 | | 82 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/09 | | 62 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/09 | | 103 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/09 | | 86 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/09 | | 90 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/09 | | 72 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/09 | | 69 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/09 | | 109 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/09 | | 130 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/09 | | 46 (1) | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | | 64 | % | 50 - 140 |
| | | | Styrene | 2020/06/09 | | 95 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | | 101 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | | 63 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/09 | | 133 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | | 81 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | | 105 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/09 | | 109 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/09 | | 63 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/09 | | 110 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/09 | | 111 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | | 106 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | | 116 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/09 | | 87 | % | 50 - 140 |
| 9875008 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 127 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/09 | | 105 | % | 60 - 130 |
| | | | Bromoform | 2020/06/09 | | 125 | % | 60 - 130 |



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Client Project #: CG2430.1 E45
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Bromomethane | 2020/06/09 | | 95 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/09 | | 95 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/09 | | 99 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/09 | | 120 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/09 | | 80 | % | 60 - 130 |
| | | | Chloroform | 2020/06/09 | | 90 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/09 | | 79 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/09 | | 108 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/09 | | 102 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/09 | | 94 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/09 | | 93 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/09 | | 88 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/09 | | 104 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/09 | | 87 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/09 | | 98 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/09 | | 82 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/09 | | 93 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/09 | | 94 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/09 | | 120 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/09 | | 138 (1) | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/09 | | 107 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | | 99 | % | 60 - 130 |
| | | | Styrene | 2020/06/09 | | 91 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | | 104 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | | 111 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/09 | | 90 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | | 99 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | | 95 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | | 92 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/09 | | 97 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/09 | | 112 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/09 | | 102 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/09 | | 86 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | | 87 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | | 88 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/09 | | 72 | % | 60 - 130 |
| 9875008 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 89 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 103 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/09 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/09 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/09 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/09 | <0.00050 | | mg/L | |



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1-dichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/09 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/09 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/09 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/09 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/09 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/09 | <0.00050 | | mg/L | |
| 9875008 | GP4 | RPD | 1,2-dibromoethane | 2020/06/09 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/09 | NC | | % | 30 |
| 9875021 | DO1 | Matrix Spike [XW1171-04] | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 96 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 82 | % | 50 - 140 |
| | | | Benzene | 2020/06/09 | | 87 | % | 50 - 140 |
| | | | Toluene | 2020/06/09 | | 84 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/09 | | 87 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/09 | | 87 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/09 | | 88 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/09 | | 78 | % | 60 - 140 |
| 9875021 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 96 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 80 | % | 50 - 140 |
| | | | Benzene | 2020/06/09 | | 82 | % | 60 - 130 |
| | | | Toluene | 2020/06/09 | | 78 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/09 | | 81 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/09 | | 81 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/09 | | 83 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/09 | | 86 | % | 60 - 140 |
| 9875021 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/09 | | 97 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/09 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/09 | | 81 | % | 50 - 140 |
| | | | Benzene | 2020/06/09 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/09 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/09 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/09 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/09 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/09 | <0.10 | | mg/L | |
| 9875021 | DO1 | RPD [XW1170-04] | Benzene | 2020/06/09 | NC | | % | 30 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Toluene | 2020/06/09 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/09 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/06/09 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/09 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/09 | NC | | % | 30 |
| 9875351 | TMU | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/05 | | 94 | % | 80 - 120 |
| 9875351 | TMU | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/05 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/05 | <1.0 | | mg/L | |
| 9875351 | TMU | RPD | Alkalinity (PP as CaCO3) | 2020/06/05 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/06/05 | 1.4 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/06/05 | 1.4 | | % | 20 |
| | | | Carbonate (CO3) | 2020/06/05 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/06/05 | NC | | % | 20 |
| 9875353 | TMU | Spiked Blank | pH | 2020/06/05 | | 100 | % | 97 - 103 |
| 9875353 | TMU | RPD | pH | 2020/06/05 | 0.12 | | % | N/A |
| 9875354 | TMU | Spiked Blank | Conductivity | 2020/06/05 | | 100 | % | 90 - 110 |
| 9875354 | TMU | Method Blank | Conductivity | 2020/06/05 | <2.0 | | uS/cm | |
| 9875354 | TMU | RPD | Conductivity | 2020/06/05 | 0.24 | | % | 10 |
| 9875779 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/06/06 | | 103 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 104 | % | 80 - 120 |
| 9875779 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| 9875779 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/06/06 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/06 | <0.010 | | mg/L | |
| 9875779 | IBL | RPD | Dissolved Nitrite (N) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | 0.036 | | % | 20 |
| 9875946 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/06 | | 93 | % | 80 - 120 |
| 9875946 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/06 | <1.0 | | mg/L | |
| 9875946 | IK0 | RPD | Alkalinity (PP as CaCO3) | 2020/06/06 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/06/06 | 1.4 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/06/06 | 1.2 | | % | 20 |
| | | | Carbonate (CO3) | 2020/06/06 | 103 (1) | | % | 20 |
| | | | Hydroxide (OH) | 2020/06/06 | NC | | % | 20 |
| 9875947 | IK0 | Spiked Blank | pH | 2020/06/06 | | 100 | % | 97 - 103 |
| 9875947 | IK0 | RPD | pH | 2020/06/06 | 1.1 | | % | N/A |
| 9875948 | IK0 | Spiked Blank | Conductivity | 2020/06/06 | | 100 | % | 90 - 110 |
| 9875948 | IK0 | Method Blank | Conductivity | 2020/06/06 | <2.0 | | uS/cm | |
| 9875948 | IK0 | RPD | Conductivity | 2020/06/06 | 0.84 | | % | 10 |
| 9875952 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/06 | | 95 | % | 80 - 120 |
| 9875952 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/06 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/06 | <1.0 | | mg/L | |
| 9875952 | IK0 | RPD | Alkalinity (PP as CaCO3) | 2020/06/06 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/06/06 | 0.46 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/06/06 | 0.46 | | % | 20 |



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Client Project #: CG2430.1 E45
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Carbonate (CO3) | 2020/06/06 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/06/06 | NC | | % | 20 |
| 9875954 | IK0 | Spiked Blank | pH | 2020/06/06 | | 100 | % | 97 - 103 |
| 9875954 | IK0 | RPD | pH | 2020/06/06 | 0.68 | | % | N/A |
| 9875955 | IK0 | Spiked Blank | Conductivity | 2020/06/06 | | 100 | % | 90 - 110 |
| 9875955 | IK0 | Method Blank | Conductivity | 2020/06/06 | <2.0 | | uS/cm | |
| 9875955 | IK0 | RPD | Conductivity | 2020/06/06 | 0.18 | | % | 10 |
| 9875975 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/06/06 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| 9875975 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| 9875975 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/06/06 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/06 | <0.010 | | mg/L | |
| 9875975 | IBL | RPD | Dissolved Nitrite (N) | 2020/06/06 | 2.1 | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | 1.3 | | % | 20 |
| 9875976 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/06/06 | | 103 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 104 | % | 80 - 120 |
| 9875976 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 101 | % | 80 - 120 |
| 9875976 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/06/06 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/06 | <0.010 | | mg/L | |
| 9875976 | IBL | RPD | Dissolved Nitrite (N) | 2020/06/06 | 1.5 | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | 0.57 | | % | 20 |
| 9876504 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/06/06 | | 104 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 106 | % | 80 - 120 |
| 9876504 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/06/06 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | | 103 | % | 80 - 120 |
| 9876504 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/06/06 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/06 | <0.010 | | mg/L | |
| 9876504 | IBL | RPD | Dissolved Nitrite (N) | 2020/06/06 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/06 | NC | | % | 20 |
| 9877479 | CT6 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/08 | | 93 | % | 80 - 120 |
| 9877479 | CT6 | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/08 | <1.0 | | mg/L | |
| 9877479 | CT6 | RPD | Alkalinity (PP as CaCO3) | 2020/06/08 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/06/08 | 4.8 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/06/08 | 4.8 | | % | 20 |
| | | | Carbonate (CO3) | 2020/06/08 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/06/08 | NC | | % | 20 |
| 9877480 | LQ1 | Matrix Spike | Dissolved Calcium (Ca) | 2020/06/08 | | 99 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/08 | | 95 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/08 | | 100 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/08 | | 97 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/08 | | 98 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/08 | | 98 | % | 80 - 120 |
| 9877480 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/06/08 | | 106 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/08 | | 101 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/08 | | 102 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/08 | | 101 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/08 | | 99 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/08 | | 100 | % | 80 - 120 |



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Client Project #: CG2430.1 E45
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9877480 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/06/08 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/06/08 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/06/08 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/06/08 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/06/08 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/06/08 | <0.50 | | mg/L | |
| 9877480 | LQ1 | RPD | Dissolved Calcium (Ca) | 2020/06/08 | 0.51 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/06/08 | 0.16 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/06/08 | 0.24 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/06/08 | 0.81 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/06/08 | 0.57 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/06/08 | 0.0091 | | % | 20 |
| 9877481 | CT6 | Spiked Blank | pH | 2020/06/08 | | 100 | % | 97 - 103 |
| 9877481 | CT6 | RPD | pH | 2020/06/08 | 0.31 | | % | N/A |
| 9877482 | CT6 | Spiked Blank | Conductivity | 2020/06/09 | | 102 | % | 90 - 110 |
| 9877482 | CT6 | Method Blank | Conductivity | 2020/06/09 | <2.0 | | uS/cm | |
| 9877482 | CT6 | RPD | Conductivity | 2020/06/08 | 0.39 | | % | 10 |
| 9878192 | STI | Matrix Spike | Dissolved Chloride (Cl) | 2020/06/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | | 106 | % | 80 - 120 |
| 9878192 | STI | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/09 | | 99 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | | 101 | % | 80 - 120 |
| 9878192 | STI | Method Blank | Dissolved Chloride (Cl) | 2020/06/09 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | <1.0 | | mg/L | |
| 9878192 | STI | RPD | Dissolved Chloride (Cl) | 2020/06/09 | 5.5 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/09 | 0.55 | | % | 20 |
| 9878491 | LQ1 | Matrix Spike [XW1171-02] | Dissolved Calcium (Ca) | 2020/06/09 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | | 107 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | | 95 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | | 108 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/09 | | 99 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | | 93 | % | 80 - 120 |
| 9878491 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/06/09 | | 98 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | | 103 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | | 97 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | | 101 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | | 99 | % | 80 - 120 |
| 9878491 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/06/09 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/06/09 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/06/09 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/06/09 | <0.50 | | mg/L | |
| 9878491 | LQ1 | RPD [XW1171-02] | Dissolved Calcium (Ca) | 2020/06/09 | 0.60 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | NC | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | NC | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | NC | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/06/09 | 0.43 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | 0.062 | | % | 20 |
| 9879356 | STI | Matrix Spike | Dissolved Chloride (Cl) | 2020/06/10 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | | NC | % | 80 - 120 |
| 9879356 | STI | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/10 | | 104 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | | 99 | % | 80 - 120 |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9879356 | STI | Method Blank | Dissolved Chloride (Cl) | 2020/06/10 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | <1.0 | | mg/L | |
| 9879356 | STI | RPD | Dissolved Chloride (Cl) | 2020/06/10 | 0.23 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | 0.63 | | % | 20 |
| 9879435 | STI | Matrix Spike [XW1174-01] | Dissolved Chloride (Cl) | 2020/06/10 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | | NC | % | 80 - 120 |
| 9879435 | STI | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/10 | | 105 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | | 101 | % | 80 - 120 |
| 9879435 | STI | Method Blank | Dissolved Chloride (Cl) | 2020/06/10 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | <1.0 | | mg/L | |
| 9879435 | STI | RPD [XW1174-01] | Dissolved Chloride (Cl) | 2020/06/10 | 3.3 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/06/10 | 0.61 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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BV Labs Job #: C037589
Report Date: 2020/06/10

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Luba Shymushovska, B.Sc., QP, Senior Analyst, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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# CHAIN OF CUSTODY RECORD

M061031

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Steph d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1 E45 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 5 | 2 | 8 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury ☐ Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1928 | | 2020/06/02 | 13:15 | GW | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 2 | 1929 | | ↓ | 10:15 | ↓ | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 3 | 1936 | | | 11:00 | | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 4 | 1937 | | | 11:30 | | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 5 | 1939 | | | 12:15 | | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 6 | 1954 | | ↓ | 9:15 | ↓ | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 7 | 1982 | | 2020/06/02 | 12:30 | GW | 7 | ✓ | ✓ | | | ✓ | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | | F/P | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

1928 and 1936 contain actived carbons.

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/06/02 | 14:30 | Sam MM SARA BISCHOFF | 2020/06/02 | 14:45 |
| | | | | | |

02-Jun-20 14:45
Linsay Sunderman
C037589
SBZ INS-0190

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AB FCD-00331/7

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199 **CHAIN OF CUSTODY RECORD** M 060242 Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave. NE Calgary. AB | Address: | | Project #: | CG2430.1 E45 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCAC | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 7 | 8 | 6 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1954 | | 2020/06/04 | 14:30 | GW | 1 | | | | ✓ | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

* Re-Sampled for # C037589

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/06/04 | 14:50 | [illegible] | 2020/06/04 | 15:40 | |
| | | | | | | |

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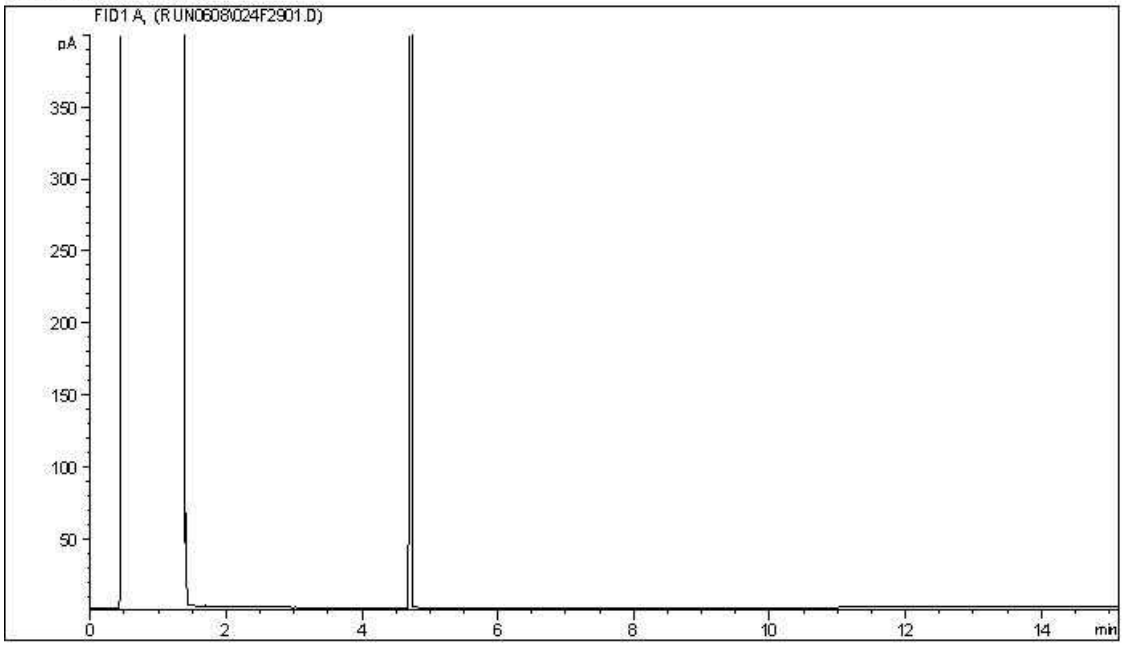
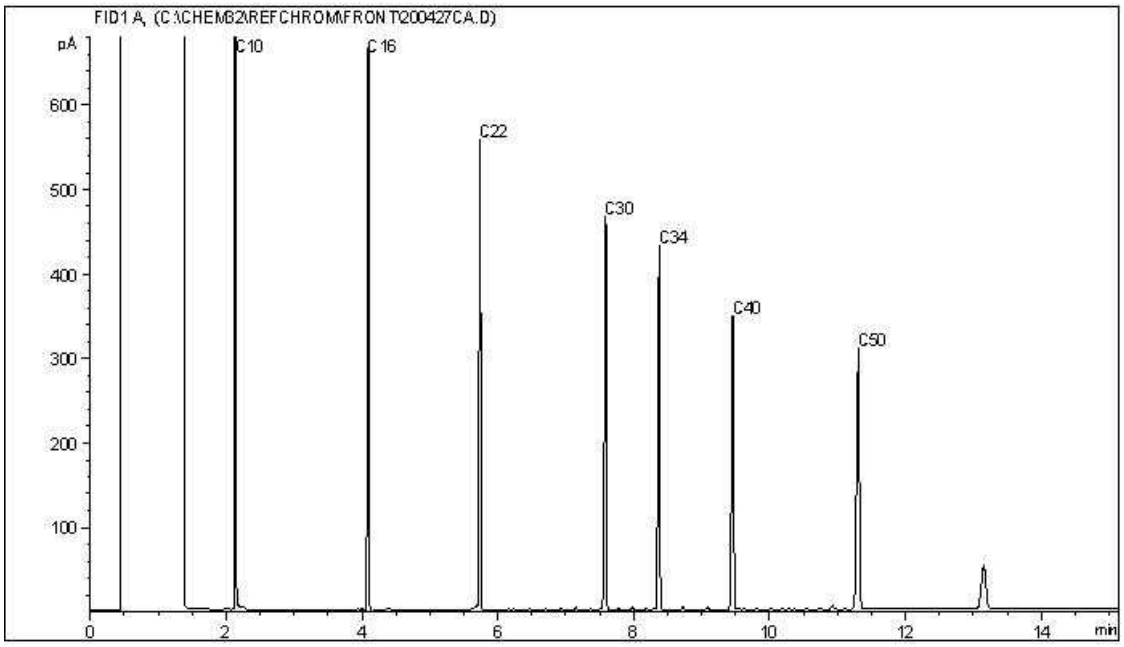
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

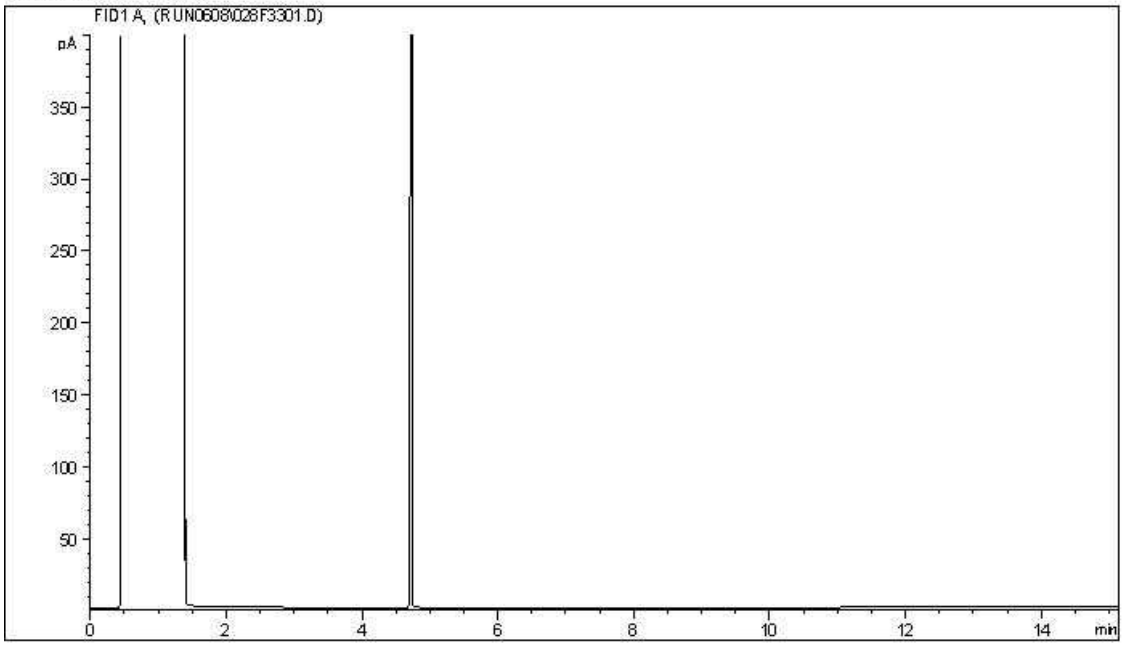
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037589
Report Date: 2020/06/10
BV Labs Sample: XW1171

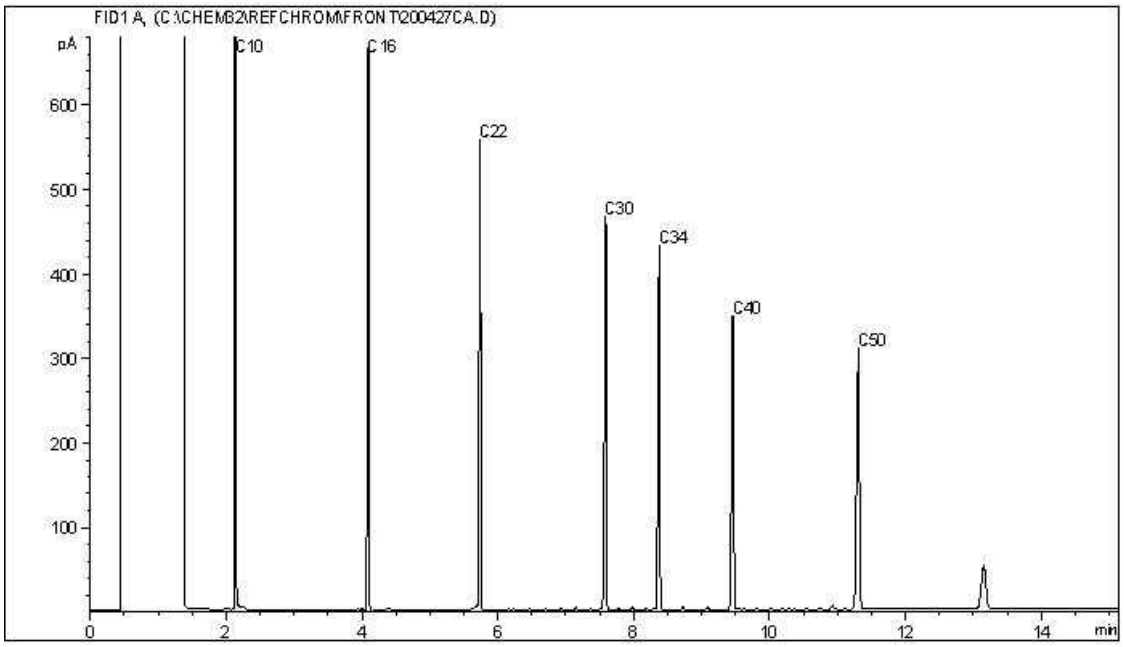
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Client ID: 1929

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

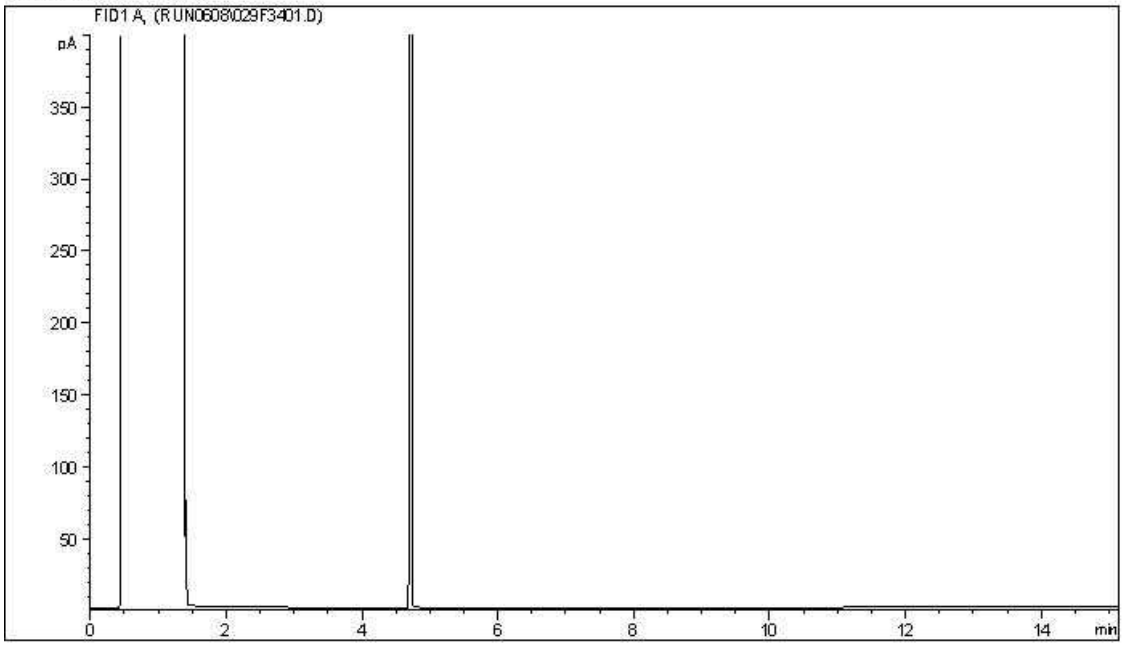
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037589
Report Date: 2020/06/10
BV Labs Sample: XW1172

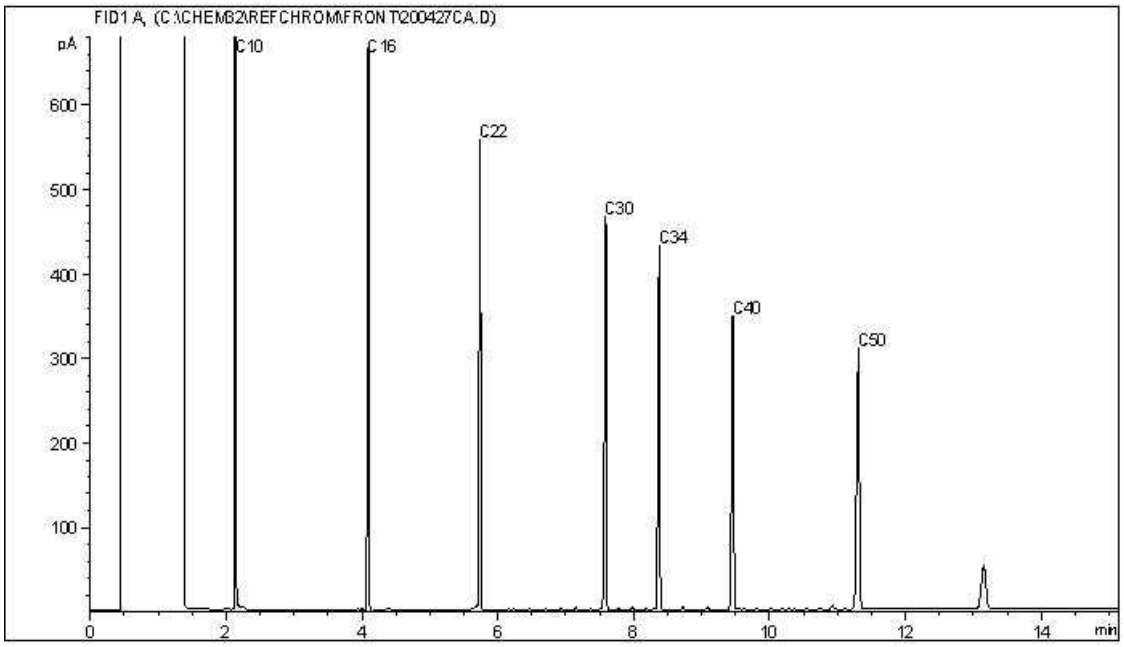
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E45
Client ID: 1936

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



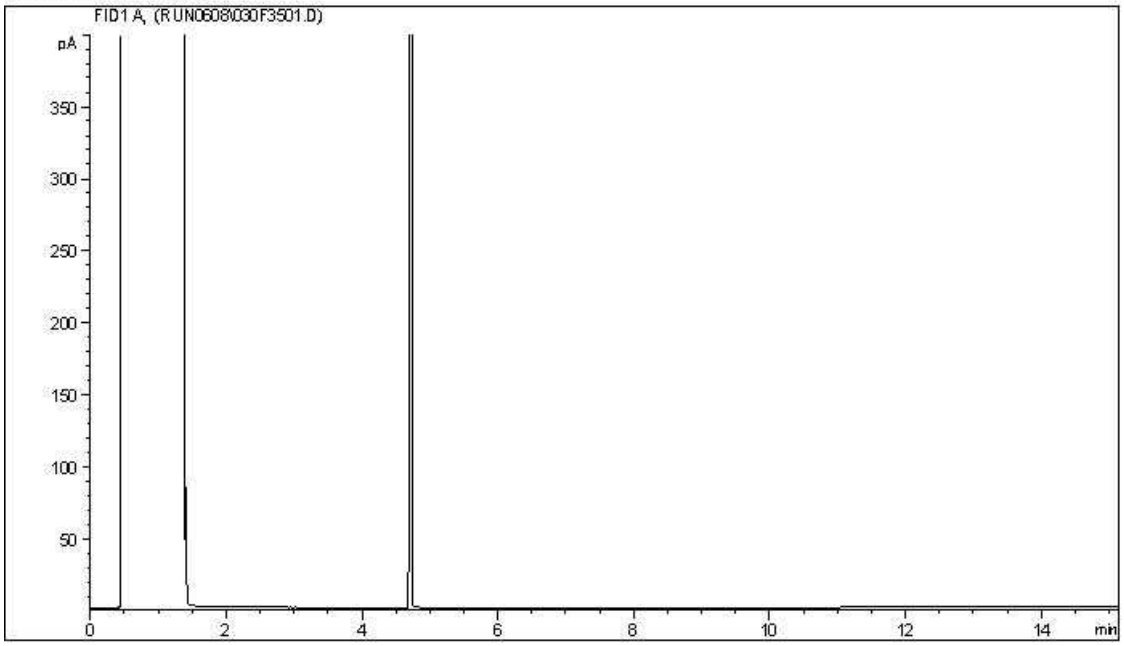

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

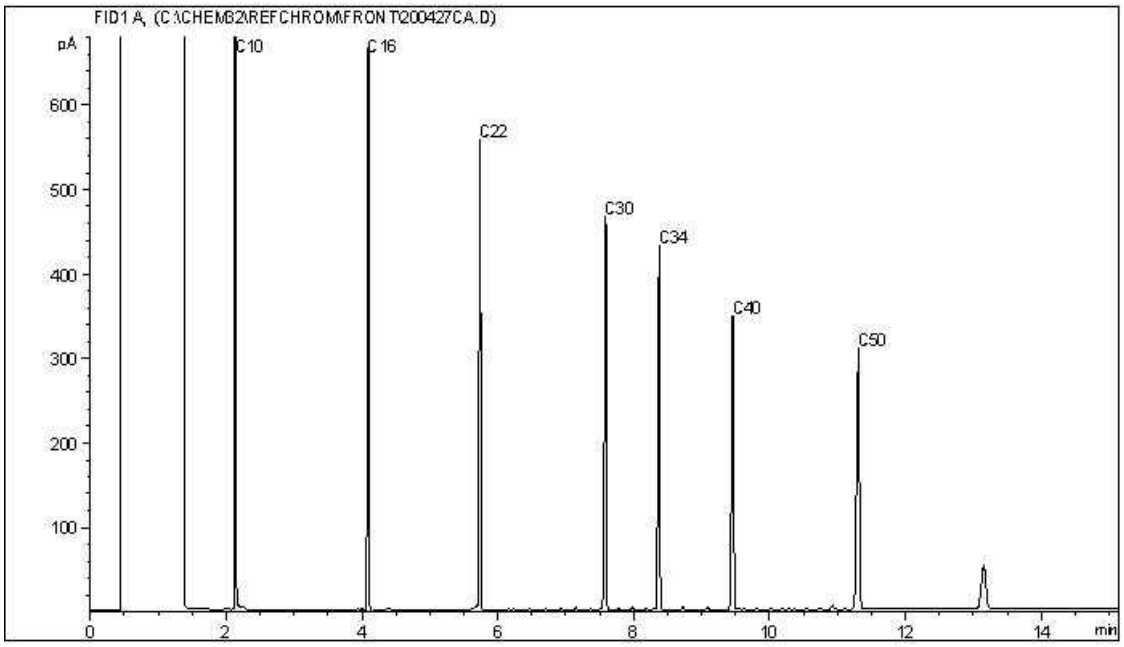
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



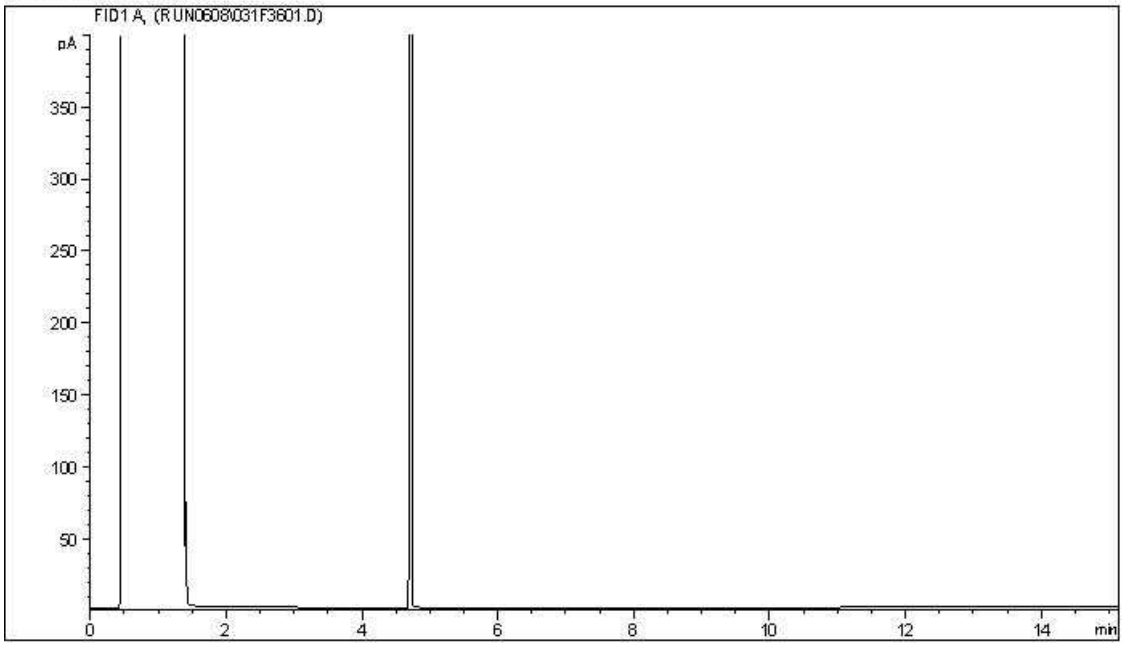

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

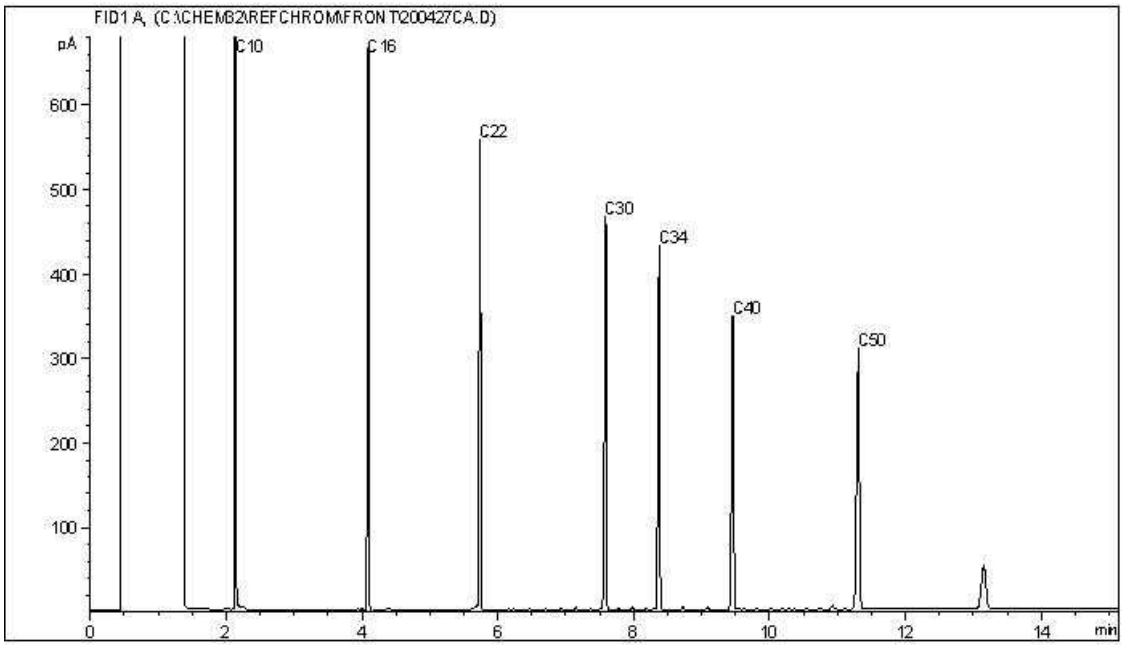
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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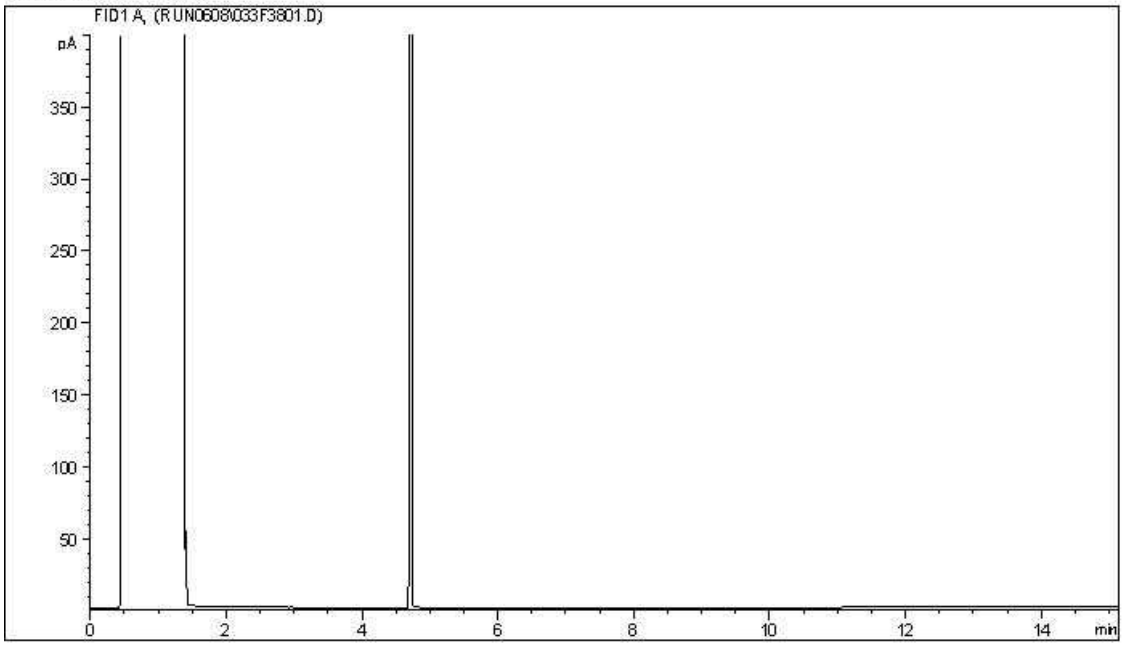
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

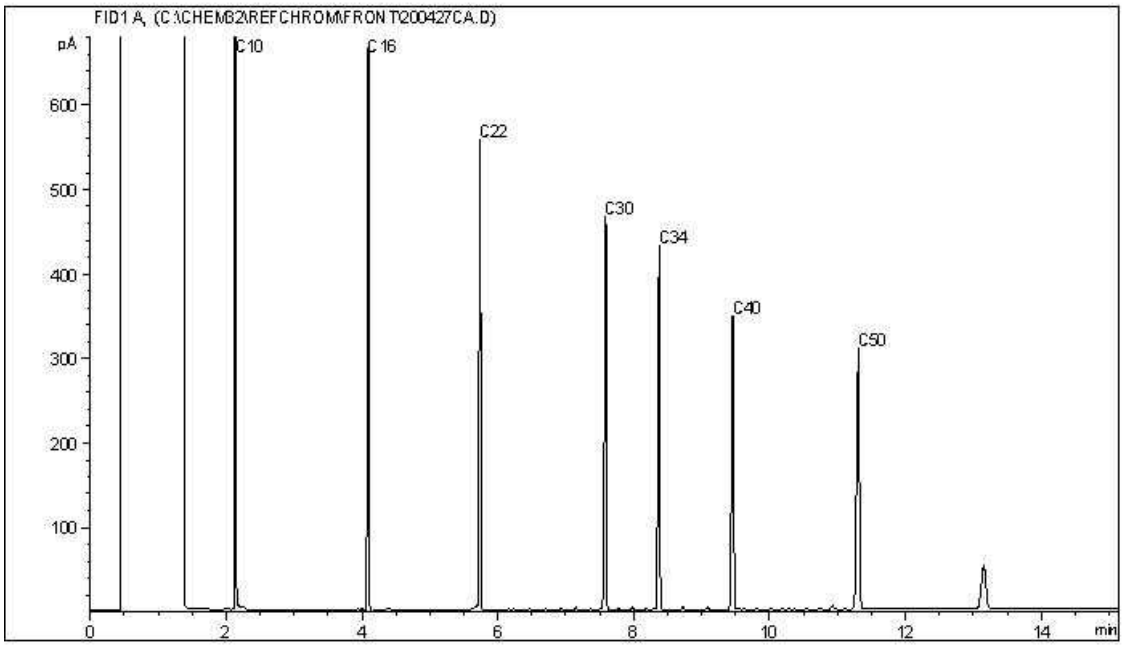
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
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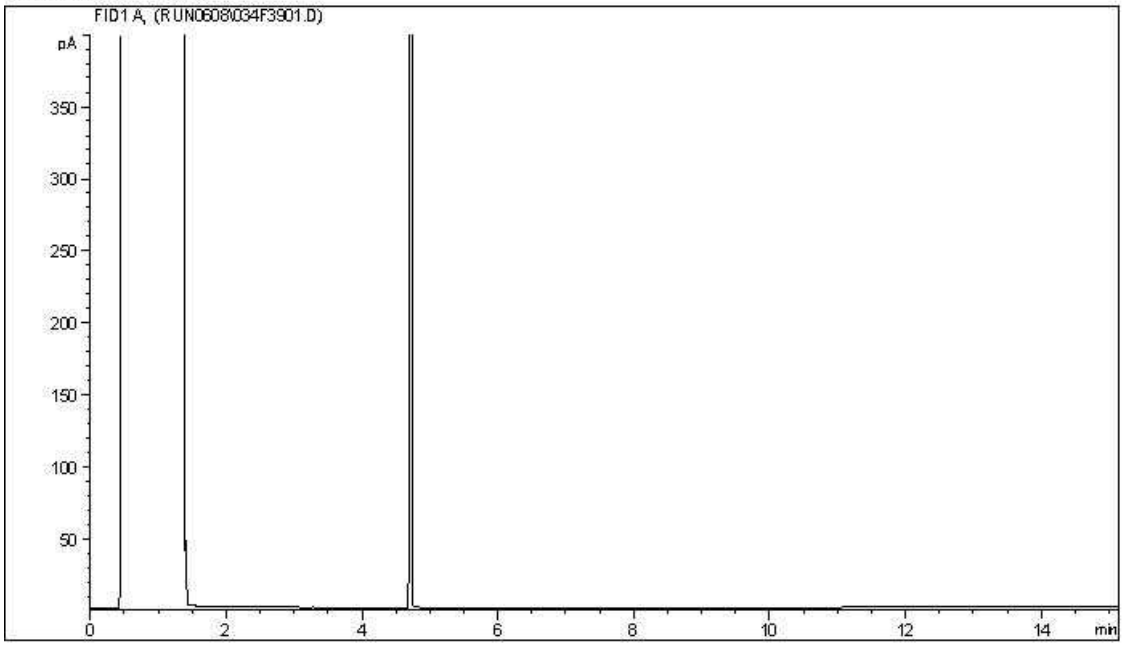
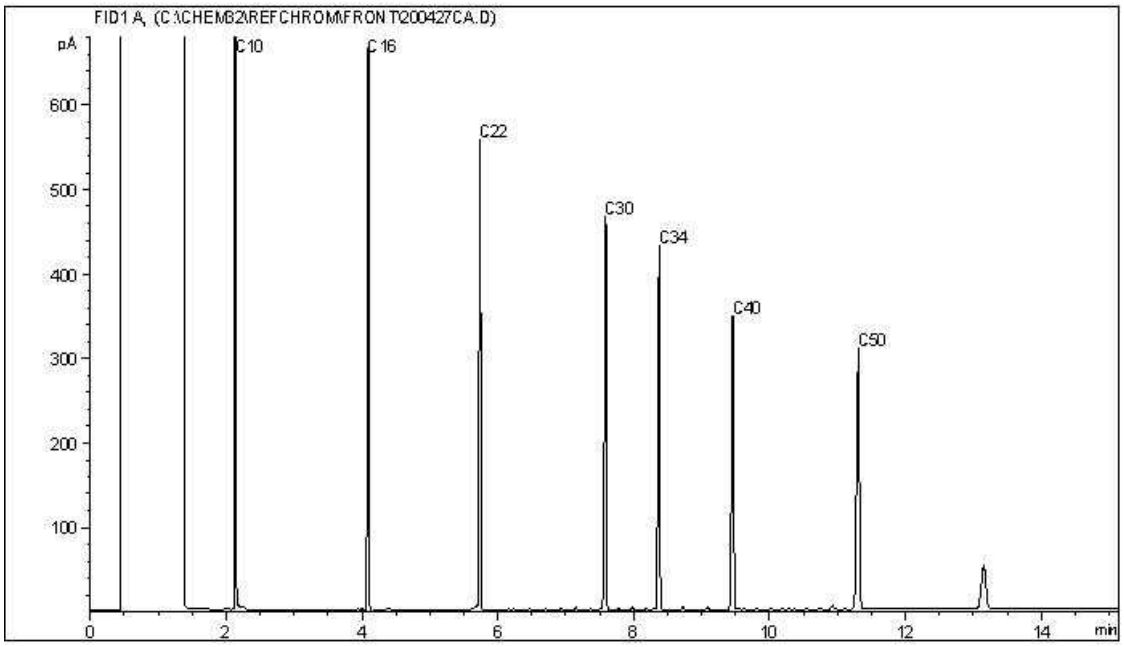
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.IE45
Your C.O.C. #: M035110

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/13**
Report #: R2878676
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C030494**
**Received: 2020/05/05, 16:30**

Sample Matrix: Water
# Samples Received: 6

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 2 | N/A | 2020/05/07 | AB SOP-00005 | SM 23 2320 B m |
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 4 | N/A | 2020/05/08 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 6 | N/A | 2020/05/08 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 6 | N/A | 2020/05/09 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 6 | N/A | 2020/05/09 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 2 | N/A | 2020/05/07 | AB SOP-00005 | SM 23 2510 B m |
| Conductivity @25C | 4 | N/A | 2020/05/08 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 5 | 2020/05/08 | 2020/05/08 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 1 | 2020/05/08 | 2020/05/09 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 5 | N/A | 2020/05/07 | | Auto Calc |
| Hardness | 1 | N/A | 2020/05/13 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 5 | N/A | 2020/05/06 | AB SOP-00042 | EPA 6010d R5 m |
| Elements by ICP-Dissolved-Lab Filtered (2) | 1 | N/A | 2020/05/13 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 5 | N/A | 2020/05/09 | | Auto Calc |
| Ion Balance | 1 | N/A | 2020/05/13 | | Auto Calc |
| Sum of cations, anions | 5 | N/A | 2020/05/07 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/05/13 | | Auto Calc |
| Nitrate and Nitrite | 3 | N/A | 2020/05/10 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/05/11 | | Auto Calc |
| Nitrate and Nitrite | 2 | N/A | 2020/05/12 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 3 | N/A | 2020/05/10 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/05/11 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 2 | N/A | 2020/05/12 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/05/08 | AB SOP-00023 | SM 23 4110 B m |
| Nitrogen (Nitrite - Nitrate) by IC | 3 | N/A | 2020/05/09 | AB SOP-00023 | SM 23 4110 B m |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/05/10 | AB SOP-00023 | SM 23 4110 B m |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/05/11 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 2 | N/A | 2020/05/07 | AB SOP-00005 | SM 23 4500-H+B m |
| pH @25°C (3) | 4 | N/A | 2020/05/08 | AB SOP-00005 | SM 23 4500-H+B m |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Your Project #: CG2430.IE45
Your C.O.C. #: M035110

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/13**
Report #: R2878676
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C030494**
**Received: 2020/05/05, 16:30**

Sample Matrix: Water
# Samples Received: 6

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Total Dissolved Solids (Calculated) | 5 | N/A | 2020/05/09 | | Auto Calc |
| Total Dissolved Solids (Calculated) | 1 | N/A | 2020/05/13 | | Auto Calc |
| Total Trihalomethanes Calculation | 6 | N/A | 2020/05/13 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 6 | N/A | 2020/05/12 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.


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Your Project #: CG2430.IE45
Your C.O.C. #: M035110

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/13**
Report #: R2878676
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C030494**
**Received: 2020/05/05, 16:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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BV Labs Job #: C030494
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.IE45

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XS8314 | XS8315 | XS8316 | XS8317 | XS8318 | XS8319 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/05 10:15 | 2020/05/05 13:20 | 2020/05/05 14:40 | 2020/05/05 15:00 | 2020/05/05 11:25 | 2020/05/05 15:30 | | |
| **COC Number** | | M035110 | M035110 | M035110 | M035110 | M035110 | M035110 | | |
| | **UNITS** | **1929** | **1936** | **1937** | **1939** | **1954** | **1982** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9842833 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | 0.0012 | <0.00040 | 0.24 | 0.00040 | 9845301 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00045 | 0.00040 | 9845301 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | 0.0011 | <0.00040 | 0.0024 | 0.00040 | 9845301 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | 0.00089 | <0.00080 | <0.00080 | 0.00080 | 9845301 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9845301 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | 0.00089 | <0.00089 | <0.00089 | 0.00089 | 9841474 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9841474 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.22 | 0.10 | 9845301 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 101 | 102 | 101 | 100 | 100 | N/A | 9845301 |
| 4-Bromofluorobenzene (sur.) | % | 98 | 99 | 100 | 97 | 98 | 100 | N/A | 9845301 |
| D4-1,2-Dichloroethane (sur.) | % | 96 | 95 | 97 | 103 | 95 | 103 | N/A | 9845301 |
| O-TERPHENYL (sur.) | % | 104 | 106 | 106 | 109 | 103 | 109 | N/A | 9842833 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C030494
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.IE45

## ROUTINE WATER (WATER)

| BV Labs ID | | XS8314 | | XS8316 | XS8316 | | XS8317 | XS8317 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2020/05/05 10:15 | | 2020/05/05 14:40 | 2020/05/05 14:40 | | 2020/05/05 15:00 | 2020/05/05 15:00 | | |
| COC Number | | M035110 | | M035110 | M035110 | | M035110 | M035110 | | |
| | **UNITS** | **1929** | **RDL** | **1937** | **1937 Lab-Dup** | **QC Batch** | **1939** | **1939 Lab-Dup** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | | | | | | |
| Anion Sum | meq/L | 43 | N/A | 23 | N/A | 9841773 | 14 | N/A | N/A | 9841773 |
| Cation Sum | meq/L | 48 | N/A | 25 | N/A | 9841773 | 14 | N/A | N/A | 9841773 |
| Hardness (CaCO3) | mg/L | 2200 | 0.50 | 1200 | N/A | 9841764 | 650 | N/A | 0.50 | 9841764 |
| Ion Balance (% Difference) | % | 5.3 | N/A | 3.0 | N/A | 9841767 | 1.5 | N/A | N/A | 9841767 |
| Dissolved Nitrate (NO3) | mg/L | 120 | 0.22 | 2.6 | N/A | 9841776 | <0.044 | N/A | 0.044 | 9841776 |
| Nitrate plus Nitrite (N) | mg/L | 26 | 0.051 | 0.61 | N/A | 9841780 | <0.014 | N/A | 0.014 | 9841780 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 0.033 | 0.045 | N/A | 9841776 | <0.033 | N/A | 0.033 | 9841776 |
| Calculated Total Dissolved Solids | mg/L | 2300 | 10 | 1200 | N/A | 9841784 | 710 | N/A | 10 | 9841784 |
| **Misc. Inorganics** | | | | | | | | | | |
| Conductivity | uS/cm | 8800 | 2.0 | 5000 | N/A | 9844937 | 1200 | N/A | 2.0 | 9844937 |
| pH | pH | 12.5 | N/A | 12.1 | N/A | 9844936 | 7.57 | N/A | N/A | 9844936 |
| **Anions** | | | | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | 1900 | 1.0 | 1100 | N/A | 9844935 | <1.0 | N/A | 1.0 | 9844935 |
| Alkalinity (Total as CaCO3) | mg/L | 1900 | 1.0 | 1100 | N/A | 9844935 | 530 | N/A | 1.0 | 9844935 |
| Bicarbonate (HCO3) | mg/L | <1.0 | 1.0 | <1.0 | N/A | 9844935 | 650 | N/A | 1.0 | 9844935 |
| Carbonate (CO3) | mg/L | 18 | 1.0 | 23 | N/A | 9844935 | <1.0 | N/A | 1.0 | 9844935 |
| Hydroxide (OH) | mg/L | 630 | 1.0 | 350 | N/A | 9844935 | <1.0 | N/A | 1.0 | 9844935 |
| Dissolved Chloride (Cl) | mg/L | 100 | 1.0 | 52 | 55 | 9846294 | 67 | N/A | 1.0 | 9846294 |
| Dissolved Sulphate (SO4) | mg/L | 8.1 | 1.0 | 10 | 11 | 9846294 | 84 | N/A | 1.0 | 9846294 |
| **Nutrients** | | | | | | | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 0.010 | 0.014 | N/A | 9846225 | <0.010 | <0.010 | 0.010 | 9846236 |
| Dissolved Nitrate (N) | mg/L | 26 (1) | 0.050 | 0.60 | N/A | 9846225 | <0.010 | <0.010 | 0.010 | 9846236 |
| **Elements** | | | | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 880 (1) | 1.5 | 460 | N/A | 9842455 | 140 | N/A | 0.30 | 9842455 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | <0.060 | N/A | 9842455 | 1.1 | N/A | 0.060 | 9842455 |
| Dissolved Magnesium (Mg) | mg/L | 0.39 | 0.20 | <0.20 | N/A | 9842455 | 73 | N/A | 0.20 | 9842455 |
| Dissolved Manganese (Mn) | mg/L | 0.0053 | 0.0040 | <0.0040 | N/A | 9842455 | 0.92 | N/A | 0.0040 | 9842455 |
| Dissolved Potassium (K) | mg/L | 13 | 0.30 | 9.1 | N/A | 9842455 | 2.3 | N/A | 0.30 | 9842455 |
| Dissolved Sodium (Na) | mg/L | 78 | 0.50 | 33 | N/A | 9842455 | 16 | N/A | 0.50 | 9842455 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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BV Labs Job #: C030494
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.IE45

## ROUTINE WATER (WATER)

| BV Labs ID | | XS8318 | | | XS8319 | | |
|---|---|---|---|---|---|---|---|
| Sampling Date | | 2020/05/05 11:25 | | | 2020/05/05 15:30 | | |
| COC Number | | M035110 | | | M035110 | | |
| | UNITS | 1954 | RDL | QC Batch | 1982 | RDL | QC Batch |
| **Calculated Parameters** | | | | | | | |
| Anion Sum | meq/L | 9.3 | N/A | 9841773 | 18 | N/A | 9841773 |
| Cation Sum | meq/L | 10 | N/A | 9841773 | 18 | N/A | 9841773 |
| Hardness (CaCO3) | mg/L | 470 | 0.50 | 9841764 | 600 | 0.50 | 9841764 |
| Ion Balance (% Difference) | % | 3.2 | N/A | 9841767 | 0.25 | N/A | 9841767 |
| Dissolved Nitrate (NO3) | mg/L | 0.052 | 0.044 | 9841776 | 33 | 0.044 | 9841776 |
| Nitrate plus Nitrite (N) | mg/L | <0.014 | 0.014 | 9841780 | 7.5 | 0.014 | 9841780 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 0.033 | 9841776 | <0.033 | 0.033 | 9841776 |
| Calculated Total Dissolved Solids | mg/L | 460 | 10 | 9841784 | 950 | 10 | 9841784 |
| **Misc. Inorganics** | | | | | | | |
| Conductivity | uS/cm | 830 | 2.0 | 9844937 | 1800 | 2.0 | 9843555 |
| pH | pH | 8.27 | N/A | 9844936 | 7.70 | N/A | 9843554 |
| **Anions** | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9844935 | <1.0 | 1.0 | 9843550 |
| Alkalinity (Total as CaCO3) | mg/L | 420 | 1.0 | 9844935 | 530 | 1.0 | 9843550 |
| Bicarbonate (HCO3) | mg/L | 510 | 1.0 | 9844935 | 640 | 1.0 | 9843550 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9844935 | <1.0 | 1.0 | 9843550 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9844935 | <1.0 | 1.0 | 9843550 |
| Dissolved Chloride (Cl) | mg/L | 15 | 1.0 | 9846294 | 200 (1) | 5.0 | 9846294 |
| Dissolved Sulphate (SO4) | mg/L | 27 | 1.0 | 9846294 | 69 | 1.0 | 9846294 |
| **Nutrients** | | | | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 0.010 | 9844098 | <0.010 | 0.010 | 9846225 |
| Dissolved Nitrate (N) | mg/L | 0.012 | 0.010 | 9844098 | 7.5 | 0.010 | 9846225 |
| **Elements** | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 110 | 0.30 | 9842455 | 96 | 0.30 | 9842455 |
| Dissolved Iron (Fe) | mg/L | 0.066 | 0.060 | 9842455 | 0.22 | 0.060 | 9842455 |
| Dissolved Magnesium (Mg) | mg/L | 47 | 0.20 | 9842455 | 87 | 0.20 | 9842455 |
| Dissolved Manganese (Mn) | mg/L | 0.095 | 0.0040 | 9842455 | 0.28 | 0.0040 | 9842455 |
| Dissolved Potassium (K) | mg/L | 2.7 | 0.30 | 9842455 | 2.4 | 0.30 | 9842455 |
| Dissolved Sodium (Na) | mg/L | 13 | 0.50 | 9842455 | 140 | 0.50 | 9842455 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.


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BV Labs Job #: C030494
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.IE45

## ROUTINE WATER -LAB FILTERED (WATER)

| **BV Labs ID** | | XS8315 | XS8315 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/05 13:20 | 2020/05/05 13:20 | | |
| **COC Number** | | M035110 | M035110 | | |
| | **UNITS** | **1936** | **1936 Lab-Dup** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | | |
| Anion Sum | meq/L | 110 | N/A | N/A | 9841773 |
| Cation Sum | meq/L | 130 | N/A | N/A | 9841773 |
| Hardness (CaCO3) | mg/L | 5900 | N/A | 0.50 | 9841764 |
| Ion Balance (% Difference) | % | 8.0 | N/A | N/A | 9841767 |
| Dissolved Nitrate (NO3) | mg/L | 1.6 | N/A | 0.044 | 9841776 |
| Nitrate plus Nitrite (N) | mg/L | 0.54 | N/A | 0.014 | 9841780 |
| Dissolved Nitrite (NO2) | mg/L | 0.57 | N/A | 0.033 | 9841776 |
| Calculated Total Dissolved Solids | mg/L | 6400 | N/A | 20 | 9841784 |
| **Misc. Inorganics** | | | | | |
| Conductivity | uS/cm | 15000 | 15000 | 2.0 | 9843281 |
| pH | pH | 12.5 | 12.5 | N/A | 9843274 |
| **Anions** | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | 2100 | 2100 | 1.0 | 9843270 |
| Alkalinity (Total as CaCO3) | mg/L | 2200 | 2100 | 1.0 | 9843270 |
| Bicarbonate (HCO3) | mg/L | <1.0 | <1.0 | 1.0 | 9843270 |
| Carbonate (CO3) | mg/L | 83 | 89 | 1.0 | 9843270 |
| Hydroxide (OH) | mg/L | 690 | 680 | 1.0 | 9843270 |
| Dissolved Chloride (Cl) | mg/L | 2400 (1) | N/A | 20 | 9846294 |
| Dissolved Sulphate (SO4) | mg/L | 24 | N/A | 1.0 | 9846294 |
| **Nutrients** | | | | | |
| Dissolved Nitrite (N) | mg/L | 0.17 | N/A | 0.010 | 9846225 |
| Dissolved Nitrate (N) | mg/L | 0.37 | N/A | 0.010 | 9846225 |
| **Lab Filtered Elements** | | | | | |
| Dissolved Calcium (Ca) | mg/L | 2400 (1) | N/A | 3.0 | 9849595 |
| Dissolved Iron (Fe) | mg/L | <0.060 | N/A | 0.060 | 9849595 |
| Dissolved Magnesium (Mg) | mg/L | <0.20 | N/A | 0.20 | 9849595 |
| Dissolved Manganese (Mn) | mg/L | <0.0040 | N/A | 0.0040 | 9849595 |
| Dissolved Potassium (K) | mg/L | 68 | N/A | 0.30 | 9849595 |
| Dissolved Sodium (Na) | mg/L | 260 | N/A | 0.50 | 9849595 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XS8314 | XS8315 | XS8316 | XS8317 | XS8318 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/05 10:15 | 2020/05/05 13:20 | 2020/05/05 14:40 | 2020/05/05 15:00 | 2020/05/05 11:25 | | |
| **COC Number** | | M035110 | M035110 | M035110 | M035110 | M035110 | | |
| | **UNITS** | **1929** | **1936** | **1937** | **1939** | **1954** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9841573 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9845321 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9845321 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9845321 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00058 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9845321 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9845321 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.050 | 0.00072 | 0.00050 | 9845321 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9845321 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9845321 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9845321 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9845321 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9845321 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C030494
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.IE45

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XS8314 | XS8315 | XS8316 | XS8317 | XS8318 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/05 10:15 | 2020/05/05 13:20 | 2020/05/05 14:40 | 2020/05/05 15:00 | 2020/05/05 11:25 | | |
| **COC Number** | | M035110 | M035110 | M035110 | M035110 | M035110 | | |
| | **UNITS** | **1929** | **1936** | **1937** | **1939** | **1954** | **RDL** | **QC Batch** |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9845321 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | 98 | 98 | 98 | 98 | N/A | 9845321 |
| 4-Bromofluorobenzene (sur.) | % | 110 | 112 | 110 | 108 | 107 | N/A | 9845321 |
| D4-1,2-Dichloroethane (sur.) | % | 120 | 118 | 108 | 105 | 113 | N/A | 9845321 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XS8319 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/05 15:30 | | |
| **COC Number** | | M035110 | | |
| | **UNITS** | **1982** | **RDL** | **QC Batch** |
| **Volatiles** | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | 0.0013 | 9841573 |
| Bromodichloromethane | mg/L | <0.00050 | 0.00050 | 9845321 |
| Bromoform | mg/L | <0.00050 | 0.00050 | 9845321 |
| Bromomethane | mg/L | <0.0020 | 0.0020 | 9845321 |
| Carbon tetrachloride | mg/L | <0.00050 | 0.00050 | 9845321 |
| Chlorobenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| Chlorodibromomethane | mg/L | <0.0010 | 0.0010 | 9845321 |
| Chloroethane | mg/L | <0.0010 | 0.0010 | 9845321 |
| Chloroform | mg/L | <0.00050 | 0.00050 | 9845321 |
| Chloromethane | mg/L | <0.0020 | 0.0020 | 9845321 |
| 1,2-dibromoethane | mg/L | <0.00020 | 0.00020 | 9845321 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,1-dichloroethane | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,2-dichloroethane | mg/L | 0.025 | 0.00050 | 9845321 |
| 1,1-dichloroethene | mg/L | <0.00050 | 0.00050 | 9845321 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9845321 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9845321 |
| Dichloromethane | mg/L | <0.0020 | 0.0020 | 9845321 |
| 1,2-dichloropropane | mg/L | <0.00050 | 0.00050 | 9845321 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9845321 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9845321 |
| Methyl methacrylate | mg/L | <0.00050 | 0.00050 | 9845321 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.00050 | 9845321 |
| Styrene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | 0.0010 | 9845321 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | 0.0020 | 9845321 |
| Tetrachloroethene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9845321 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9845321 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | 0.00050 | 9845321 |
| RDL = Reportable Detection Limit | | | | |



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## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XS8319 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/05 15:30 | | |
| **COC Number** | | M035110 | | |
| | **UNITS** | **1982** | **RDL** | **QC Batch** |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00050 | 9845321 |
| Trichloroethene | mg/L | <0.00050 | 0.00050 | 9845321 |
| Trichlorofluoromethane | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9845321 |
| Vinyl chloride | mg/L | <0.00050 | 0.00050 | 9845321 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 96 | N/A | 9845321 |
| 4-Bromofluorobenzene (sur.) | % | 110 | N/A | 9845321 |
| D4-1,2-Dichloroethane (sur.) | % | 138 | N/A | 9845321 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 8.3°C |

Sample XS8314 [1929] : Sample was analyzed past method specified hold time for Nitrogen (Nitrite - Nitrate) by IC. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample XS8315 [1936] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XS8316 [1937] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XS8317 [1939] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XS8319 [1982] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**ROUTINE WATER (WATER) Comments**

Sample XS8314 [1929] Nitrogen (Nitrite - Nitrate) by IC: Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.

**Results relate only to the items tested.**



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# QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9842455 | LQ1 | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/06 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/06 | | 87 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/06 | | NC | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/06 | | 88 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/06 | | 93 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/06 | | NC | % | 80 - 120 |
| 9842455 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/06 | | 99 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/06 | | 99 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/06 | | 101 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/06 | | 97 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/06 | | 95 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/06 | | 94 | % | 80 - 120 |
| 9842455 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/05/06 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/06 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/06 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/06 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/06 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/06 | <0.50 | | mg/L | |
| 9842455 | LQ1 | RPD | Dissolved Calcium (Ca) | 2020/05/06 | 1.4 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/05/06 | 1.9 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/06 | 0.34 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/05/06 | 1.0 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/06 | 0.33 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/06 | 1.9 | | % | 20 |
| 9842833 | LL0 | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/08 | | 110 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/08 | | 101 | % | 60 - 140 |
| 9842833 | LL0 | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/08 | | 107 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/08 | | 98 | % | 60 - 140 |
| 9842833 | LL0 | Method Blank | O-TERPHENYL (sur.) | 2020/05/08 | | 111 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/08 | <0.10 | | mg/L | |
| 9842833 | LL0 | RPD | F2 (C10-C16 Hydrocarbons) | 2020/05/08 | NC | | % | 30 |
| 9843270 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/07 | | 92 | % | 80 - 120 |
| 9843270 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/07 | <1.0 | | mg/L | |
| 9843270 | IK0 | RPD [XS8315-01] | Alkalinity (PP as CaCO3) | 2020/05/07 | 1.9 | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/07 | 1.6 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/07 | NC | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/07 | 6.6 | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/07 | 2.1 | | % | 20 |
| 9843274 | IK0 | Spiked Blank | pH | 2020/05/07 | | 100 | % | 97 - 103 |
| 9843274 | IK0 | RPD [XS8315-01] | pH | 2020/05/07 | 0.19 | | % | N/A |
| 9843281 | IK0 | Spiked Blank | Conductivity | 2020/05/07 | | 100 | % | 90 - 110 |
| 9843281 | IK0 | Method Blank | Conductivity | 2020/05/07 | <2.0 | | uS/cm | |
| 9843281 | IK0 | RPD [XS8315-01] | Conductivity | 2020/05/07 | 0.19 | | % | 10 |
| 9843550 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/07 | | 93 | % | 80 - 120 |
| 9843550 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/07 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/07 | <1.0 | | mg/L | |
| 9843550 | IK0 | RPD | Alkalinity (PP as CaCO3) | 2020/05/07 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/07 | 0.25 | | % | 20 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Bicarbonate (HCO3) | 2020/05/07 | 0.25 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/07 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/07 | NC | | % | 20 |
| 9843554 | IK0 | Spiked Blank | pH | 2020/05/07 | | 100 | % | 97 - 103 |
| 9843554 | IK0 | RPD | pH | 2020/05/07 | 0.031 | | % | N/A |
| 9843555 | IK0 | Spiked Blank | Conductivity | 2020/05/07 | | 101 | % | 90 - 110 |
| 9843555 | IK0 | Method Blank | Conductivity | 2020/05/07 | <2.0 | | uS/cm | |
| 9843555 | IK0 | RPD | Conductivity | 2020/05/07 | 0.41 | | % | 10 |
| 9844098 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/05/11 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/11 | | 103 | % | 80 - 120 |
| 9844098 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/05/08 | | 98 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/08 | | 98 | % | 80 - 120 |
| 9844098 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/05/08 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/08 | <0.010 | | mg/L | |
| 9844098 | IBL | RPD | Dissolved Nitrite (N) | 2020/05/11 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/11 | 1.0 | | % | 20 |
| 9844935 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/08 | | 93 | % | 80 - 120 |
| 9844935 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/08 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/08 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/08 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/08 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/08 | <1.0 | | mg/L | |
| 9844935 | IK0 | RPD | Alkalinity (PP as CaCO3) | 2020/05/08 | 1.5 | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/08 | 0.44 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/08 | 0.20 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/08 | 1.5 | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/08 | NC | | % | 20 |
| 9844936 | IK0 | Spiked Blank | pH | 2020/05/08 | | 100 | % | 97 - 103 |
| 9844936 | IK0 | RPD | pH | 2020/05/08 | 0.0054 | | % | N/A |
| 9844937 | IK0 | Spiked Blank | Conductivity | 2020/05/08 | | 100 | % | 90 - 110 |
| 9844937 | IK0 | Method Blank | Conductivity | 2020/05/08 | <2.0 | | uS/cm | |
| 9844937 | IK0 | RPD | Conductivity | 2020/05/08 | 0 | | % | 10 |
| 9845301 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/08 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/08 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/08 | | 95 | % | 50 - 140 |
| | | | Benzene | 2020/05/08 | | 99 | % | 50 - 140 |
| | | | Toluene | 2020/05/08 | | 95 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/08 | | 94 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/08 | | 93 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/08 | | 93 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/08 | | 99 | % | 60 - 140 |
| 9845301 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/08 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/08 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/08 | | 95 | % | 50 - 140 |
| | | | Benzene | 2020/05/08 | | 92 | % | 60 - 130 |
| | | | Toluene | 2020/05/08 | | 87 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/08 | | 87 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/08 | | 85 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/08 | | 86 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/08 | | 82 | % | 60 - 140 |
| 9845301 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/08 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/08 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/08 | | 99 | % | 50 - 140 |
| | | | Benzene | 2020/05/08 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/08 | <0.00040 | | mg/L | |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Ethylbenzene | 2020/05/08 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/08 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/08 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/08 | <0.10 | | mg/L | |
| 9845301 | DO1 | RPD | F1 (C6-C10) | 2020/05/08 | NC | | % | 30 |
| 9845321 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 114 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | | 97 | % | 50 - 140 |
| | | | Bromoform | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/12 | | 83 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/12 | | 87 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/12 | | 93 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/12 | | 89 | % | 50 - 140 |
| | | | Chloroform | 2020/05/12 | | 90 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/12 | | 76 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | | 92 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/12 | | 95 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/12 | | 85 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | | 85 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/12 | | 89 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | | 114 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | | 120 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/12 | | 113 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | Styrene | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | | 91 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | | 102 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/12 | | 82 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | | 89 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | | 87 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | | 85 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | | 91 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/12 | | 87 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/12 | | 78 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | | 105 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | | 105 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/12 | | 74 | % | 50 - 140 |
| 9845321 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 114 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | | 102 | % | 60 - 130 |
| | | | Bromoform | 2020/05/12 | | 98 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/12 | | 85 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/12 | | 94 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/12 | | 96 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/12 | | 102 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Chloroethane | 2020/05/12 | | 93 | % | 60 - 130 |
| | | | Chloroform | 2020/05/12 | | 95 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/12 | | 78 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/12 | | 103 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | | 99 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | | 95 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/12 | | 103 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/12 | | 90 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/12 | | 99 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | | 91 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/12 | | 93 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/12 | | 104 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | | 116 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | | 118 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/12 | | 118 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | | 103 | % | 60 - 130 |
| | | | Styrene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | | 95 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/12 | | 87 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | | 90 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | | 90 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | | 89 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | | 97 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | | 101 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/12 | | 93 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/12 | | 84 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | | 109 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/12 | | 78 | % | 60 - 130 |
| 9845321 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 107 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/12 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/12 | <0.00050 | | mg/L | |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | cis-1,3-dichloropropene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/12 | <0.00050 | | mg/L | |
| 9845321 | GP4 | RPD | Bromodichloromethane | 2020/05/12 | 0.35 | | % | 30 |
| | | | Bromoform | 2020/05/12 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/12 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/12 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/12 | NC | | % | 30 |
| | | | Chloroethane | 2020/05/12 | NC | | % | 30 |
| | | | Chloroform | 2020/05/12 | 1.9 | | % | 30 |
| | | | Chloromethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/12 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/12 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/12 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/12 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | NC | | % | 30 |
| | | | Styrene | 2020/05/12 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/12 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/12 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | NC | | % | 30 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Vinyl chloride | 2020/05/12 | NC | | % | 30 |
| 9846225 | IBL | Matrix Spike | Dissolved Nitrite (N) | 2020/05/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/09 | | 101 | % | 80 - 120 |
| 9846225 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/05/09 | | 98 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/09 | | 99 | % | 80 - 120 |
| 9846225 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/05/09 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/09 | <0.010 | | mg/L | |
| 9846225 | IBL | RPD | Dissolved Nitrite (N) | 2020/05/09 | 0.43 | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/09 | 0.36 | | % | 20 |
| 9846236 | IBL | Matrix Spike [XS8317-01] | Dissolved Nitrite (N) | 2020/05/10 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/10 | | 101 | % | 80 - 120 |
| 9846236 | IBL | Spiked Blank | Dissolved Nitrite (N) | 2020/05/10 | | 99 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/10 | | 100 | % | 80 - 120 |
| 9846236 | IBL | Method Blank | Dissolved Nitrite (N) | 2020/05/10 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/10 | <0.010 | | mg/L | |
| 9846236 | IBL | RPD [XS8317-01] | Dissolved Nitrite (N) | 2020/05/10 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/10 | NC | | % | 20 |
| 9846294 | CCQ | Matrix Spike [XS8316-01] | Dissolved Chloride (Cl) | 2020/05/09 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/09 | | 98 | % | 80 - 120 |
| 9846294 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/05/09 | | 104 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/09 | | 101 | % | 80 - 120 |
| 9846294 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/05/09 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/05/09 | <1.0 | | mg/L | |
| 9846294 | CCQ | RPD [XS8316-01] | Dissolved Chloride (Cl) | 2020/05/09 | 5.7 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/05/09 | 1.5 | | % | 20 |
| 9849595 | JAB | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/13 | | 94 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/13 | | 99 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/13 | | 100 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/13 | | 99 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/13 | | 95 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/13 | | 97 | % | 80 - 120 |
| 9849595 | JAB | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/13 | | 101 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/13 | | 102 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/13 | | 103 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/13 | | 101 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/13 | | 97 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/13 | | 107 | % | 80 - 120 |
| 9849595 | JAB | Method Blank | Dissolved Calcium (Ca) | 2020/05/13 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/13 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/13 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/13 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/13 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/13 | <0.50 | | mg/L | |
| 9849595 | JAB | RPD | Dissolved Calcium (Ca) | 2020/05/13 | 0.023 | | % | 20 |


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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Magnesium (Mg) | 2020/05/13 | 0.22 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

# CHAIN OF CUSTODY RECORD

178 M035110

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | clifton | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1E45 | Rush TAT (Surcharges will be applied) ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

## Laboratory Use Only

| | YES | NO | Cooler ID | MCAL | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 4 | 9 | 12 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

Depot Reception

## Analysis Requested

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☑ VOC | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1929 | | 2020/05/05 | 10:15 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 2 | 1936 | | ↓ | 13:20 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 3 | 1937 | | ↓ | 14:40 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 4 | 1939 | | ↓ | 15:00 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 5 | 1954 | | ↓ | 11:25 | ↓ | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 6 | 1982 | | 2020/05/05 | 15:30 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | F/P | | | | | | | |

## Regulatory Criteria

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ DSO (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

## Special Instructions

1936 contain active carbon and NO field filtered/preserved

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/05/05 | 16:25 | Fajran Jones | 2020/05/05 | 16:30 |
| | | | | | |

05-May-20 16:30
Linsay Sunderman
C030494

JK4 INS-0240

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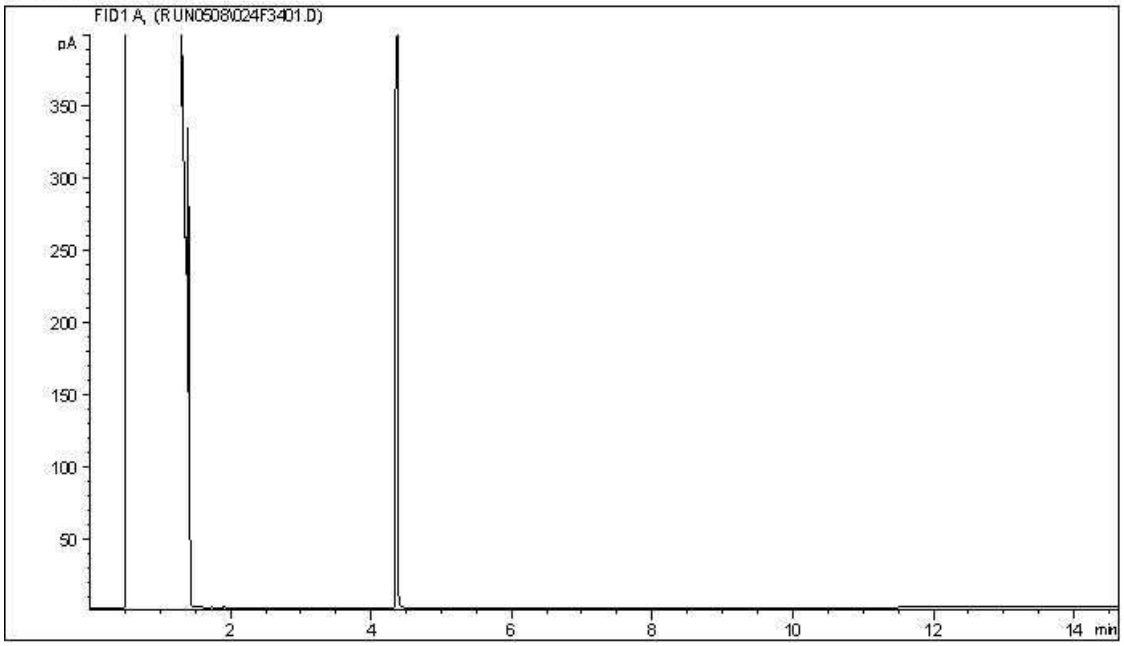
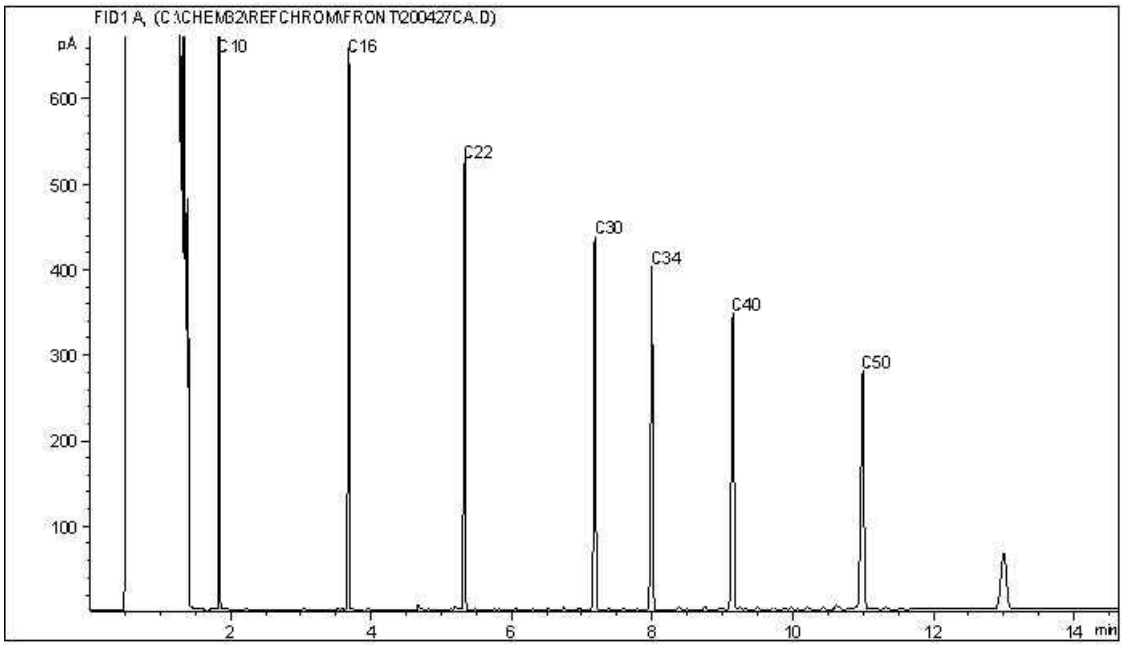
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

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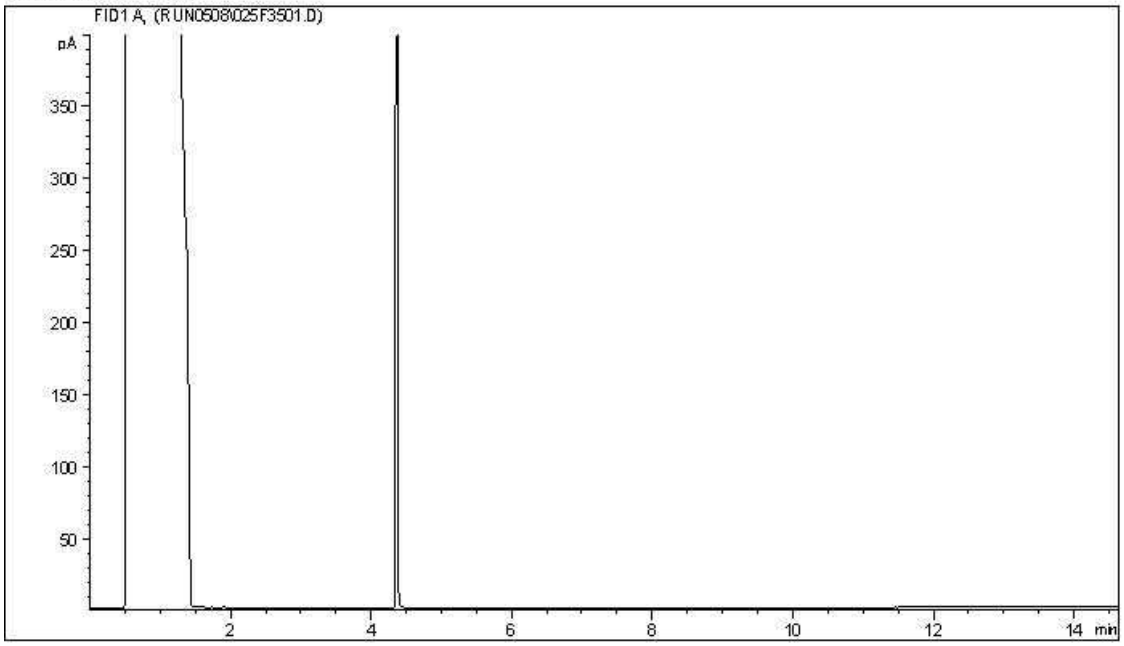


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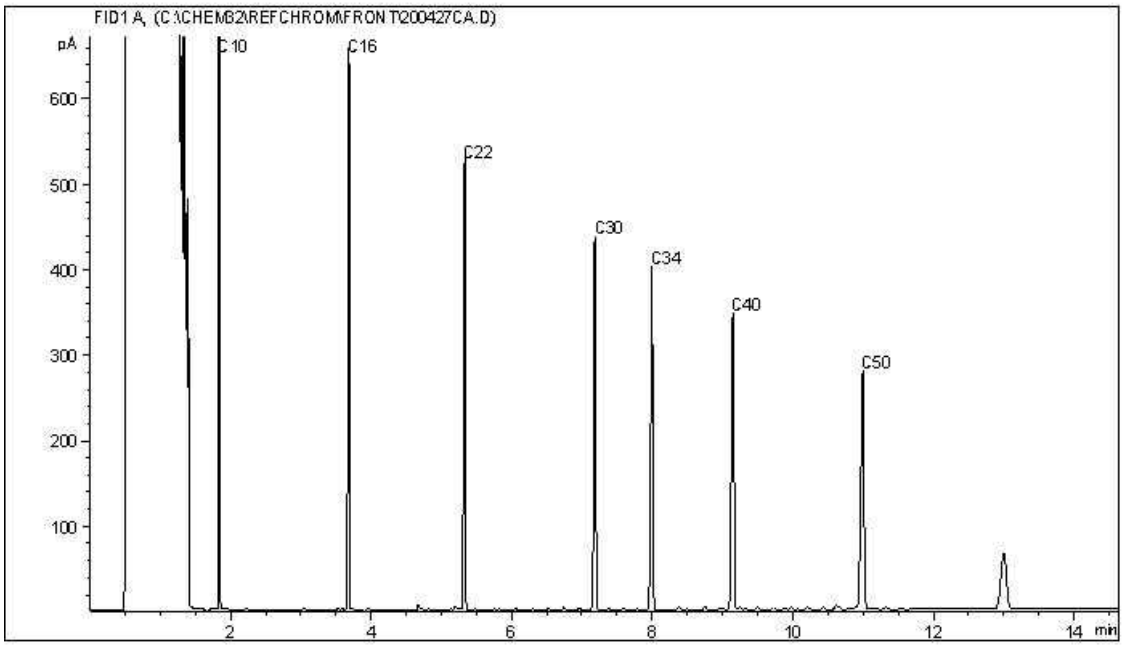


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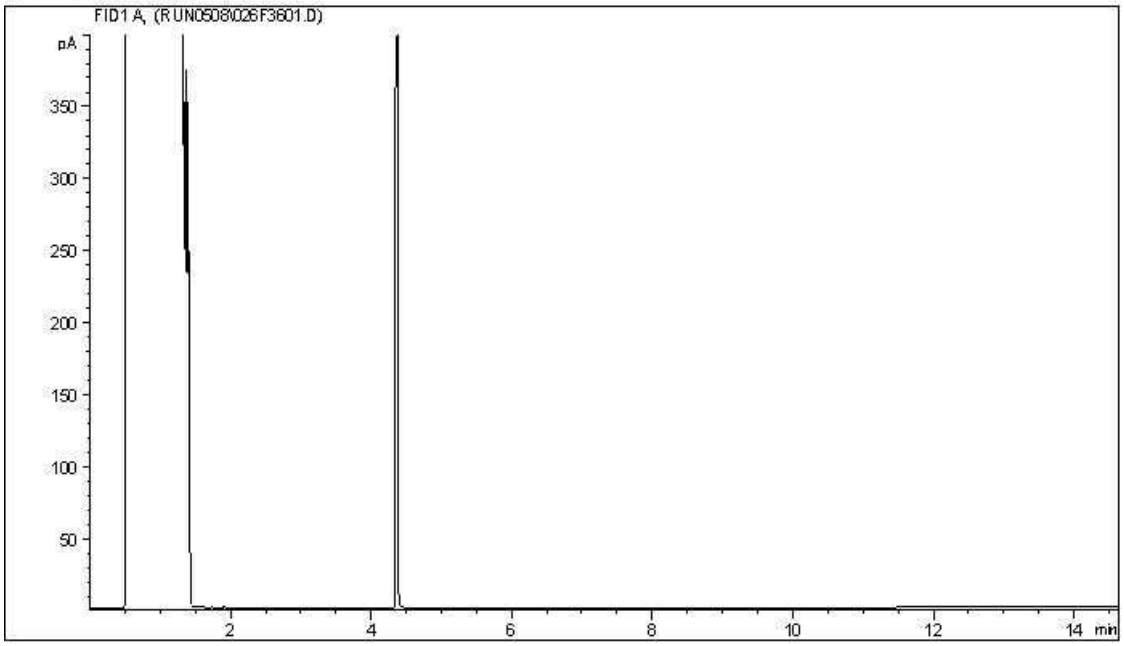


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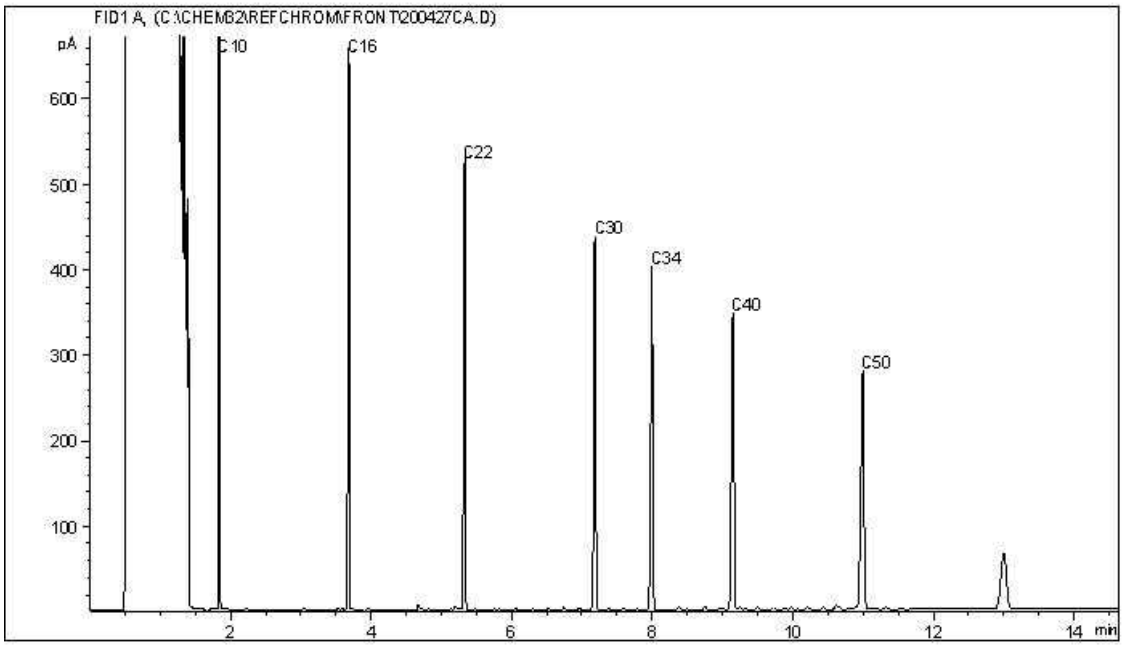


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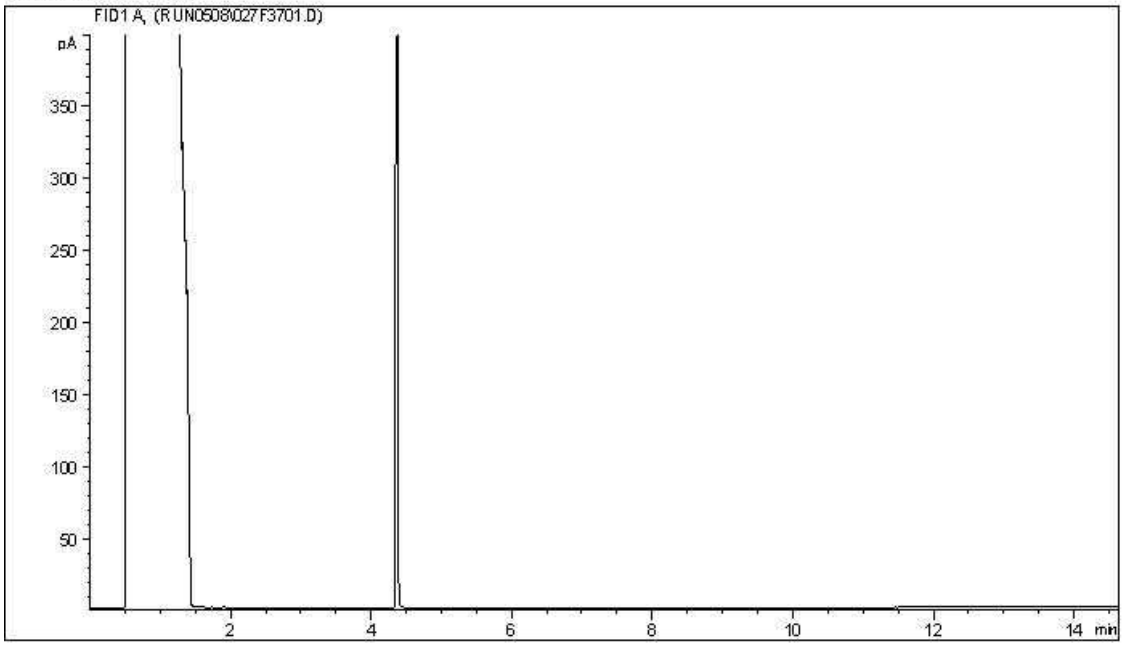


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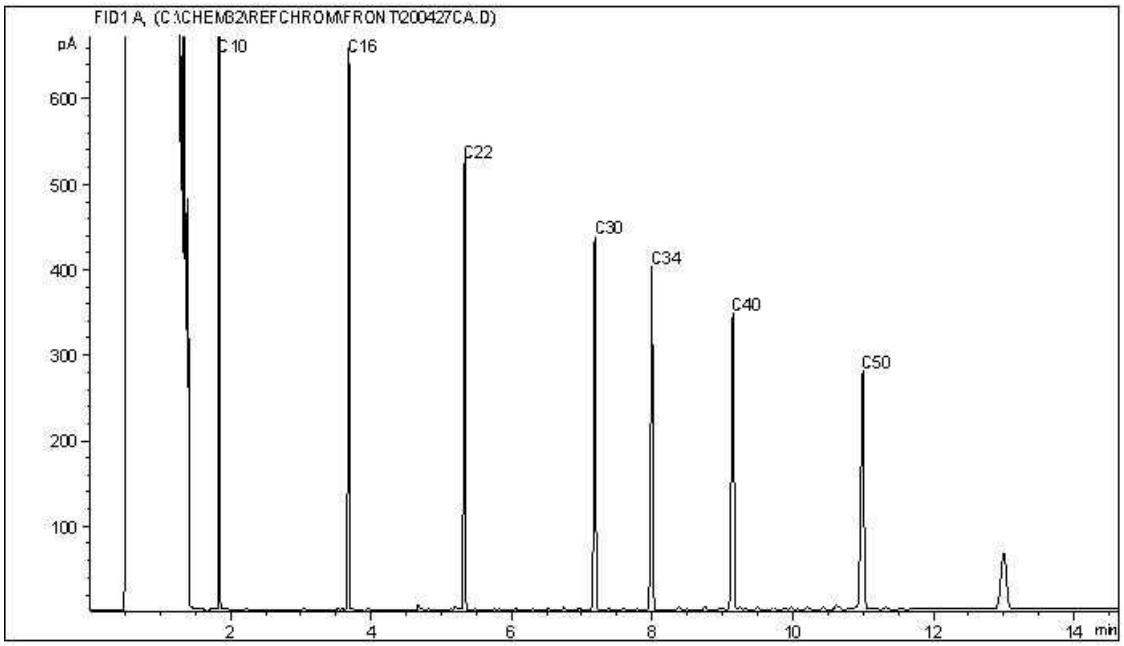


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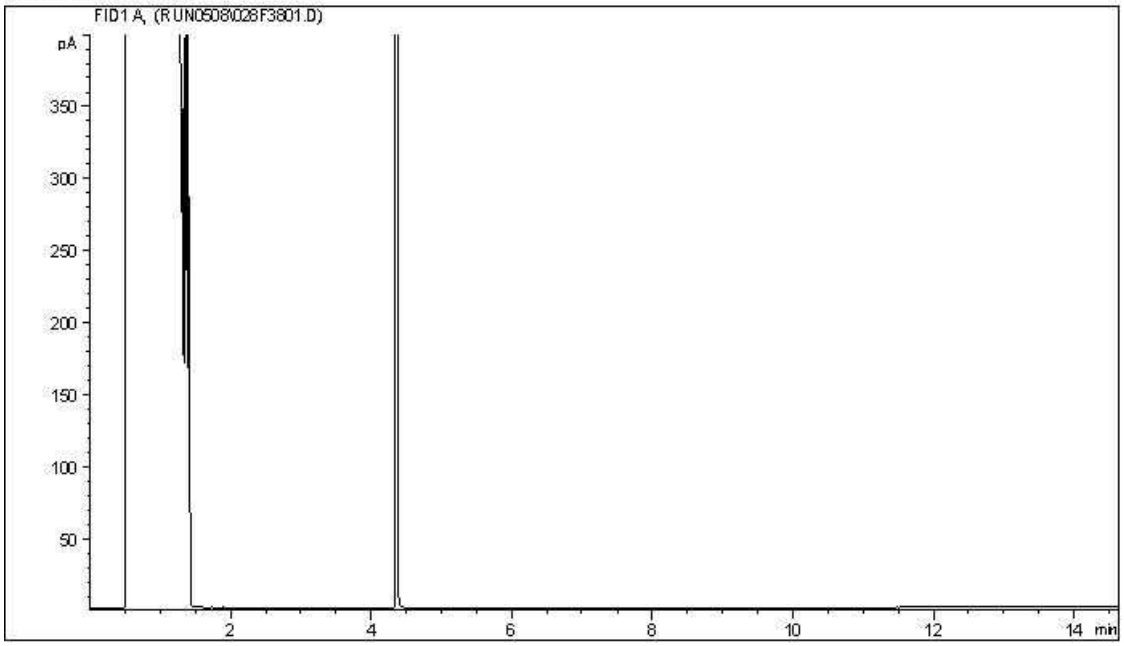


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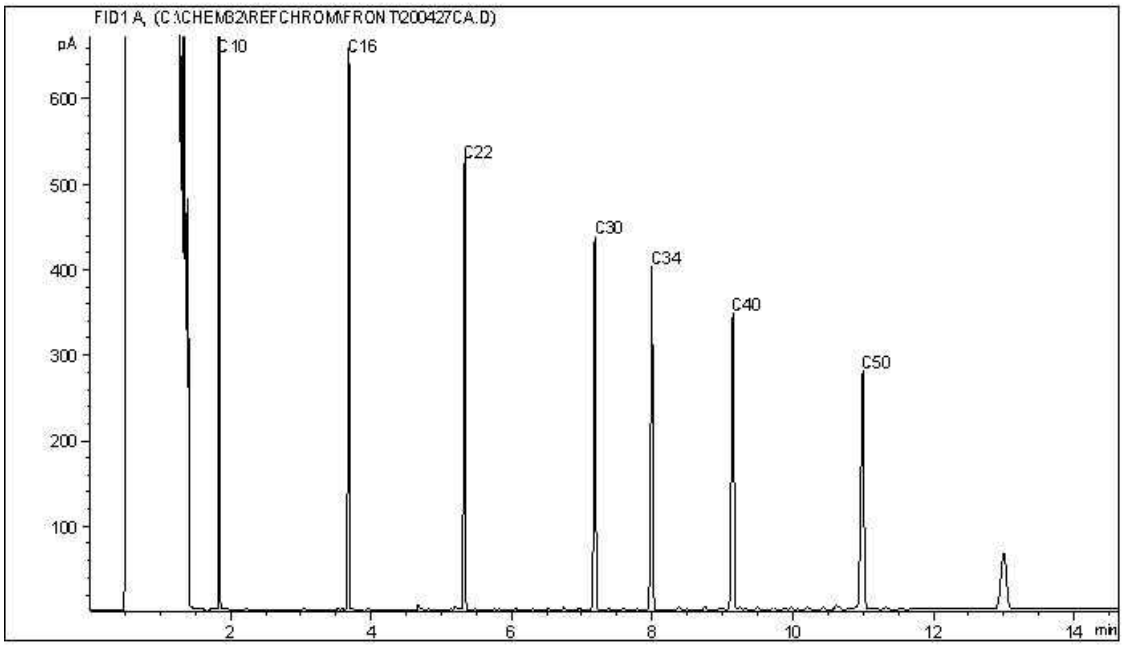


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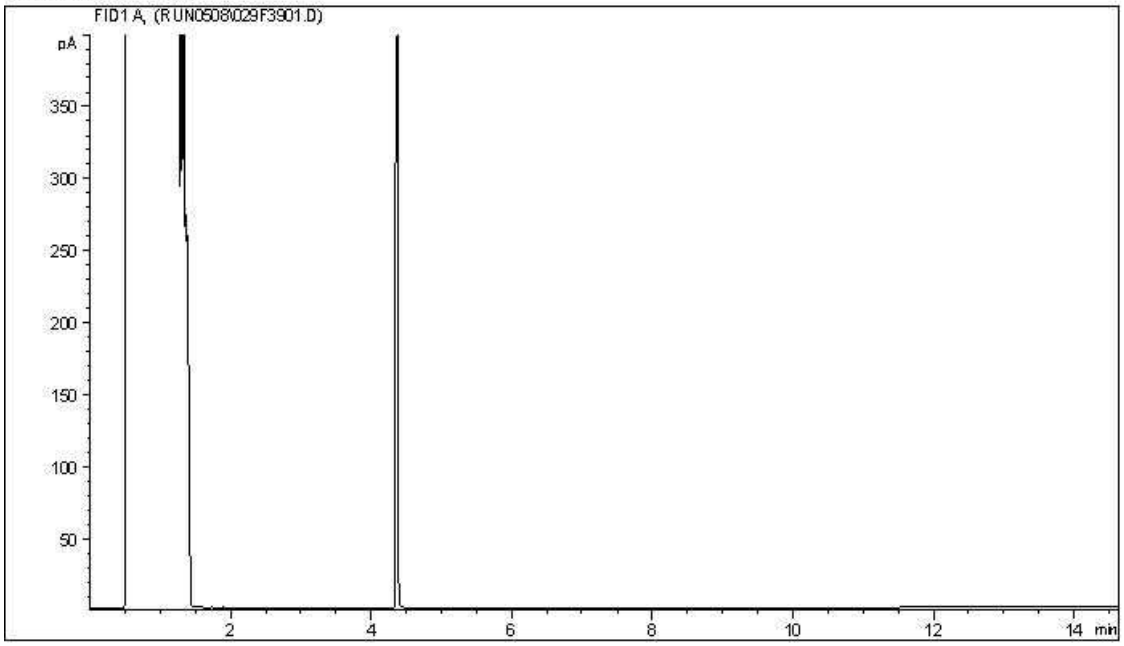


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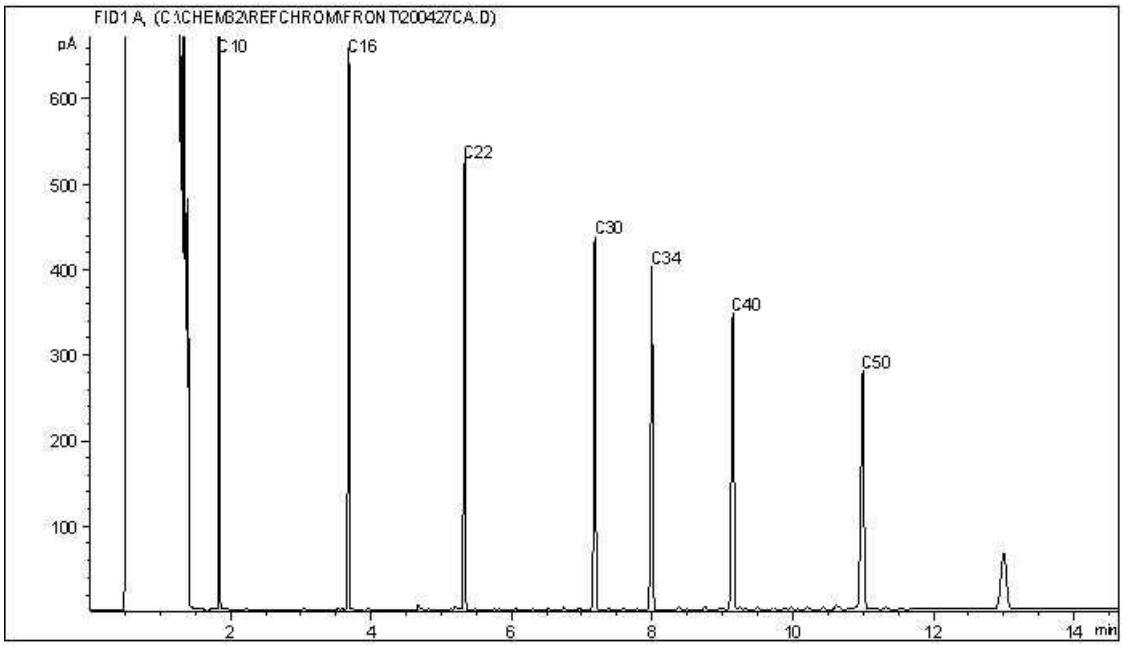


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Your Project #: CG2430.1 E49
Your C.O.C. #: M061057

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/16**
Report #: R2891078
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C038501**
**Received: 2020/06/05, 11:30**

Sample Matrix: Water
# Samples Received: 5

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/06/08 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 4 | N/A | 2020/06/14 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 4 | N/A | 2020/06/16 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 1 | N/A | 2020/06/11 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 1 | N/A | 2020/06/08 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 4 | 2020/06/09 | 2020/06/12 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 1 | N/A | 2020/06/09 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 1 | N/A | 2020/06/09 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 1 | N/A | 2020/06/12 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/06/09 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/06/10 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/06/10 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 1 | N/A | 2020/06/10 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 1 | N/A | 2020/06/08 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 1 | N/A | 2020/06/12 | | Auto Calc |
| Total Trihalomethanes Calculation | 5 | N/A | 2020/06/12 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 5 | N/A | 2020/06/12 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061057

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**Report Date: 2020/06/16**
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# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C038501**
**Received: 2020/06/05, 11:30**

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XW6786 | XW6787 | XW6788 | XW6789 | | |
|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/05 08:00 | 2020/06/05 08:30 | 2020/06/05 09:00 | 2020/06/05 10:00 | | |
| **COC Number** | | M061057 | M061057 | M061057 | M061057 | | |
| | **UNITS** | **1934** | **1935** | **1980** | **2003** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9877267 |
| **Volatiles** | | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9882144 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9882144 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9882144 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9882144 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9882144 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9875848 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9875848 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9882144 |
| **Surrogate Recovery (%)** | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 109 | 109 | 109 | 109 | N/A | 9882144 |
| 4-Bromofluorobenzene (sur.) | % | 100 | 101 | 101 | 100 | N/A | 9882144 |
| D4-1,2-Dichloroethane (sur.) | % | 100 | 101 | 101 | 101 | N/A | 9882144 |
| O-TERPHENYL (sur.) | % | 98 | 99 | 99 | 97 | N/A | 9877267 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| **BV Labs ID** | | XW6789 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/05 10:00 | | |
| **COC Number** | | M061057 | | |
| | **UNITS** | **2003** | **RDL** | **QC Batch** |
| **Calculated Parameters** | | | | |
| Anion Sum | meq/L | 18 | N/A | 9875709 |
| Cation Sum | meq/L | 19 | N/A | 9875709 |
| Hardness (CaCO3) | mg/L | 650 | 0.50 | 9875836 |
| Ion Balance (% Difference) | % | 0.48 | N/A | 9875844 |
| Dissolved Nitrate (NO3) | mg/L | 4.9 | 0.044 | 9875838 |
| Nitrate plus Nitrite (N) | mg/L | 1.1 | 0.014 | 9875840 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 0.033 | 9875838 |
| Calculated Total Dissolved Solids | mg/L | 960 | 10 | 9875718 |
| **Misc. Inorganics** | | | | |
| Conductivity | uS/cm | 1800 | 2.0 | 9877626 |
| pH | pH | 7.59 | N/A | 9877625 |
| **Anions** | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 1.0 | 9877623 |
| Alkalinity (Total as CaCO3) | mg/L | 530 | 1.0 | 9877623 |
| Bicarbonate (HCO3) | mg/L | 650 | 1.0 | 9877623 |
| Carbonate (CO3) | mg/L | <1.0 | 1.0 | 9877623 |
| Hydroxide (OH) | mg/L | <1.0 | 1.0 | 9877623 |
| Dissolved Chloride (Cl) | mg/L | 220 (1) | 2.0 | 9882241 |
| Dissolved Sulphate (SO4) | mg/L | 80 | 1.0 | 9882241 |
| **Nutrients** | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 0.010 | 9878959 |
| Dissolved Nitrate (N) | mg/L | 1.1 | 0.010 | 9878959 |
| **Elements** | | | | |
| Dissolved Calcium (Ca) | mg/L | 120 | 0.30 | 9878567 |
| Dissolved Iron (Fe) | mg/L | <0.060 | 0.060 | 9878567 |
| Dissolved Magnesium (Mg) | mg/L | 87 | 0.20 | 9878567 |
| Dissolved Manganese (Mn) | mg/L | 0.46 | 0.0040 | 9878567 |
| Dissolved Potassium (K) | mg/L | 3.8 | 0.30 | 9878567 |
| Dissolved Sodium (Na) | mg/L | 130 | 0.50 | 9878567 |

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to dilution to bring analyte within the calibrated range.


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BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW6786 | XW6786 | XW6787 | XW6788 | XW6789 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/05 08:00 | 2020/06/05 08:00 | 2020/06/05 08:30 | 2020/06/05 09:00 | 2020/06/05 10:00 | | |
| **COC Number** | | M061057 | M061057 | M061057 | M061057 | M061057 | | |
| | **UNITS** | **1934** | **1934 Lab-Dup** | **1935** | **1980** | **2003** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | N/A | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9875855 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9882047 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9882047 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9882047 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9882047 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9882047 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9882047 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9882047 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9882047 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9882047 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW6786 | XW6786 | XW6787 | XW6788 | XW6789 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/05 08:00 | 2020/06/05 08:00 | 2020/06/05 08:30 | 2020/06/05 09:00 | 2020/06/05 10:00 | | |
| **COC Number** | | M061057 | M061057 | M061057 | M061057 | M061057 | | |
| | **UNITS** | **1934** | **1934 Lab-Dup** | **1935** | **1980** | **2003** | **RDL** | **QC Batch** |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9882047 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9882047 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 104 | 103 | 103 | 104 | 103 | N/A | 9882047 |
| 4-Bromofluorobenzene (sur.) | % | 88 | 87 | 88 | 87 | 89 | N/A | 9882047 |
| D4-1,2-Dichloroethane (sur.) | % | 99 | 103 | 101 | 104 | 118 | N/A | 9882047 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW6790 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/05 | | |
| **COC Number** | | M061057 | | |
| | **UNITS** | **TRIP BLANK 13** | **RDL** | **QC Batch** |
| **Volatiles** | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | 0.0013 | 9875855 |
| Benzene | mg/L | <0.00040 | 0.00040 | 9882047 |
| Bromodichloromethane | mg/L | <0.00050 | 0.00050 | 9882047 |
| Bromoform | mg/L | <0.00050 | 0.00050 | 9882047 |
| Bromomethane | mg/L | <0.0020 | 0.0020 | 9882047 |
| Carbon tetrachloride | mg/L | <0.00050 | 0.00050 | 9882047 |
| Chlorobenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| Chlorodibromomethane | mg/L | <0.0010 | 0.0010 | 9882047 |
| Chloroethane | mg/L | <0.0010 | 0.0010 | 9882047 |
| Chloroform | mg/L | <0.00050 | 0.00050 | 9882047 |
| Chloromethane | mg/L | <0.0020 | 0.0020 | 9882047 |
| 1,2-dibromoethane | mg/L | <0.00020 | 0.00020 | 9882047 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,1-dichloroethane | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,1-dichloroethene | mg/L | <0.00050 | 0.00050 | 9882047 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9882047 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9882047 |
| Dichloromethane | mg/L | <0.0020 | 0.0020 | 9882047 |
| 1,2-dichloropropane | mg/L | <0.00050 | 0.00050 | 9882047 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9882047 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9882047 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 9882047 |
| Methyl methacrylate | mg/L | <0.00050 | 0.00050 | 9882047 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.00050 | 9882047 |
| Styrene | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | 0.0010 | 9882047 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | 0.0020 | 9882047 |
| Tetrachloroethene | mg/L | <0.00050 | 0.00050 | 9882047 |
| RDL = Reportable Detection Limit | | | | |



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BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XW6790 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/06/05 | | |
| **COC Number** | | M061057 | | |
| | **UNITS** | **TRIP BLANK 13** | **RDL** | **QC Batch** |
| Toluene | mg/L | <0.00040 | 0.00040 | 9882047 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9882047 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9882047 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00050 | 9882047 |
| Trichloroethene | mg/L | <0.00050 | 0.00050 | 9882047 |
| Trichlorofluoromethane | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9882047 |
| Vinyl chloride | mg/L | <0.00050 | 0.00050 | 9882047 |
| Xylenes (Total) | mg/L | <0.00080 | 0.00080 | 9882047 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | 9882047 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 9882047 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | N/A | 9882047 |
| 4-Bromofluorobenzene (sur.) | % | 88 | N/A | 9882047 |
| D4-1,2-Dichloroethane (sur.) | % | 98 | N/A | 9882047 |

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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 7.7°C |

Sample XW6789 [2003] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**Results relate only to the items tested.**



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BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9877267 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/06/12 | | 101 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/12 | | 89 | % | 60 - 140 |
| 9877267 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/12 | | 102 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/12 | | 91 | % | 60 - 140 |
| 9877267 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/12 | | 104 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/12 | <0.10 | | mg/L | |
| 9877267 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/12 | NC | | % | 30 |
| 9877623 | CT6 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/06/08 | | 92 | % | 80 - 120 |
| 9877623 | CT6 | Method Blank | Alkalinity (PP as CaCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/06/08 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/06/08 | <1.0 | | mg/L | |
| 9877625 | CT6 | Spiked Blank | pH | 2020/06/08 | | 101 | % | 97 - 103 |
| 9877625 | CT6 | RPD | pH | 2020/06/08 | 0.24 | | % | N/A |
| 9877626 | CT6 | Spiked Blank | Conductivity | 2020/06/08 | | 102 | % | 90 - 110 |
| 9877626 | CT6 | Method Blank | Conductivity | 2020/06/08 | <2.0 | | uS/cm | |
| 9878567 | LQ1 | Matrix Spike | Dissolved Calcium (Ca) | 2020/06/09 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | | NC | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | | 94 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | | 104 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/09 | | 101 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | | NC | % | 80 - 120 |
| 9878567 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/06/09 | | 98 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | | 103 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | | 97 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | | 102 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/06/09 | | 100 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | | 99 | % | 80 - 120 |
| 9878567 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/06/09 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/06/09 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/06/09 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/06/09 | <0.50 | | mg/L | |
| 9878567 | LQ1 | RPD | Dissolved Calcium (Ca) | 2020/06/09 | 0.14 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/06/09 | 0.94 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/06/09 | 0.35 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/06/09 | 0.62 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/06/09 | 0.29 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/06/09 | 0.23 | | % | 20 |
| 9878959 | KD9 | Matrix Spike | Dissolved Nitrite (N) | 2020/06/10 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/10 | | 101 | % | 80 - 120 |
| 9878959 | KD9 | Spiked Blank | Dissolved Nitrite (N) | 2020/06/10 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/06/10 | | 101 | % | 80 - 120 |
| 9878959 | KD9 | Method Blank | Dissolved Nitrite (N) | 2020/06/10 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/06/10 | <0.010 | | mg/L | |
| 9878959 | KD9 | RPD | Dissolved Nitrite (N) | 2020/06/10 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/06/10 | NC | | % | 20 |
| 9882047 | QW1 | Matrix Spike [XW6787-02] | 1,4-Difluorobenzene (sur.) | 2020/06/12 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/12 | | 95 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/12 | | 118 | % | 50 - 140 |
| | | | Benzene | 2020/06/12 | | 85 | % | 50 - 140 |



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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Bromodichloromethane | 2020/06/12 | | 100 | % | 50 - 140 |
| | | | Bromoform | 2020/06/12 | | 118 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/12 | | 94 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/12 | | 100 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/12 | | 104 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/12 | | 118 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/12 | | 84 | % | 50 - 140 |
| | | | Chloroform | 2020/06/12 | | 87 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/12 | | 94 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/12 | | 105 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/12 | | 98 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/06/12 | | 94 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/12 | | 93 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/12 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/12 | | 96 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/12 | | 93 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/12 | | 94 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/12 | | 87 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/12 | | 88 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/12 | | 85 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/12 | | 95 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/12 | | 100 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/12 | | 93 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/12 | | 90 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/12 | | 90 | % | 50 - 140 |
| | | | Styrene | 2020/06/12 | | 100 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/12 | | 106 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/12 | | 100 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/12 | | 106 | % | 50 - 140 |
| | | | Toluene | 2020/06/12 | | 97 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/12 | | 98 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/12 | | 96 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/12 | | 94 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/12 | | 97 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/12 | | 102 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/12 | | 104 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/12 | | 96 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/12 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/12 | | 90 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/12 | | 83 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/12 | | 94 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/12 | | 92 | % | 50 - 140 |
| 9882047 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/12 | | 106 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/12 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/12 | | 111 | % | 50 - 140 |
| | | | Benzene | 2020/06/12 | | 84 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/06/12 | | 96 | % | 60 - 130 |
| | | | Bromoform | 2020/06/12 | | 112 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/12 | | 95 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/12 | | 102 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/12 | | 103 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/12 | | 110 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/12 | | 84 | % | 60 - 130 |
| | | | Chloroform | 2020/06/12 | | 85 | % | 60 - 130 |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Chloromethane | 2020/06/12 | | 92 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/12 | | 95 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/12 | | 97 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/12 | | 95 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/12 | | 93 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/12 | | 84 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/12 | | 91 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/12 | | 93 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/12 | | 92 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/12 | | 87 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/12 | | 85 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/12 | | 84 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/12 | | 92 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/12 | | 99 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/12 | | 96 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/12 | | 84 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/12 | | 89 | % | 60 - 130 |
| | | | Styrene | 2020/06/12 | | 101 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/12 | | 104 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/12 | | 94 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/12 | | 104 | % | 60 - 130 |
| | | | Toluene | 2020/06/12 | | 92 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/12 | | 96 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/12 | | 95 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/12 | | 94 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/12 | | 99 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/12 | | 94 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/12 | | 105 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/12 | | 98 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/12 | | 92 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/12 | | 94 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/12 | | 83 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/12 | | 96 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/12 | | 93 | % | 60 - 130 |
| 9882047 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/12 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/12 | | 88 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/12 | | 98 | % | 50 - 140 |
| | | | Benzene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/12 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/12 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/12 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/12 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/12 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/12 | <0.00050 | | mg/L | |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | cis-1,2-dichloroethene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/12 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/12 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/12 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/06/12 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/12 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/12 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/06/12 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/06/12 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/06/12 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/12 | <0.00040 | | mg/L | |
| 9882047 | QW1 | RPD [XW6786-02] | Bromodichloromethane | 2020/06/12 | NC | | % | 30 |
| | | | Bromoform | 2020/06/12 | NC | | % | 30 |
| | | | Bromomethane | 2020/06/12 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/06/12 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/06/12 | NC | | % | 30 |
| | | | Chloroethane | 2020/06/12 | NC | | % | 30 |
| | | | Chloroform | 2020/06/12 | NC | | % | 30 |
| | | | Chloromethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/06/12 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/06/12 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/06/12 | NC | | % | 30 |
| | | | Dichloromethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/06/12 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/06/12 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/06/12 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/06/12 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/12 | NC | | % | 30 |
| | | | Styrene | 2020/06/12 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/12 | NC | | % | 30 |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Tetrachloroethene | 2020/06/12 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/06/12 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/12 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/06/12 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/06/12 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/06/12 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/06/12 | NC | | % | 30 |
| 9882144 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/14 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/14 | | 100 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/14 | | 107 | % | 50 - 140 |
| | | | Benzene | 2020/06/14 | | 90 | % | 50 - 140 |
| | | | Toluene | 2020/06/14 | | 83 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/14 | | 86 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/14 | | 83 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/14 | | 83 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/14 | | 81 | % | 60 - 140 |
| 9882144 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/14 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/14 | | 100 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/14 | | 106 | % | 50 - 140 |
| | | | Benzene | 2020/06/14 | | 94 | % | 60 - 130 |
| | | | Toluene | 2020/06/14 | | 85 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/14 | | 91 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/14 | | 86 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/14 | | 86 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/14 | | 90 | % | 60 - 140 |
| 9882144 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/14 | | 109 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/14 | | 100 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/14 | | 102 | % | 50 - 140 |
| | | | Benzene | 2020/06/14 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/14 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/14 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/14 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/14 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/14 | <0.10 | | mg/L | |
| 9882144 | DO1 | RPD | Benzene | 2020/06/14 | NC | | % | 30 |
| | | | Toluene | 2020/06/14 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/14 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/06/14 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/14 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/14 | NC | | % | 30 |
| 9882241 | CCQ | Matrix Spike | Dissolved Chloride (Cl) | 2020/06/11 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/11 | | NC | % | 80 - 120 |
| 9882241 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/06/11 | | 104 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/06/11 | | 105 | % | 80 - 120 |
| 9882241 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/06/11 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/06/11 | <1.0 | | mg/L | |
| 9882241 | CCQ | RPD | Dissolved Chloride (Cl) | 2020/06/11 | 0.15 | | % | 20 |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C038501
Report Date: 2020/06/16

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Sulphate (SO4) | 2020/06/11 | 0.039 | | % | 20 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Janet Gao, B.Sc., QP, Supervisor, Organics

Maria Magdalena Florescu, Ph.D., P.Chem., QP, Inorganics Manager

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

# CHAIN OF CUSTODY RECORD

M061057



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave. NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

## Laboratory Use Only

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 8 | 7 | 8 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

Depot Reception

## Analysis Requested

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1934 | | 2020/0605 | 8:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1935 | | ↓ | 8:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 1980 | | | 9:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 2003 | | ↓ | 10:00 | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 5 | Trip Blank 13 | | 2020/06/05 | | W | 2 | ✓ | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | F/P | | | | | | | |

## Regulatory Criteria

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ DS0 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

## Special Instructions

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/06/05 | 10:30 | Tim Ulwtye | 2020/06/05 | 11:30 |
| | | | | | |

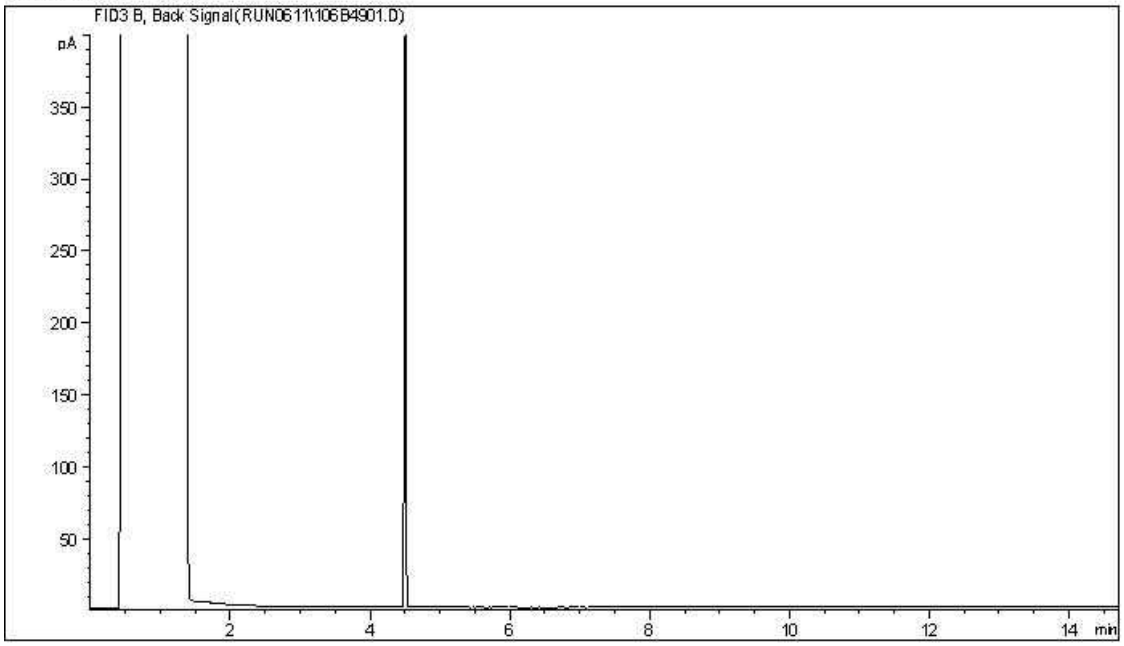
05-Jun-20 11:30
Linsay Sunderman
C038501
JK4 INS-0181

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.ma

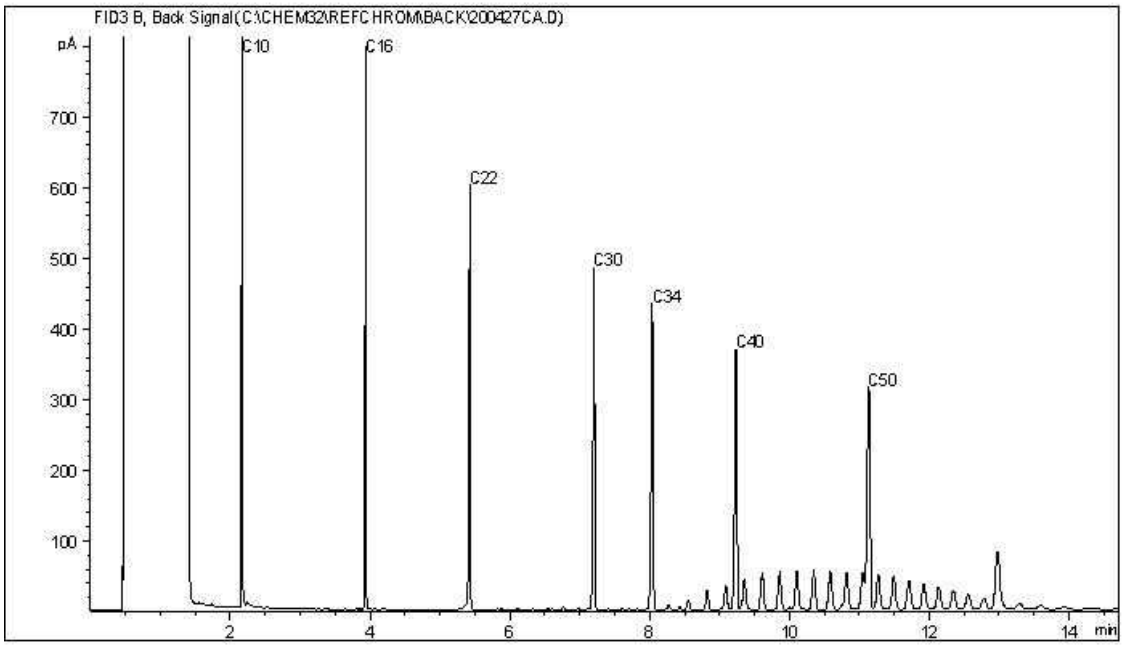
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



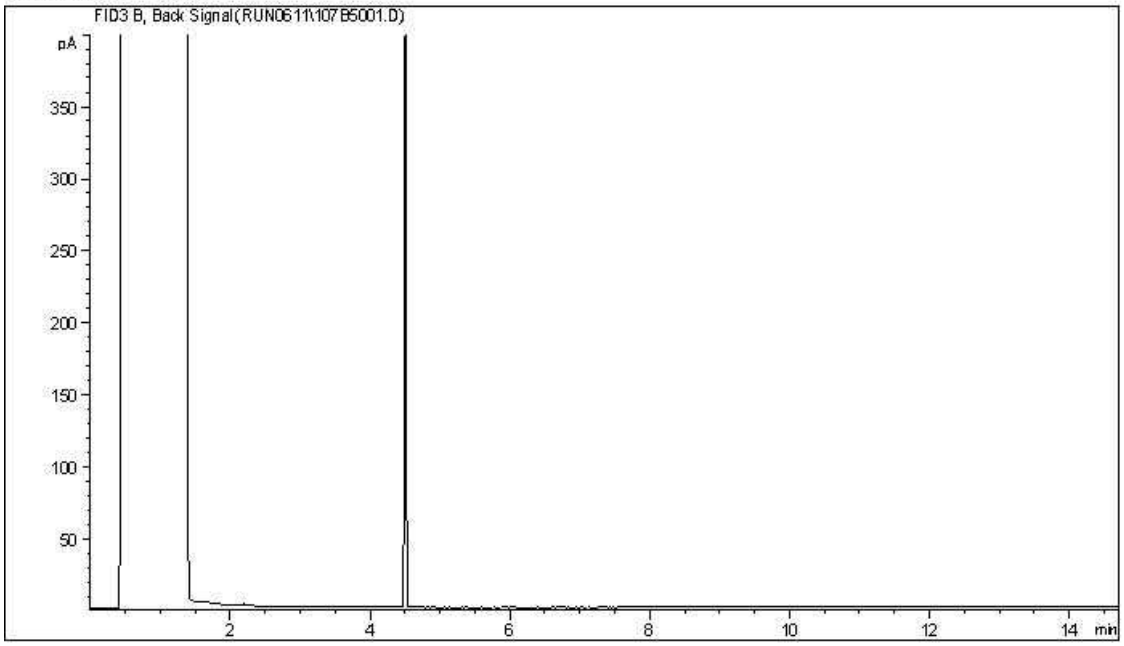

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

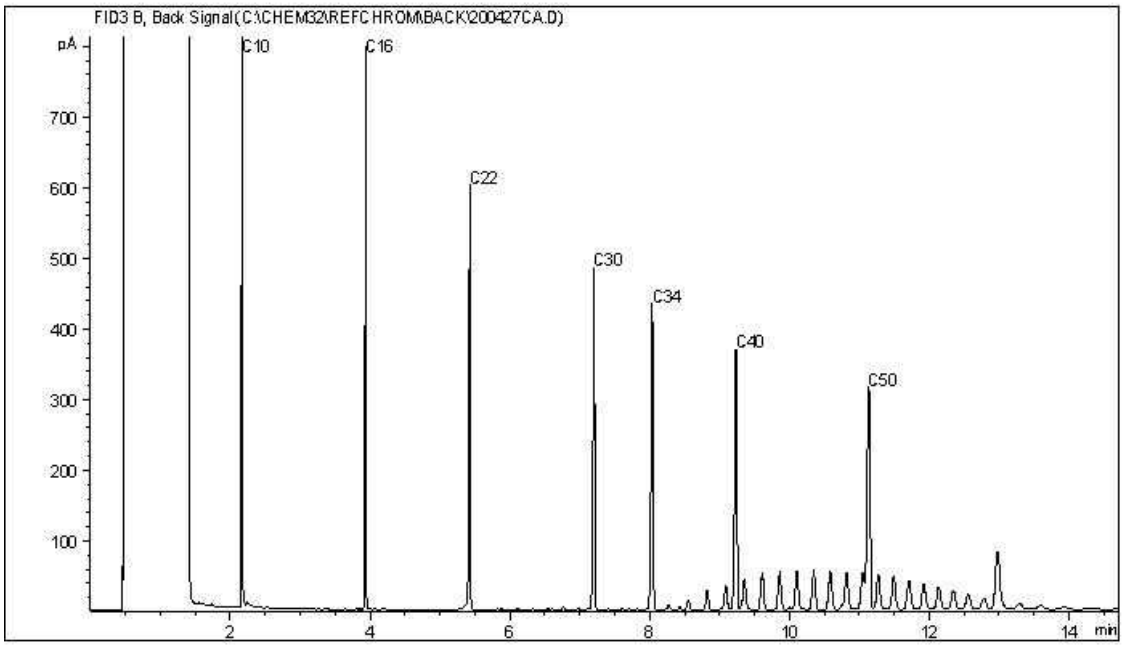
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



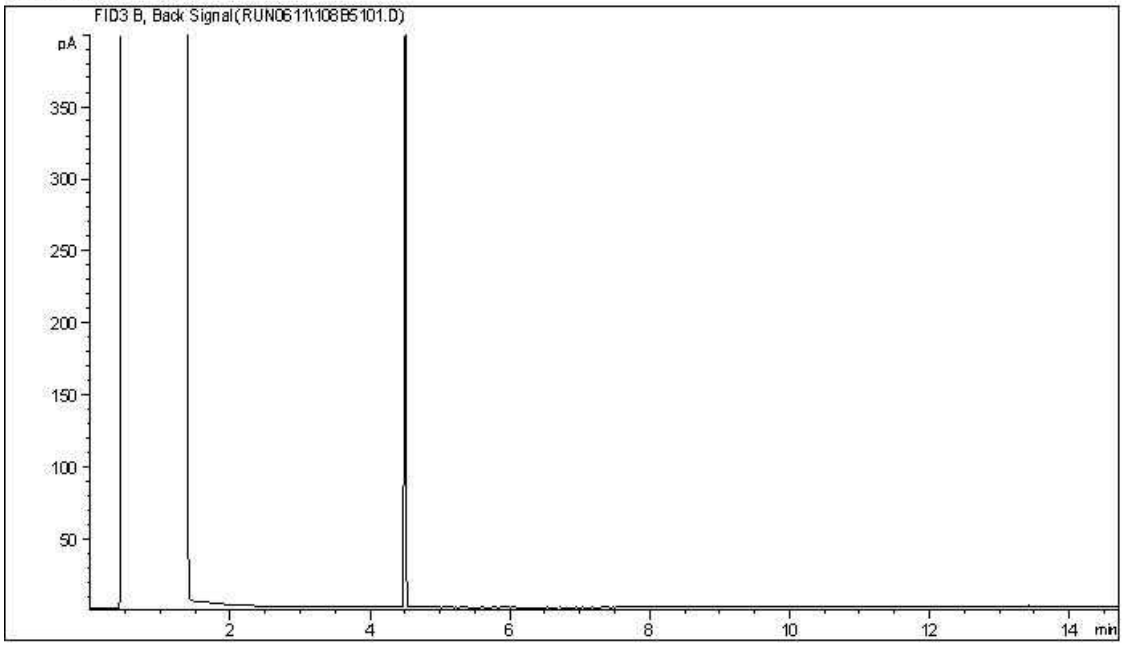

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

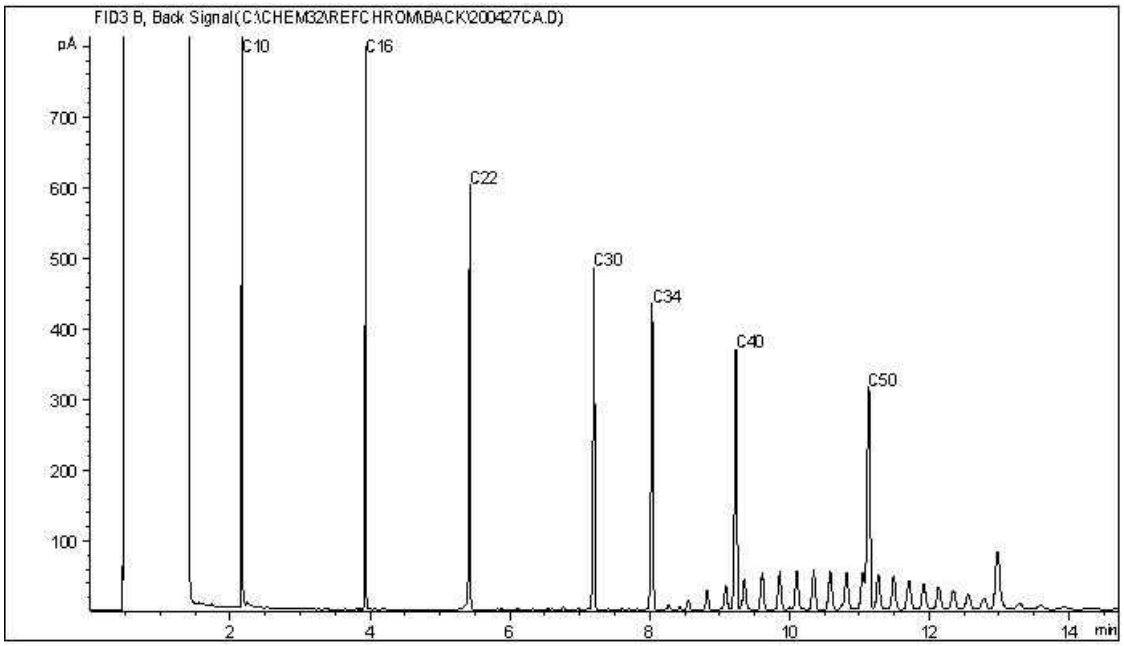
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



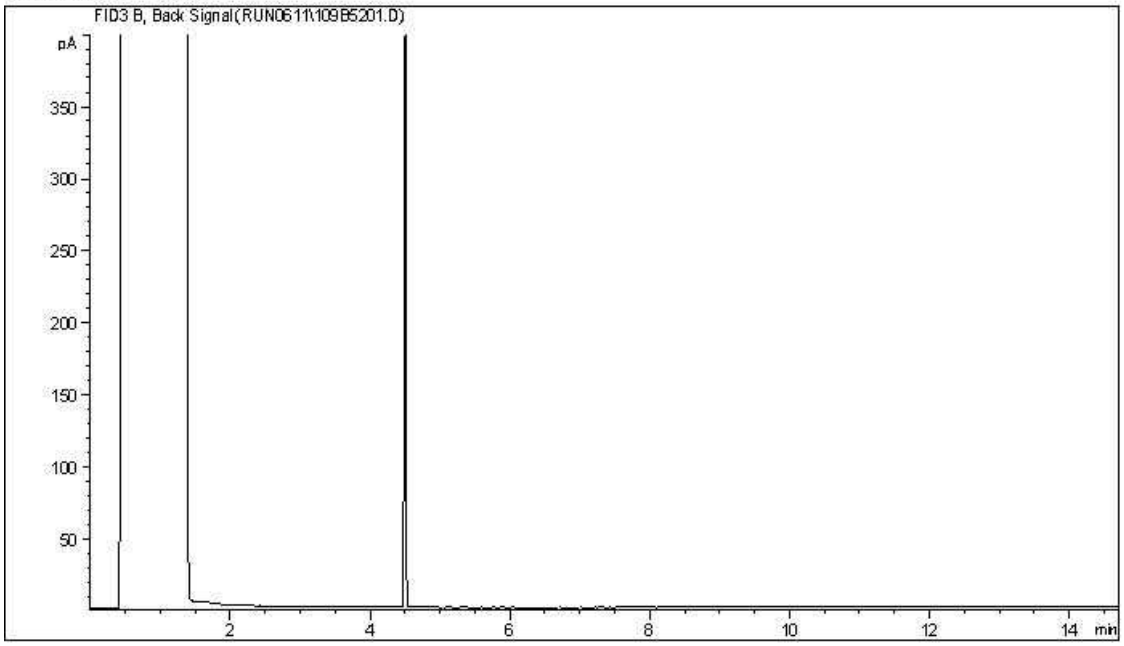

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

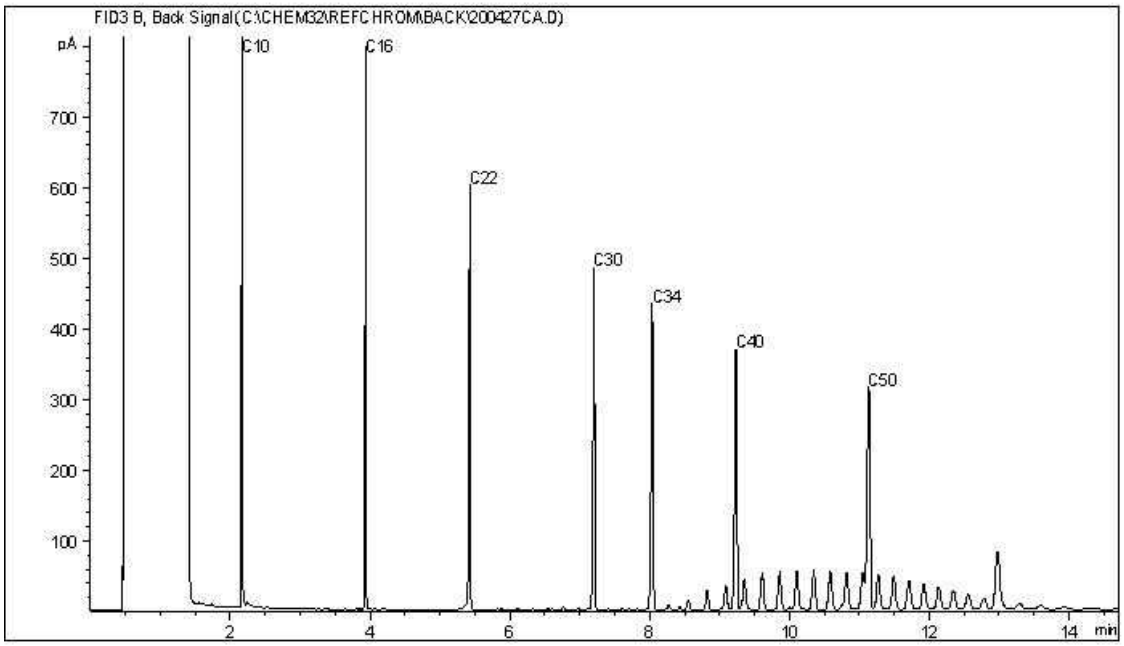
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: N035109

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/17**
Report #: R2880034
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C031440**
**Received: 2020/05/08, 15:35**

Sample Matrix: Water
# Samples Received: 6

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/05/11 | AB SOP-00005 | SM 23 2320 B m |
| Alkalinity @25C (pp, total), CO3,HCO3,OH | 1 | N/A | 2020/05/13 | AB SOP-00005 | SM 23 2320 B m |
| BTEX/F1 in Water by HS GC/MS/FID | 5 | N/A | 2020/05/12 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 5 | N/A | 2020/05/13 | | Auto Calc |
| Chloride/Sulphate by Auto Colourimetry | 2 | N/A | 2020/05/13 | AB SOP-00020 / AB SOP-00018 | SM23-4500-Cl/SO4-E m |
| Conductivity @25C | 1 | N/A | 2020/05/11 | AB SOP-00005 | SM 23 2510 B m |
| Conductivity @25C | 1 | N/A | 2020/05/13 | AB SOP-00005 | SM 23 2510 B m |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 5 | 2020/05/12 | 2020/05/12 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Hardness | 1 | N/A | 2020/05/13 | | Auto Calc |
| Hardness | 1 | N/A | 2020/05/14 | | Auto Calc |
| Elements by ICP - Dissolved (2) | 2 | N/A | 2020/05/11 | AB SOP-00042 | EPA 6010d R5 m |
| Ion Balance | 2 | N/A | 2020/05/14 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/05/13 | | Auto Calc |
| Sum of cations, anions | 1 | N/A | 2020/05/14 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/05/14 | | Auto Calc |
| Nitrate and Nitrite | 1 | N/A | 2020/05/15 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/05/14 | | Auto Calc |
| Nitrate + Nitrite-N (calculated) | 1 | N/A | 2020/05/15 | | Auto Calc |
| Nitrogen (Nitrite - Nitrate) by IC | 2 | N/A | 2020/05/13 | AB SOP-00023 | SM 23 4110 B m |
| pH @25°C (3) | 1 | N/A | 2020/05/11 | AB SOP-00005 | SM 23 4500-H+B m |
| pH @25°C (3) | 1 | N/A | 2020/05/13 | AB SOP-00005 | SM 23 4500-H+B m |
| Total Dissolved Solids (Calculated) | 2 | N/A | 2020/05/14 | | Auto Calc |
| Total Trihalomethanes Calculation | 6 | N/A | 2020/05/13 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 6 | N/A | 2020/05/12 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: N035109

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/17**
Report #: R2880034
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C031440**
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data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.
(2) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas Laboratories endeavours to analyze samples as soon as possible after receipt.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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BV Labs Job #: C031440
Report Date: 2020/05/17

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XT2563 | XT2564 | XT2565 | XT2566 | XT2567 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/08 | 2020/05/08 | 2020/05/08 | 2020/05/08 | 2020/05/08 | | |
| **COC Number** | | N035109 | N035109 | N035109 | N035109 | N035109 | | |
| | **UNITS** | **1944** | **1947** | **1962** | **1964** | **2004** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9846699 |
| **Volatiles** | | | | | | | | |
| Benzene | mg/L | 0.028 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9847285 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9847285 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9847285 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9847285 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9847285 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9846272 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9846272 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9847285 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 103 | 102 | 102 | 106 | N/A | 9847285 |
| 4-Bromofluorobenzene (sur.) | % | 93 | 90 | 93 | 92 | 93 | N/A | 9847285 |
| D4-1,2-Dichloroethane (sur.) | % | 96 | 94 | 104 | 95 | 94 | N/A | 9847285 |
| O-TERPHENYL (sur.) | % | 114 | 125 | 112 | 115 | 112 | N/A | 9846699 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C031440
Report Date: 2020/05/17

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## ROUTINE WATER (WATER)

| BV Labs ID | | XT2563 | | XT2565 | XT2565 | | |
|---|---|---|---|---|---|---|---|
| Sampling Date | | 2020/05/08 | | 2020/05/08 | 2020/05/08 | | |
| COC Number | | N035109 | | N035109 | N035109 | | |
| | UNITS | 1944 | QC Batch | 1962 | 1962 Lab-Dup | RDL | QC Batch |
| **Calculated Parameters** | | | | | | | |
| Anion Sum | meq/L | 11 | 9846282 | 6.4 | N/A | N/A | 9846282 |
| Cation Sum | meq/L | 11 | 9846282 | 6.8 | N/A | N/A | 9846282 |
| Hardness (CaCO3) | mg/L | 540 | 9846298 | 290 | N/A | 0.50 | 9846298 |
| Ion Balance (% Difference) | % | 1.9 | 9846308 | 2.8 | N/A | N/A | 9846308 |
| Dissolved Nitrate (NO3) | mg/L | 17 | 9846299 | <0.044 | N/A | 0.044 | 9846299 |
| Nitrate plus Nitrite (N) | mg/L | 3.9 | 9846300 | <0.014 | N/A | 0.014 | 9846300 |
| Dissolved Nitrite (NO2) | mg/L | <0.033 | 9846299 | <0.033 | N/A | 0.033 | 9846299 |
| Calculated Total Dissolved Solids | mg/L | 550 | 9846289 | 320 | N/A | 10 | 9846289 |
| **Misc. Inorganics** | | | | | | | |
| Conductivity | uS/cm | 980 | 9847403 | 590 | N/A | 2.0 | 9849051 |
| pH | pH | 7.83 | 9847402 | 7.92 | N/A | N/A | 9849050 |
| **Anions** | | | | | | | |
| Alkalinity (PP as CaCO3) | mg/L | <1.0 | 9847398 | <1.0 | N/A | 1.0 | 9849047 |
| Alkalinity (Total as CaCO3) | mg/L | 430 | 9847398 | 300 | N/A | 1.0 | 9849047 |
| Bicarbonate (HCO3) | mg/L | 530 | 9847398 | 360 | N/A | 1.0 | 9849047 |
| Carbonate (CO3) | mg/L | <1.0 | 9847398 | <1.0 | N/A | 1.0 | 9849047 |
| Hydroxide (OH) | mg/L | <1.0 | 9847398 | <1.0 | N/A | 1.0 | 9849047 |
| Dissolved Chloride (Cl) | mg/L | 28 | 9848620 | 1.8 | N/A | 1.0 | 9848945 |
| Dissolved Sulphate (SO4) | mg/L | 56 | 9848620 | 22 | N/A | 1.0 | 9848945 |
| **Nutrients** | | | | | | | |
| Dissolved Nitrite (N) | mg/L | <0.010 | 9848630 | <0.010 | <0.010 | 0.010 | 9848629 |
| Dissolved Nitrate (N) | mg/L | 3.9 | 9848630 | <0.010 | <0.010 | 0.010 | 9848629 |
| **Elements** | | | | | | | |
| Dissolved Calcium (Ca) | mg/L | 100 | 9847100 | 68 | N/A | 0.30 | 9847098 |
| Dissolved Iron (Fe) | mg/L | 0.097 | 9847100 | 0.21 | N/A | 0.060 | 9847098 |
| Dissolved Magnesium (Mg) | mg/L | 66 | 9847100 | 30 | N/A | 0.20 | 9847098 |
| Dissolved Manganese (Mn) | mg/L | 0.17 | 9847100 | 0.14 | N/A | 0.0040 | 9847098 |
| Dissolved Potassium (K) | mg/L | 3.0 | 9847100 | 1.9 | N/A | 0.30 | 9847098 |
| Dissolved Sodium (Na) | mg/L | 13 | 9847100 | 20 | N/A | 0.50 | 9847098 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C031440
Report Date: 2020/05/17

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT2563 | XT2564 | XT2565 | XT2566 | XT2567 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/08 | 2020/05/08 | 2020/05/08 | 2020/05/08 | 2020/05/08 | | |
| **COC Number** | | N035109 | N035109 | N035109 | N035109 | N035109 | | |
| | **UNITS** | **1944** | **1947** | **1962** | **1964** | **2004** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9846116 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9847288 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9847288 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9847288 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9847288 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9847288 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9847288 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9847288 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9847288 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9847288 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9847288 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C031440
Report Date: 2020/05/17

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT2563 | XT2564 | XT2565 | XT2566 | XT2567 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/08 | 2020/05/08 | 2020/05/08 | 2020/05/08 | 2020/05/08 | | |
| **COC Number** | | N035109 | N035109 | N035109 | N035109 | N035109 | | |
| | **UNITS** | **1944** | **1947** | **1962** | **1964** | **2004** | **RDL** | **QC Batch** |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9847288 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 97 | 99 | 97 | 98 | 97 | N/A | 9847288 |
| 4-Bromofluorobenzene (sur.) | % | 109 | 109 | 112 | 109 | 109 | N/A | 9847288 |
| D4-1,2-Dichloroethane (sur.) | % | 110 | 112 | 139 | 114 | 111 | N/A | 9847288 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C031440
Report Date: 2020/05/17

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Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT2568 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/08 | | |
| **COC Number** | | N035109 | | |
| | **UNITS** | **TRIP BLANK** | **RDL** | **QC Batch** |
| **Volatiles** | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | 0.0013 | 9846116 |
| Benzene | mg/L | <0.00040 | 0.00040 | 9847288 |
| Bromodichloromethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| Bromoform | mg/L | <0.00050 | 0.00050 | 9847288 |
| Bromomethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| Carbon tetrachloride | mg/L | <0.00050 | 0.00050 | 9847288 |
| Chlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Chlorodibromomethane | mg/L | <0.0010 | 0.0010 | 9847288 |
| Chloroethane | mg/L | <0.0010 | 0.0010 | 9847288 |
| Chloroform | mg/L | <0.00050 | 0.00050 | 9847288 |
| Chloromethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| 1,2-dibromoethane | mg/L | <0.00020 | 0.00020 | 9847288 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1-dichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1-dichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Dichloromethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| 1,2-dichloropropane | mg/L | <0.00050 | 0.00050 | 9847288 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9847288 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 9847288 |
| Methyl methacrylate | mg/L | <0.00050 | 0.00050 | 9847288 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.00050 | 9847288 |
| Styrene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | 0.0010 | 9847288 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| Tetrachloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Toluene | mg/L | <0.00040 | 0.00040 | 9847288 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9847288 |
| RDL = Reportable Detection Limit | | | | |



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BV Labs Job #: C031440
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT2568 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/08 | | |
| **COC Number** | | N035109 | | |
| | **UNITS** | **TRIP BLANK** | **RDL** | **QC Batch** |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9847288 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| Trichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Trichlorofluoromethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Vinyl chloride | mg/L | <0.00050 | 0.00050 | 9847288 |
| Xylenes (Total) | mg/L | <0.00080 | 0.00080 | 9847288 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | 9847288 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 9847288 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | N/A | 9847288 |
| 4-Bromofluorobenzene (sur.) | % | 110 | N/A | 9847288 |
| D4-1,2-Dichloroethane (sur.) | % | 113 | N/A | 9847288 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 5.3°C |

Sample XT2563 [1944] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

Sample XT2565 [1962] : Nitrogen (Nitrite - Nitrate) by IC completed within 48h after laboratory receipt to a maximum of five days from sampling. Data are satisfactory for compliance purposes.

**Results relate only to the items tested.**



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BV Labs Job #: C031440
Report Date: 2020/05/17

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9846699 | EC0 | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/12 | | 114 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/12 | | NC | % | 60 - 140 |
| 9846699 | EC0 | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/12 | | 122 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/12 | | 104 | % | 60 - 140 |
| 9846699 | EC0 | Method Blank | O-TERPHENYL (sur.) | 2020/05/12 | | 114 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/12 | <0.10 | | mg/L | |
| 9846699 | EC0 | RPD | F2 (C10-C16 Hydrocarbons) | 2020/05/12 | NC | | % | 30 |
| 9847098 | LQ1 | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/14 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/14 | | 91 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/14 | | 87 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/14 | | 87 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/14 | | 93 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/14 | | NC | % | 80 - 120 |
| 9847098 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/11 | | 100 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/11 | | 103 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/11 | | 105 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/11 | | 100 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/11 | | 99 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/11 | | 99 | % | 80 - 120 |
| 9847098 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/05/11 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/11 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/11 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/11 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/11 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/11 | <0.50 | | mg/L | |
| 9847098 | LQ1 | RPD | Dissolved Calcium (Ca) | 2020/05/12 | 0.67 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/05/12 | 2.5 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/12 | 0.19 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/05/12 | 0.18 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/12 | 0.22 | | % | 20 |
| | | | Dissolved Sodium (Na) | 2020/05/12 | 0.29 | | % | 20 |
| 9847100 | LQ1 | Matrix Spike | Dissolved Calcium (Ca) | 2020/05/11 | | NC | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/11 | | 80 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/11 | | NC | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/11 | | 83 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/11 | | 98 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/11 | | NC | % | 80 - 120 |
| 9847100 | LQ1 | Spiked Blank | Dissolved Calcium (Ca) | 2020/05/11 | | 101 | % | 80 - 120 |
| | | | Dissolved Iron (Fe) | 2020/05/11 | | 105 | % | 80 - 120 |
| | | | Dissolved Magnesium (Mg) | 2020/05/11 | | 107 | % | 80 - 120 |
| | | | Dissolved Manganese (Mn) | 2020/05/11 | | 101 | % | 80 - 120 |
| | | | Dissolved Potassium (K) | 2020/05/11 | | 101 | % | 80 - 120 |
| | | | Dissolved Sodium (Na) | 2020/05/11 | | 102 | % | 80 - 120 |
| 9847100 | LQ1 | Method Blank | Dissolved Calcium (Ca) | 2020/05/12 | <0.30 | | mg/L | |
| | | | Dissolved Iron (Fe) | 2020/05/12 | <0.060 | | mg/L | |
| | | | Dissolved Magnesium (Mg) | 2020/05/12 | <0.20 | | mg/L | |
| | | | Dissolved Manganese (Mn) | 2020/05/12 | <0.0040 | | mg/L | |
| | | | Dissolved Potassium (K) | 2020/05/12 | <0.30 | | mg/L | |
| | | | Dissolved Sodium (Na) | 2020/05/12 | <0.50 | | mg/L | |
| 9847100 | LQ1 | RPD | Dissolved Calcium (Ca) | 2020/05/12 | 0.97 | | % | 20 |
| | | | Dissolved Iron (Fe) | 2020/05/12 | 7.9 | | % | 20 |
| | | | Dissolved Magnesium (Mg) | 2020/05/12 | 0.84 | | % | 20 |
| | | | Dissolved Manganese (Mn) | 2020/05/12 | 0.27 | | % | 20 |
| | | | Dissolved Potassium (K) | 2020/05/12 | 0.68 | | % | 20 |



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BV Labs Job #: C031440
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Sodium (Na) | 2020/05/12 | 1.0 | | % | 20 |
| 9847285 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | | 106 | % | 50 - 140 |
| | | | Toluene | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/12 | | 104 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/12 | | 102 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/12 | | 72 | % | 60 - 140 |
| 9847285 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | Toluene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/12 | | 101 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/12 | | 103 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/12 | | 98 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/12 | | 68 | % | 60 - 140 |
| 9847285 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 93 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 95 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/12 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/12 | <0.10 | | mg/L | |
| 9847285 | DO1 | RPD | Benzene | 2020/05/12 | NC | | % | 30 |
| | | | Toluene | 2020/05/12 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/12 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/05/12 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/12 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/12 | NC | | % | 30 |
| 9847288 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 107 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | | 105 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | | 110 | % | 50 - 140 |
| | | | Bromoform | 2020/05/12 | | 106 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/12 | | 91 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/12 | | 108 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | Chloroform | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/12 | | 81 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/12 | | 109 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | | 104 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/12 | | 104 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/12 | | 106 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/12 | | 94 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | cis-1,2-dichloroethene | 2020/05/12 | | 105 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/12 | | 110 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | | 112 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | | 117 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/12 | | 105 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/12 | | 123 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | | 107 | % | 50 - 140 |
| | | | Styrene | 2020/05/12 | | 108 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | | 112 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/12 | | 91 | % | 50 - 140 |
| | | | Toluene | 2020/05/12 | | 102 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | | 95 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | | 93 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | | 108 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/12 | | 88 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | | 110 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/12 | | 83 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/12 | | 102 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/12 | | 103 | % | 50 - 140 |
| 9847288 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 97 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 114 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 115 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | | 99 | % | 60 - 130 |
| | | | Bromodichloromethane | 2020/05/12 | | 108 | % | 60 - 130 |
| | | | Bromoform | 2020/05/12 | | 112 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/12 | | 83 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/12 | | 90 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/12 | | 97 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/12 | | 111 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/12 | | 92 | % | 60 - 130 |
| | | | Chloroform | 2020/05/12 | | 96 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/12 | | 79 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/12 | | 114 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | | 102 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | | 95 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/12 | | 111 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/12 | | 87 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | | 89 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/12 | | 98 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/12 | | 107 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | | 104 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | | 108 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/12 | | 98 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/12 | | 133 (1) | % | 60 - 130 |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | | 104 | % | 60 - 130 |
| | | | Styrene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | | 97 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | | 118 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/12 | | 83 | % | 60 - 130 |
| | | | Toluene | 2020/05/12 | | 96 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | | 91 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | | 88 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | | 85 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | | 93 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | | 111 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/12 | | 91 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/12 | | 81 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | | 104 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/12 | | 78 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/12 | | 95 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/12 | | 97 | % | 60 - 130 |
| 9847288 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 109 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 112 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | Bromodichloromethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/12 | <0.00070 (2) | | mg/L | |
| | | | Chloromethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/12 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Ethylbenzene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Toluene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | <0.0010 | | mg/L | |



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BV Labs Job #: C031440
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Xylenes (Total) | 2020/05/12 | <0.00080 | | mg/L | |
| | | | m & p-Xylene | 2020/05/12 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/12 | <0.00040 | | mg/L | |
| 9847288 | GP4 | RPD | 1,2-dibromoethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/12 | NC | | % | 30 |
| 9847398 | TMU | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/11 | | 94 | % | 80 - 120 |
| 9847398 | TMU | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/11 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/11 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/11 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/11 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/11 | <1.0 | | mg/L | |
| 9847398 | TMU | RPD | Alkalinity (PP as CaCO3) | 2020/05/11 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/11 | 0.71 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/11 | 0.71 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/11 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/11 | NC | | % | 20 |
| 9847402 | TMU | Spiked Blank | pH | 2020/05/11 | | 100 | % | 97 - 103 |
| 9847402 | TMU | RPD | pH | 2020/05/11 | 0.30 | | % | N/A |
| 9847403 | TMU | Spiked Blank | Conductivity | 2020/05/11 | | 100 | % | 90 - 110 |
| 9847403 | TMU | Method Blank | Conductivity | 2020/05/11 | <2.0 | | uS/cm | |
| 9847403 | TMU | RPD | Conductivity | 2020/05/11 | 0.25 | | % | 10 |
| 9848620 | CCQ | Matrix Spike | Dissolved Chloride (Cl) | 2020/05/14 | | NC | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/14 | | NC | % | 80 - 120 |
| 9848620 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/05/14 | | 109 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/14 | | 107 | % | 80 - 120 |
| 9848620 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/05/14 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/05/14 | <1.0 | | mg/L | |
| 9848620 | CCQ | RPD | Dissolved Chloride (Cl) | 2020/05/14 | 1.8 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/05/14 | 2.2 (3) | | % | 20 |
| 9848629 | KD9 | Matrix Spike [XT2565-03] | Dissolved Nitrite (N) | 2020/05/13 | | 101 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/13 | | 102 | % | 80 - 120 |
| 9848629 | KD9 | Spiked Blank | Dissolved Nitrite (N) | 2020/05/13 | | 99 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/13 | | 101 | % | 80 - 120 |
| 9848629 | KD9 | Method Blank | Dissolved Nitrite (N) | 2020/05/13 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/13 | <0.010 | | mg/L | |
| 9848629 | KD9 | RPD [XT2565-03] | Dissolved Nitrite (N) | 2020/05/13 | NC | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/13 | NC | | % | 20 |
| 9848630 | KD9 | Matrix Spike | Dissolved Nitrite (N) | 2020/05/13 | | 102 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/13 | | NC | % | 80 - 120 |
| 9848630 | KD9 | Spiked Blank | Dissolved Nitrite (N) | 2020/05/13 | | 100 | % | 80 - 120 |
| | | | Dissolved Nitrate (N) | 2020/05/13 | | 101 | % | 80 - 120 |
| 9848630 | KD9 | Method Blank | Dissolved Nitrite (N) | 2020/05/13 | <0.010 | | mg/L | |
| | | | Dissolved Nitrate (N) | 2020/05/13 | <0.010 | | mg/L | |
| 9848630 | KD9 | RPD | Dissolved Nitrite (N) | 2020/05/13 | 6.7 | | % | 20 |
| | | | Dissolved Nitrate (N) | 2020/05/13 | 1.6 | | % | 20 |
| 9848945 | CCQ | Matrix Spike | Dissolved Chloride (Cl) | 2020/05/13 | | 107 | % | 80 - 120 |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C031440
Report Date: 2020/05/17

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Dissolved Sulphate (SO4) | 2020/05/13 | | NC | % | 80 - 120 |
| 9848945 | CCQ | Spiked Blank | Dissolved Chloride (Cl) | 2020/05/13 | | 108 | % | 80 - 120 |
| | | | Dissolved Sulphate (SO4) | 2020/05/13 | | 107 | % | 80 - 120 |
| 9848945 | CCQ | Method Blank | Dissolved Chloride (Cl) | 2020/05/13 | <1.0 | | mg/L | |
| | | | Dissolved Sulphate (SO4) | 2020/05/13 | <1.0 | | mg/L | |
| 9848945 | CCQ | RPD | Dissolved Chloride (Cl) | 2020/05/13 | 1.2 | | % | 20 |
| | | | Dissolved Sulphate (SO4) | 2020/05/13 | 1.1 | | % | 20 |
| 9849047 | IK0 | Spiked Blank | Alkalinity (Total as CaCO3) | 2020/05/13 | | 94 | % | 80 - 120 |
| 9849047 | IK0 | Method Blank | Alkalinity (PP as CaCO3) | 2020/05/13 | <1.0 | | mg/L | |
| | | | Alkalinity (Total as CaCO3) | 2020/05/13 | <1.0 | | mg/L | |
| | | | Bicarbonate (HCO3) | 2020/05/13 | <1.0 | | mg/L | |
| | | | Carbonate (CO3) | 2020/05/13 | <1.0 | | mg/L | |
| | | | Hydroxide (OH) | 2020/05/13 | <1.0 | | mg/L | |
| 9849047 | IK0 | RPD | Alkalinity (PP as CaCO3) | 2020/05/13 | NC | | % | 20 |
| | | | Alkalinity (Total as CaCO3) | 2020/05/13 | 0.90 | | % | 20 |
| | | | Bicarbonate (HCO3) | 2020/05/13 | 0.90 | | % | 20 |
| | | | Carbonate (CO3) | 2020/05/13 | NC | | % | 20 |
| | | | Hydroxide (OH) | 2020/05/13 | NC | | % | 20 |
| 9849050 | IK0 | Spiked Blank | pH | 2020/05/13 | | 100 | % | 97 - 103 |
| 9849050 | IK0 | RPD | pH | 2020/05/13 | 1.9 | | % | N/A |
| 9849051 | IK0 | Spiked Blank | Conductivity | 2020/05/13 | | 101 | % | 90 - 110 |
| 9849051 | IK0 | Method Blank | Conductivity | 2020/05/13 | <2.0 | | uS/cm | |
| 9849051 | IK0 | RPD | Conductivity | 2020/05/13 | 0 | | % | 10 |

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) Detection limit raised due to interferent.

(3) Detection limits raised due to dilution to bring analyte within the calibrated range.



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Janet Gao, B.Sc., QP, Supervisor, Organics

Harry (Peng) Liang, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

337

# CHAIN OF CUSTODY RECORD

M035109

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | 610306 | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222-30 Ave. NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | MCAL | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | | | | |
| Seal Intact | | ✓ | Temp | 5 | 6 | 5 |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | | | | |
| Seal Intact | | | Temp | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1944 | | 2020/5/8 | | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 2 | 1947 | | ↓ | | GW | 5 | ✓ | ✓ | | ✓ | | | | | | | |
| 3 | 1962 | | ↓ | | GW | 7 | ✓ | ✓ | | ✓ | | | | | | | |
| 4 | 1964 | | ↓ | | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | 2004 | | ↓ | | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 6 | Trip Blank 1 | | 2020/5/8 | | W | 2 | ✓ | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | *Please indicate Filtered, Preserved or Both (F, P, F/P)* | | | | | | P | P | | ~~F/P~~ | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

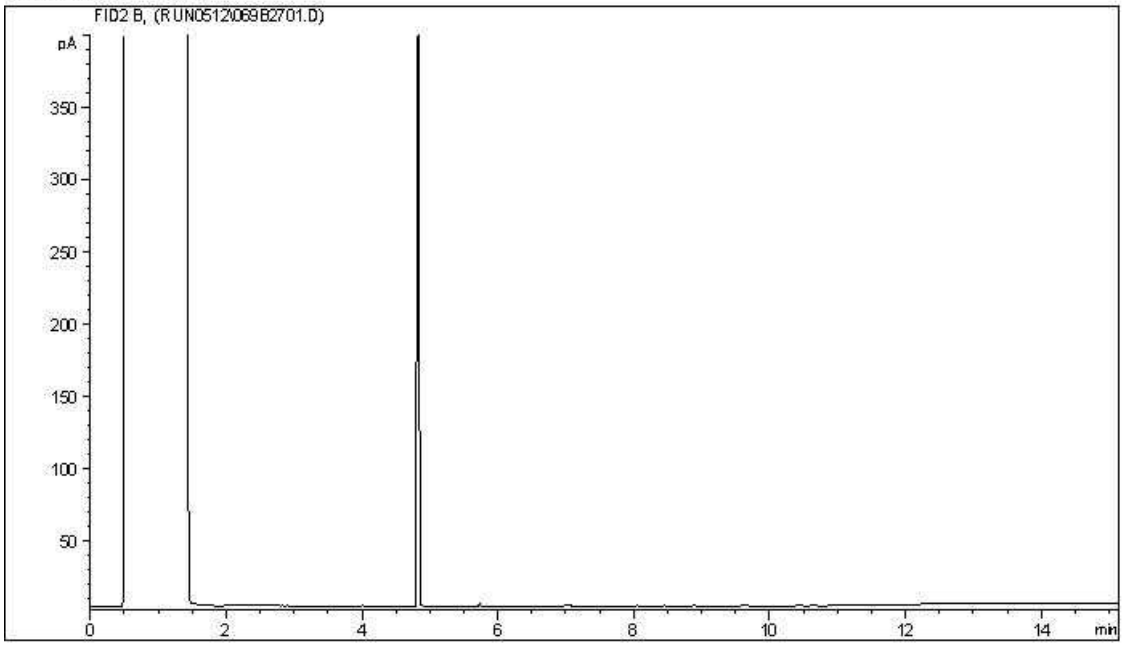
| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/08 | 15:25 | Fajran Jones | 2020/05/08 | 15:35 | C031440 |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

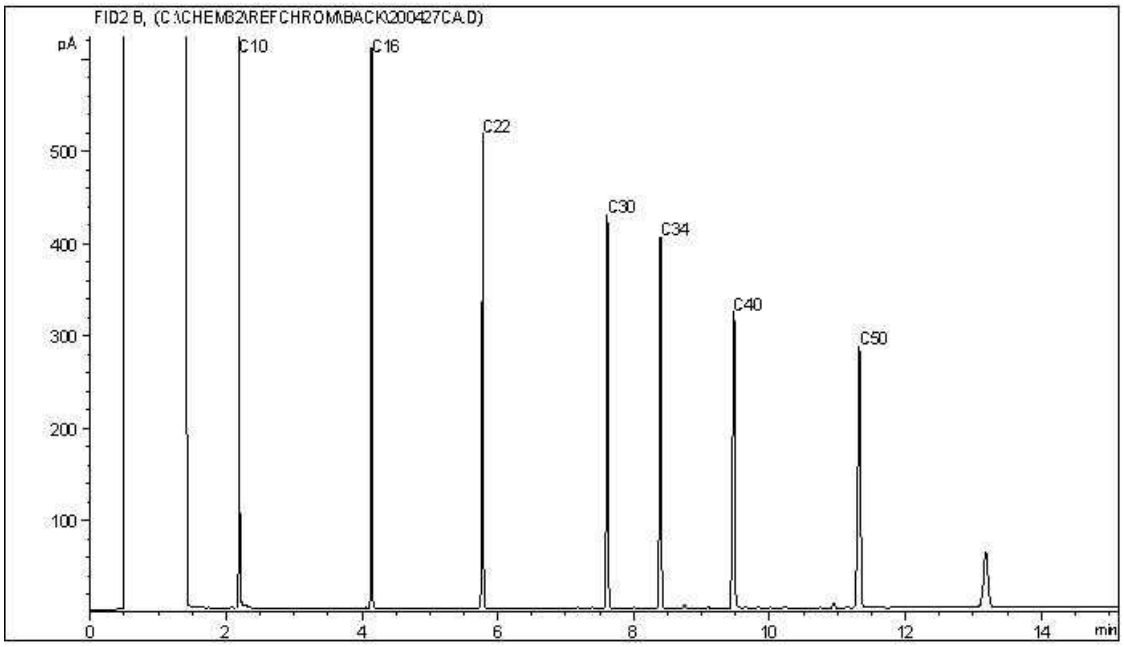
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram



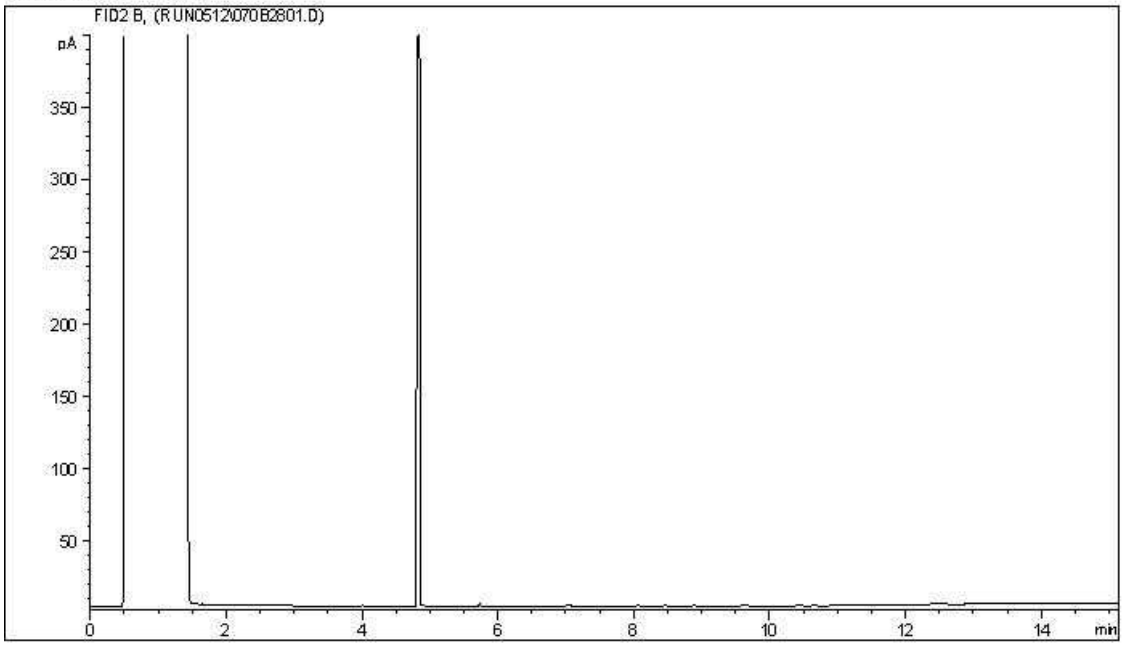

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

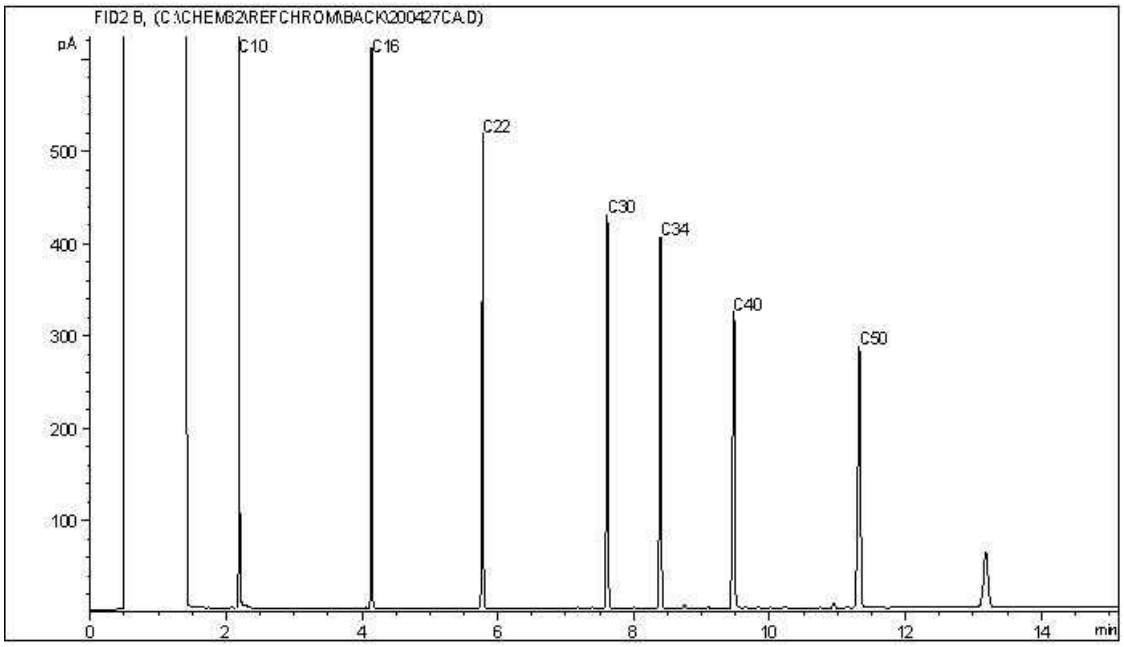
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram

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**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

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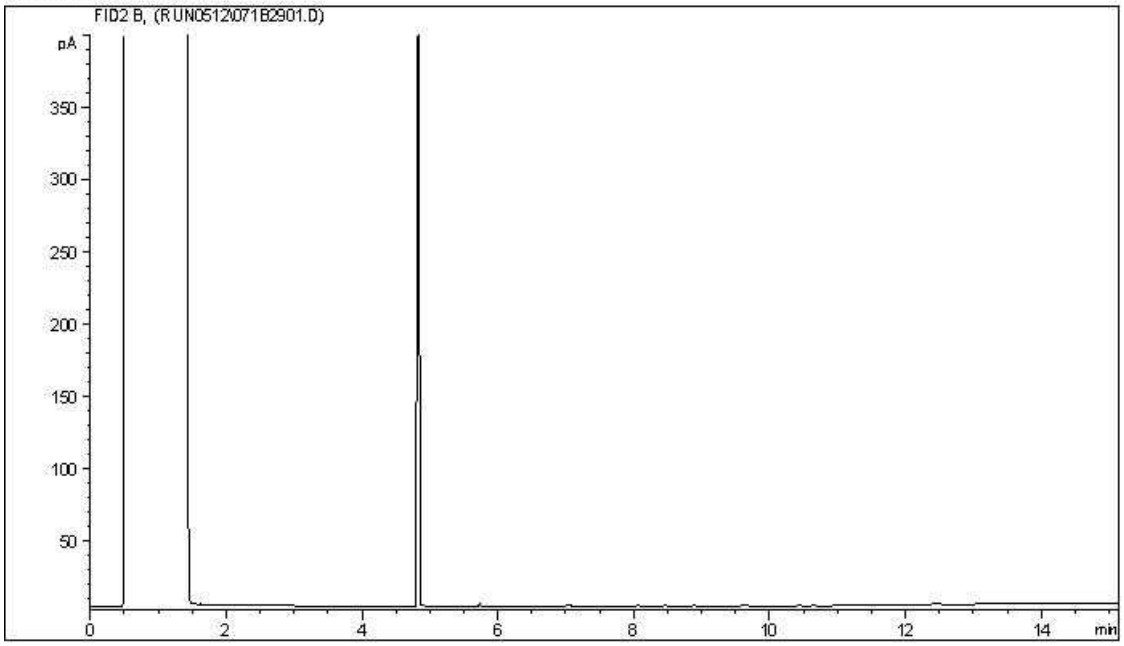
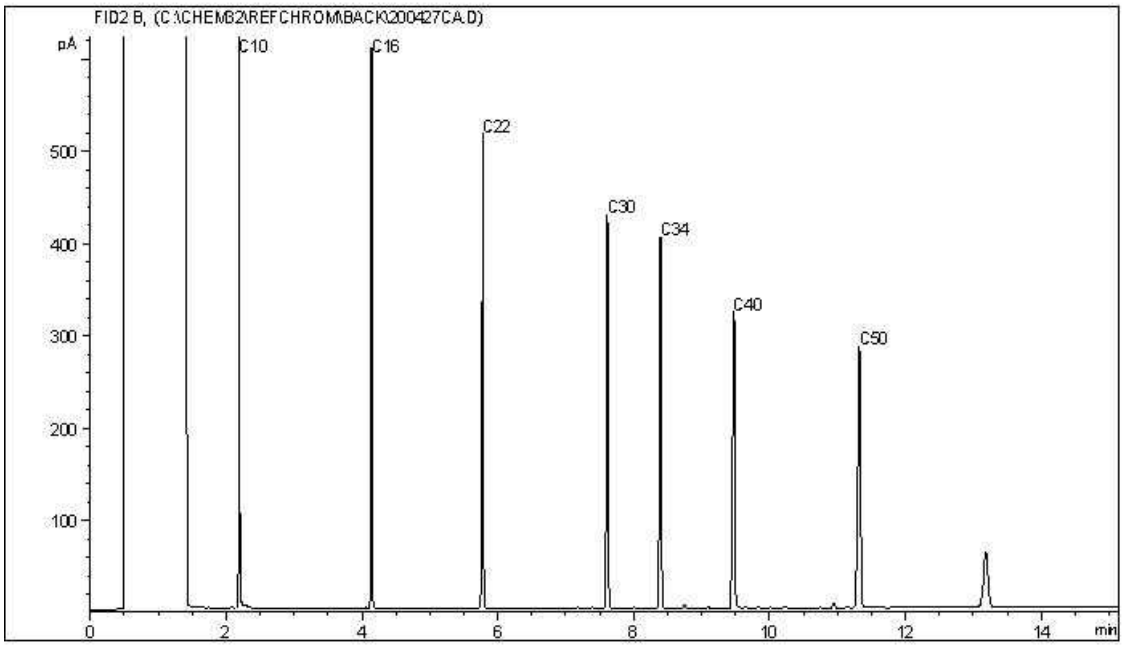



Carbon Range Distribution - Reference Chromatogram

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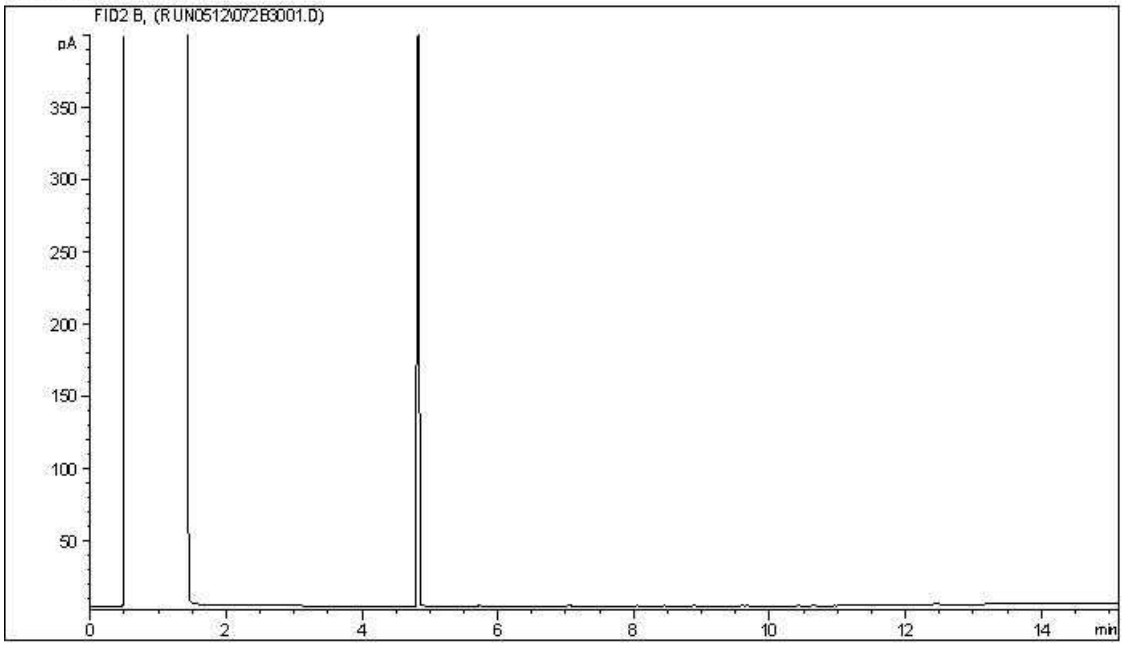
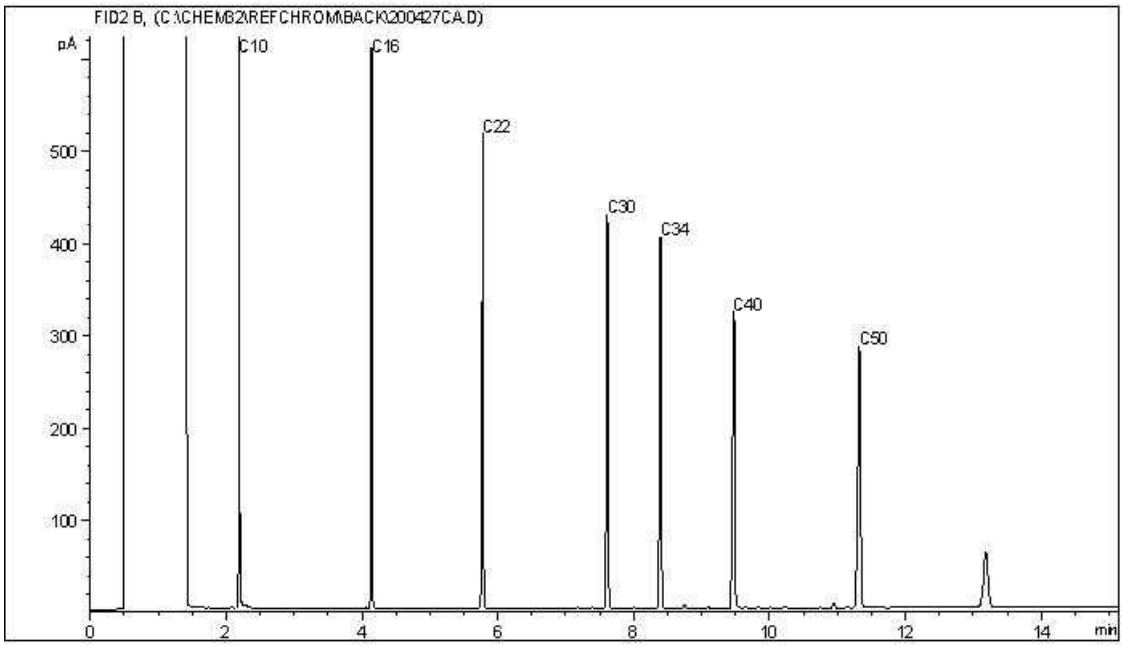
**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

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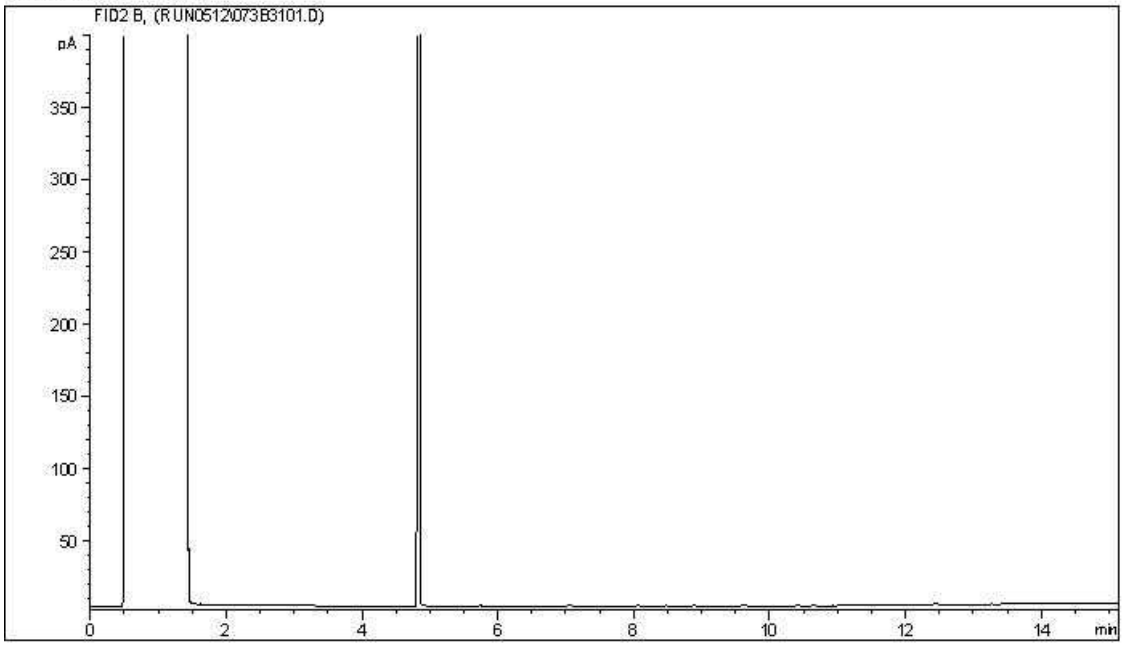
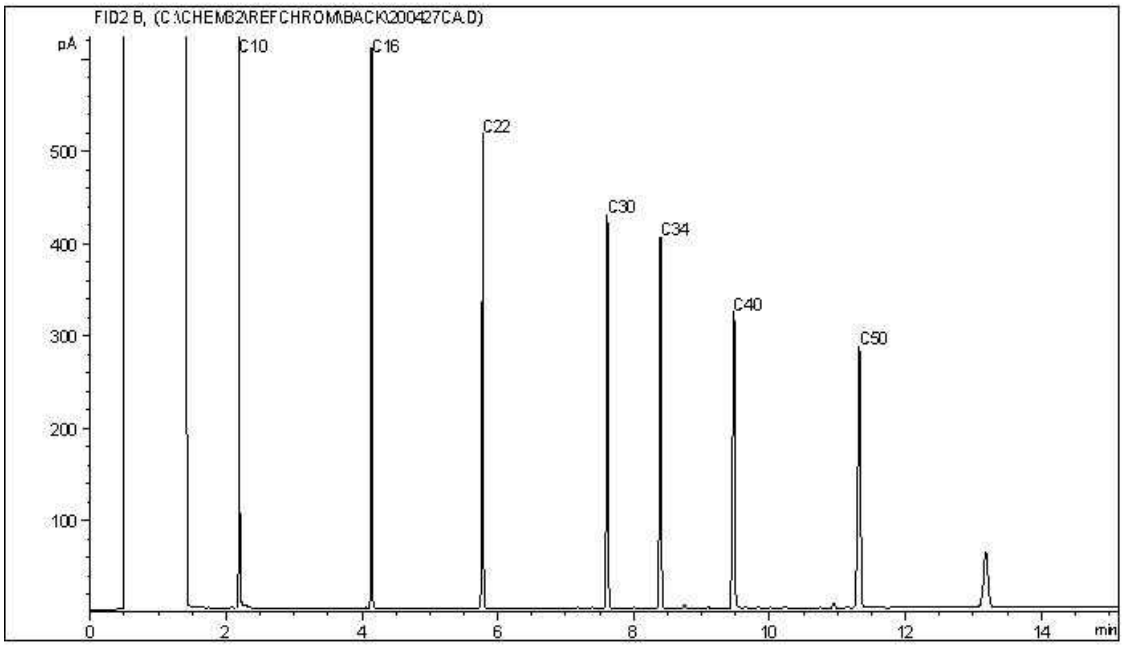
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

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| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061029

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/08**
Report #: R2887629
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037170**
**Received: 2020/06/01, 15:30**

Sample Matrix: Water
# Samples Received: 7

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 6 | N/A | 2020/06/06 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 6 | N/A | 2020/06/08 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 6 | 2020/06/04 | 2020/06/05 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 7 | N/A | 2020/06/08 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 1 | N/A | 2020/06/05 | AB SOP-00056 | EPA 5021a/8260d m |
| VOCs in Water by HS GC/MS (Std List) | 6 | N/A | 2020/06/06 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M061029

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/06/08**
Report #: R2887629
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C037170**
**Received: 2020/06/01, 15:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
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Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XV9334 | XV9335 | XV9336 | XV9337 | XV9338 | XV9339 | | |
|---|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/01 13:30 | 2020/06/01 13:00 | 2020/06/01 14:00 | 2020/06/01 14:15 | 2020/06/01 10:00 | 2020/06/01 09:30 | | |
| **COC Number** | | M061029 | M061029 | M061029 | M061029 | M061029 | M061029 | | |
| | **UNITS** | **1977** | **1981** | **2005** | **9005** | **BAILER 2** | **HYDRA 5** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9870771 |
| **Volatiles** | | | | | | | | | |
| Benzene | mg/L | 0.016 | <0.00040 | 0.090 | 0.088 | <0.00040 | <0.00040 | 0.00040 | 9872303 |
| Toluene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9872303 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9872303 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | <0.00080 | 0.00080 | 9872303 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | <0.00040 | 0.00040 | 9872303 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | <0.00089 | 0.00089 | 9871005 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9871005 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 9872303 |
| **Surrogate Recovery (%)** | | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 103 | 102 | 103 | 103 | 103 | 104 | N/A | 9872303 |
| 4-Bromofluorobenzene (sur.) | % | 95 | 96 | 96 | 96 | 95 | 95 | N/A | 9872303 |
| D4-1,2-Dichloroethane (sur.) | % | 102 | 103 | 102 | 103 | 106 | 101 | N/A | 9872303 |
| O-TERPHENYL (sur.) | % | 92 | 89 | 94 | 91 | 91 | 94 | N/A | 9870771 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV9334 | XV9335 | XV9336 | XV9337 | XV9338 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/01 13:30 | 2020/06/01 13:00 | 2020/06/01 14:00 | 2020/06/01 14:15 | 2020/06/01 10:00 | | |
| **COC Number** | | M061029 | M061029 | M061029 | M061029 | M061029 | | |
| | **UNITS** | **1977** | **1981** | **2005** | **9005** | **BAILER 2** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | <0.0013 | <0.0013 | <0.0013 | 0.0013 | 9871024 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| Chloroform | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9873501 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,2-dichloroethane | mg/L | 0.0024 | 0.011 | 0.0026 | 0.0026 | <0.00050 | 0.00050 | 9873501 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| RDL = Reportable Detection Limit | | | | | | | | |



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BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV9334 | XV9335 | XV9336 | XV9337 | XV9338 | | |
|---|---|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/01 13:30 | 2020/06/01 13:00 | 2020/06/01 14:00 | 2020/06/01 14:15 | 2020/06/01 10:00 | | |
| **COC Number** | | M061029 | M061029 | M061029 | M061029 | M061029 | | |
| | **UNITS** | **1977** | **1981** | **2005** | **9005** | **BAILER 2** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 102 | 103 | 102 | 100 | N/A | 9873501 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 90 | 88 | 89 | 90 | N/A | 9873501 |
| D4-1,2-Dichloroethane (sur.) | % | 103 | 102 | 121 | 121 | 121 | N/A | 9873501 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV9338 | XV9339 | XV9340 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/01 10:00 | 2020/06/01 09:30 | 2020/06/01 | | |
| **COC Number** | | M061029 | M061029 | M061029 | | |
| | **UNITS** | **BAILER 2 Lab-Dup** | **HYDRA 5** | **TRIP BLANK 9** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | | |
| Total Trihalomethanes | mg/L | N/A | <0.0013 | <0.0013 | 0.0013 | 9871024 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Bromoform | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| Chloroform | mg/L | <0.00050 | 0.00056 | <0.00050 | 0.00050 | 9873501 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | <0.00020 | 0.00020 | 9873501 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Styrene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | <0.0020 | 0.0020 | 9873501 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XV9338 | XV9339 | XV9340 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/06/01 10:00 | 2020/06/01 09:30 | 2020/06/01 | | |
| **COC Number** | | M061029 | M061029 | M061029 | | |
| | **UNITS** | **BAILER 2 Lab-Dup** | **HYDRA 5** | **TRIP BLANK 9** | **RDL** | **QC Batch** |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | <0.0010 | 0.0010 | 9873501 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | <0.00050 | 0.00050 | 9873501 |
| **Surrogate Recovery (%)** | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 100 | 101 | 101 | N/A | 9873501 |
| 4-Bromofluorobenzene (sur.) | % | 89 | 90 | 88 | N/A | 9873501 |
| D4-1,2-Dichloroethane (sur.) | % | 108 | 100 | 99 | N/A | 9873501 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 5.3°C |

**Results relate only to the items tested.**



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BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9870771 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/06/05 | | 108 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/05 | | 102 | % | 60 - 140 |
| 9870771 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/06/05 | | 109 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/05 | | 103 | % | 60 - 140 |
| 9870771 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/06/05 | | 104 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/06/05 | <0.10 | | mg/L | |
| 9870771 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/06/05 | NC | | % | 30 |
| 9872303 | QW1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/06/06 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/06 | | 98 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/06 | | 107 | % | 50 - 140 |
| | | | Benzene | 2020/06/06 | | 93 | % | 50 - 140 |
| | | | Toluene | 2020/06/06 | | 89 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/06/06 | | 92 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/06/06 | | 92 | % | 50 - 140 |
| | | | o-Xylene | 2020/06/06 | | 93 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/06/06 | | 78 | % | 60 - 140 |
| 9872303 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/06 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/06 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/06 | | 104 | % | 50 - 140 |
| | | | Benzene | 2020/06/06 | | 94 | % | 60 - 130 |
| | | | Toluene | 2020/06/06 | | 89 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/06/06 | | 93 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/06/06 | | 91 | % | 60 - 130 |
| | | | o-Xylene | 2020/06/06 | | 94 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/06/06 | | 90 | % | 60 - 140 |
| 9872303 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/06 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/06 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/06 | | 101 | % | 50 - 140 |
| | | | Benzene | 2020/06/06 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/06/06 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/06/06 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/06/06 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/06/06 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/06/06 | <0.10 | | mg/L | |
| 9872303 | QW1 | RPD | Benzene | 2020/06/06 | NC | | % | 30 |
| | | | Toluene | 2020/06/06 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/06/06 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/06/06 | NC | | % | 30 |
| | | | o-Xylene | 2020/06/06 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/06/06 | NC | | % | 30 |
| 9873501 | QW1 | Matrix Spike [XV9339-02] | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 104 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 114 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/05 | | 96 | % | 50 - 140 |
| | | | Bromoform | 2020/06/05 | | 113 | % | 50 - 140 |
| | | | Bromomethane | 2020/06/05 | | 85 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/06/05 | | 92 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/06/05 | | 98 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/06/05 | | 112 | % | 50 - 140 |
| | | | Chloroethane | 2020/06/05 | | 78 | % | 50 - 140 |
| | | | Chloroform | 2020/06/05 | | 83 | % | 50 - 140 |
| | | | Chloromethane | 2020/06/05 | | 81 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/06/05 | | 99 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/06/05 | | 97 | % | 50 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,3-dichlorobenzene | 2020/06/05 | | 93 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/06/05 | | 84 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/06/05 | | 85 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/06/05 | | 80 | % | 50 - 140 |
| | | | Dichloromethane | 2020/06/05 | | 85 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/06/05 | | 86 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/06/05 | | 97 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/06/05 | | 89 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/05 | | 88 | % | 50 - 140 |
| | | | Styrene | 2020/06/05 | | 98 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/05 | | 100 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/05 | | 99 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/06/05 | | 95 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/06/05 | | 91 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/06/05 | | 89 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/06/05 | | 92 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/06/05 | | 97 | % | 50 - 140 |
| | | | Trichloroethene | 2020/06/05 | | 98 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/06/05 | | 84 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/06/05 | | 88 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/06/05 | | 90 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/06/05 | | 71 | % | 50 - 140 |
| 9873501 | QW1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 105 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 112 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/05 | | 96 | % | 60 - 130 |
| | | | Bromoform | 2020/06/05 | | 111 | % | 60 - 130 |
| | | | Bromomethane | 2020/06/05 | | 87 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/06/05 | | 95 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/06/05 | | 100 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/06/05 | | 111 | % | 60 - 130 |
| | | | Chloroethane | 2020/06/05 | | 81 | % | 60 - 130 |
| | | | Chloroform | 2020/06/05 | | 85 | % | 60 - 130 |
| | | | Chloromethane | 2020/06/05 | | 83 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/06/05 | | 98 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/06/05 | | 98 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/06/05 | | 92 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/06/05 | | 85 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/06/05 | | 91 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/06/05 | | 89 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/06/05 | | 92 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/06/05 | | 82 | % | 60 - 130 |
| | | | Dichloromethane | 2020/06/05 | | 86 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/06/05 | | 87 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/06/05 | | 91 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/06/05 | | 96 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/06/05 | | 89 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/05 | | 89 | % | 60 - 130 |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Styrene | 2020/06/05 | | 99 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/05 | | 101 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/05 | | 98 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/06/05 | | 98 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/06/05 | | 95 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/06/05 | | 93 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/06/05 | | 93 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/06/05 | | 94 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/06/05 | | 96 | % | 60 - 130 |
| | | | Trichloroethene | 2020/06/05 | | 101 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/06/05 | | 88 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/06/05 | | 90 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/06/05 | | 91 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/06/05 | | 76 | % | 60 - 130 |
| 9873501 | QW1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/06/05 | | 102 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/06/05 | | 88 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/06/05 | | 97 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/06/05 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/06/05 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/06/05 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/05 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/05 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/06/05 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/06/05 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/06/05 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/06/05 | <0.00050 | | mg/L | |



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BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Vinyl chloride | 2020/06/05 | <0.00050 | | mg/L | |
| 9873501 | QW1 | RPD [XV9338-02] | Bromodichloromethane | 2020/06/06 | NC | | % | 30 |
| | | | Bromoform | 2020/06/06 | NC | | % | 30 |
| | | | Bromomethane | 2020/06/06 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/06/06 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/06/06 | NC | | % | 30 |
| | | | Chloroethane | 2020/06/06 | NC | | % | 30 |
| | | | Chloroform | 2020/06/06 | NC | | % | 30 |
| | | | Chloromethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/06/06 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/06/06 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/06/06 | NC | | % | 30 |
| | | | Dichloromethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/06/06 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/06/06 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/06/06 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/06/06 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/06/06 | NC | | % | 30 |
| | | | Styrene | 2020/06/06 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/06/06 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/06/06 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/06/06 | NC | | % | 30 |
| | | | Trichloroethene | 2020/06/06 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/06/06 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/06/06 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/06/06 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/06/06 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C037170
Report Date: 2020/06/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
A Bureau Veritas Group Company

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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

00 20

# CHAIN OF CUSTODY RECORD

M 061029



| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 5 | 6 | 5 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals Tot ☐ Diss ☐ | Mercury Total ☐ Dissolved ☐ | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1977 | | 2020/06/01 | 13:30 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | 1981 | | ↓ | 13:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | 2005 | | | 14:00 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 4 | 9005 | | | 14:15 | GW | 5 | ✓ | ✓ | | | | | | | | | |
| 5 | Bailer 2 | | | 10:00 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 6 | Hydra 5 | | | 9:30 | GW | 6 | ✓ | ✓ | | | | | | | | | |
| 7 | Trip Blank 9 | | 2020/06/01 | | W | 2 | ✓ | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

**Regulatory Criteria**

☑ AT1
☐ CCME
☐ Drinking Water
☐ DSO (Drilling Waste)
☐ Saskatchewan
☐ Other:

**Special Instructions**

01-Jun-20 15:30
Linsay Sunderman
C037170
SBZ INS-0183

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/06/01 | 15:20 | SSH Kingsbury | 2020/06/01 | 15:30 | |

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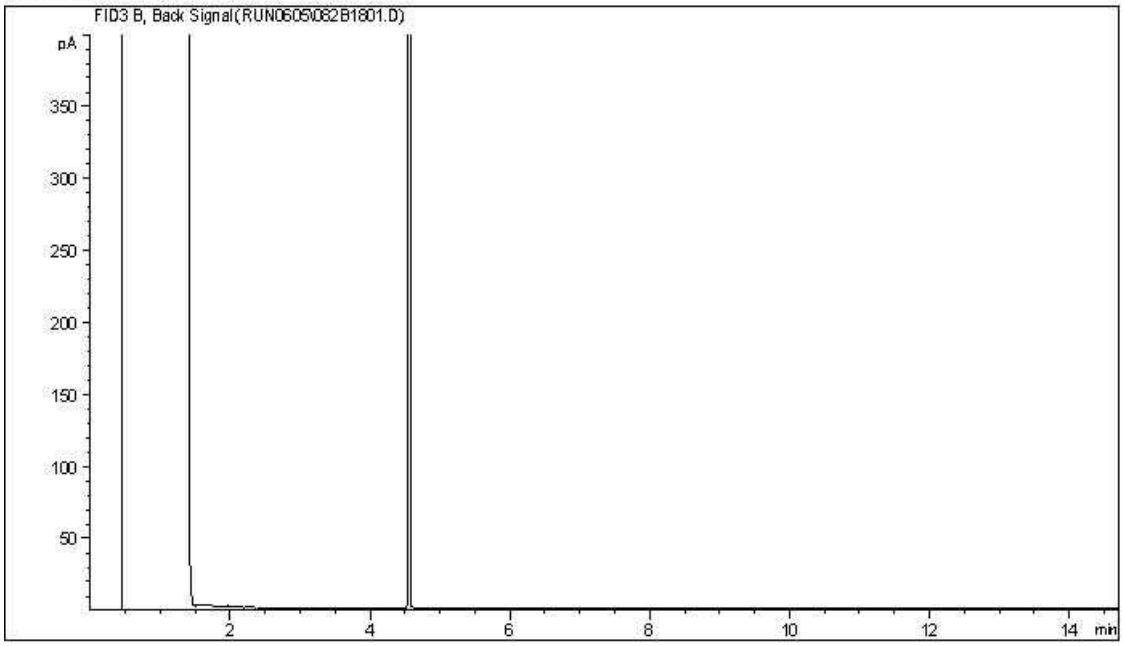
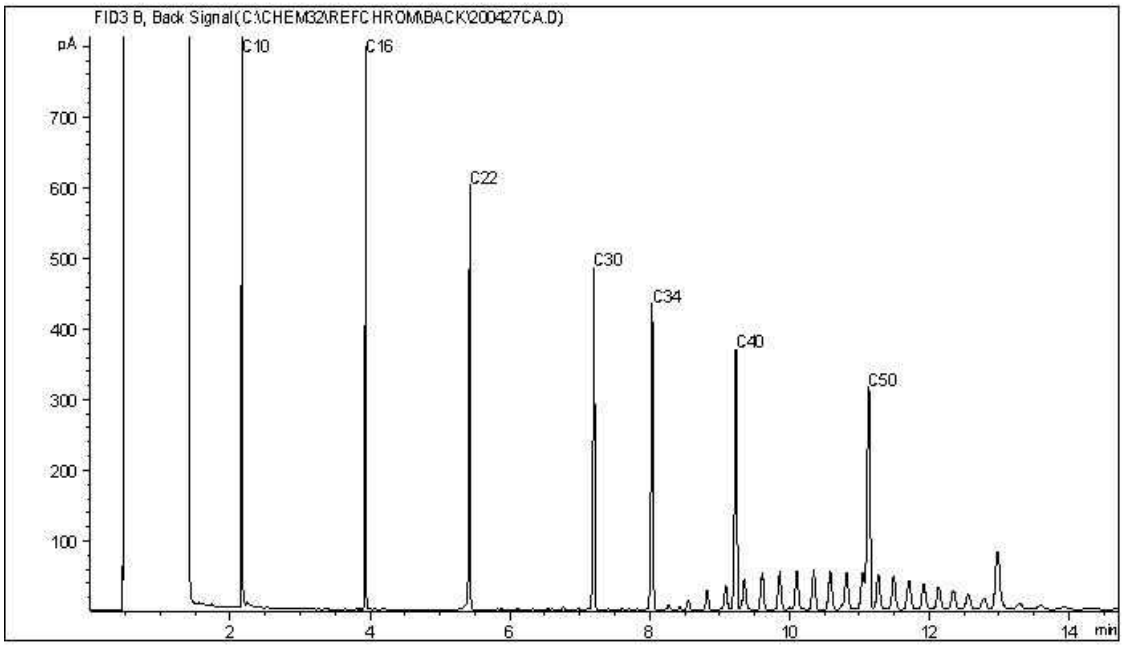
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



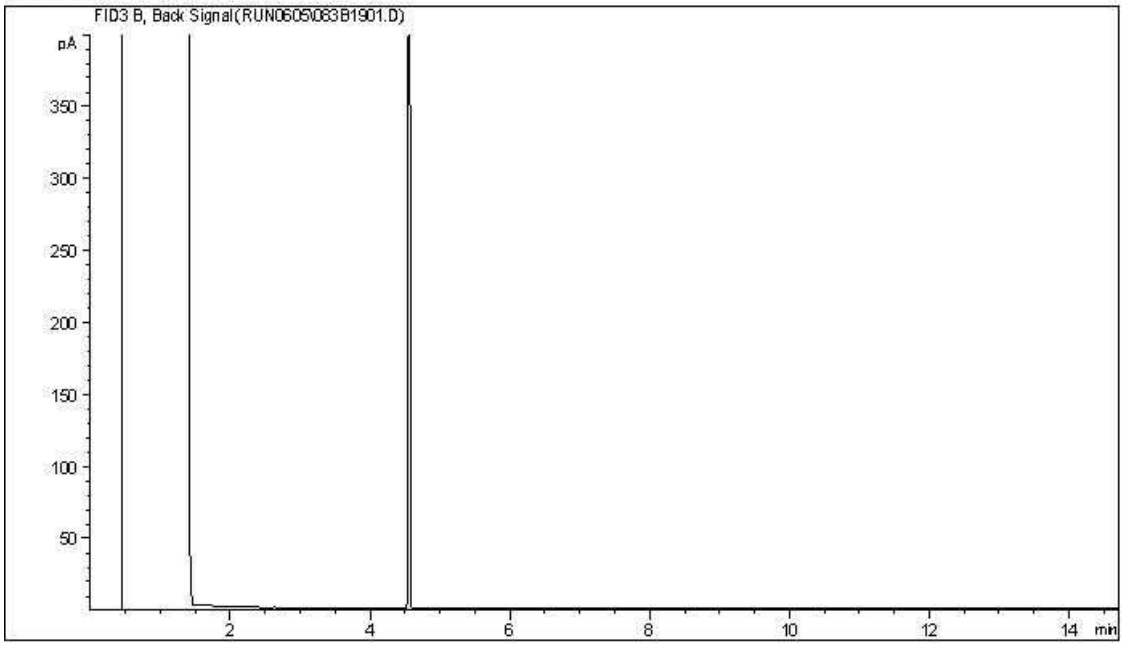

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

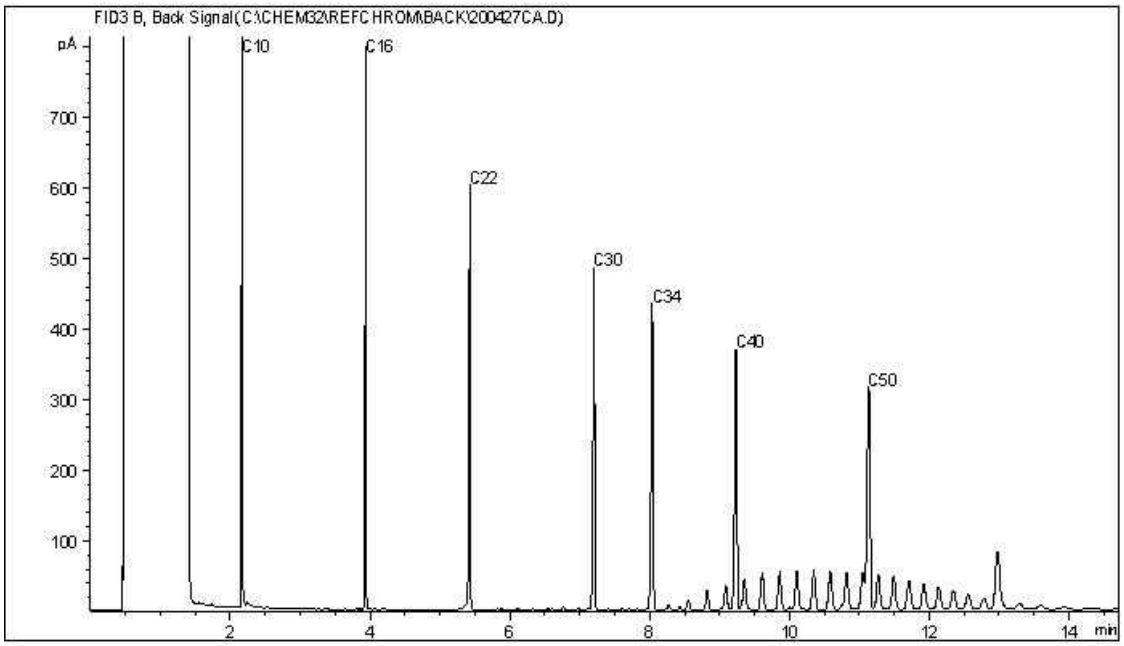
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



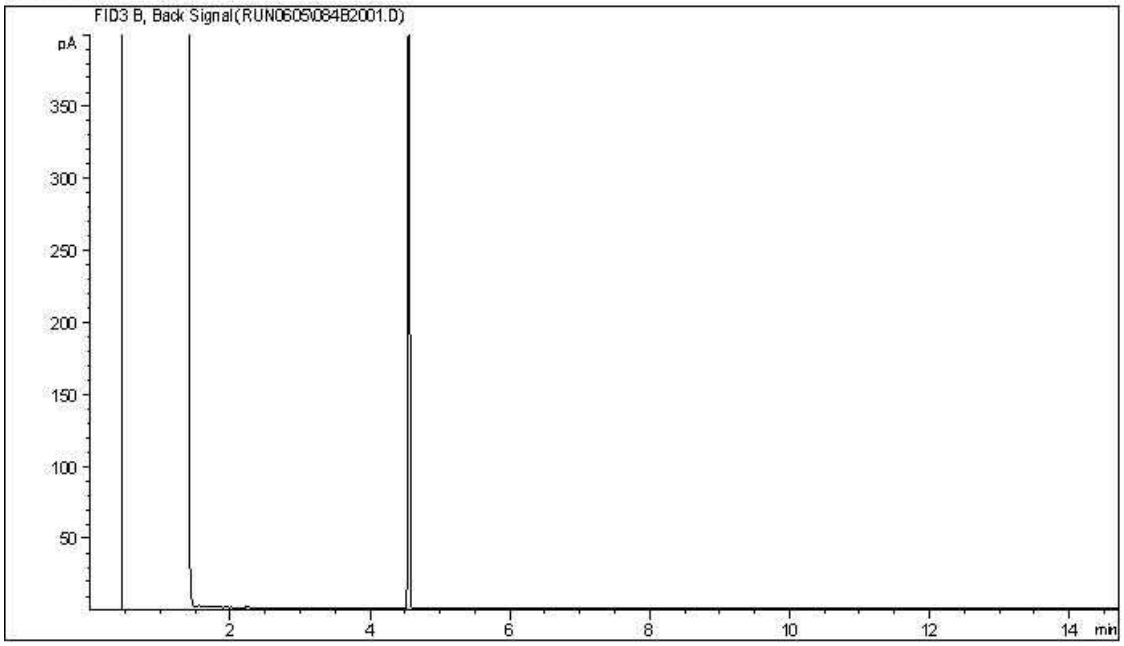

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

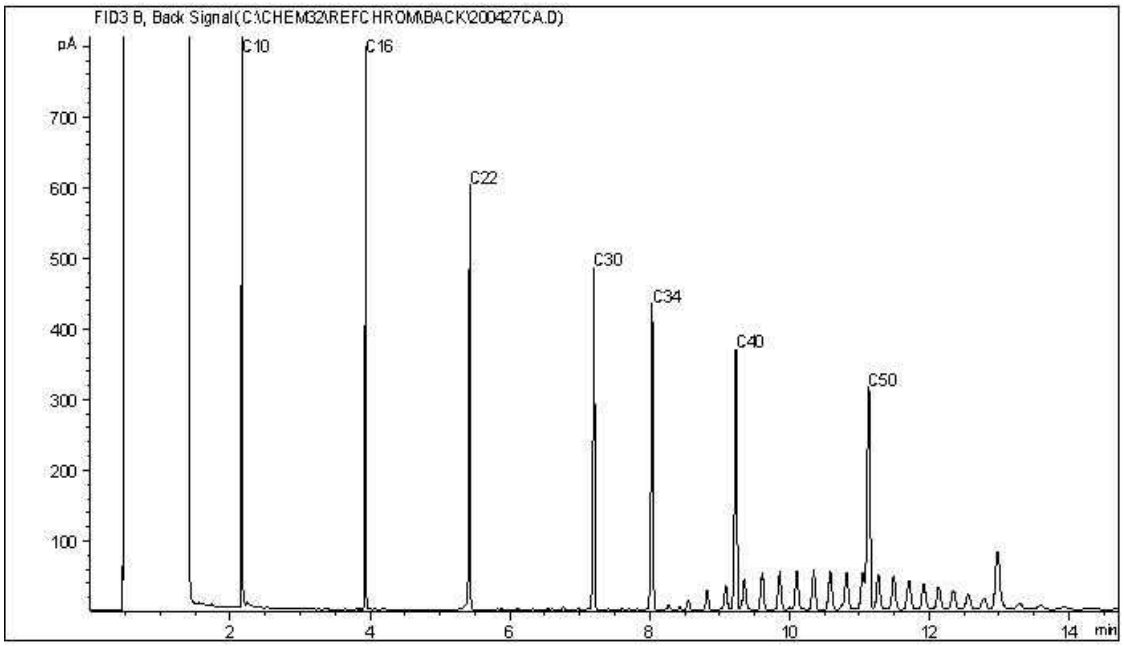
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



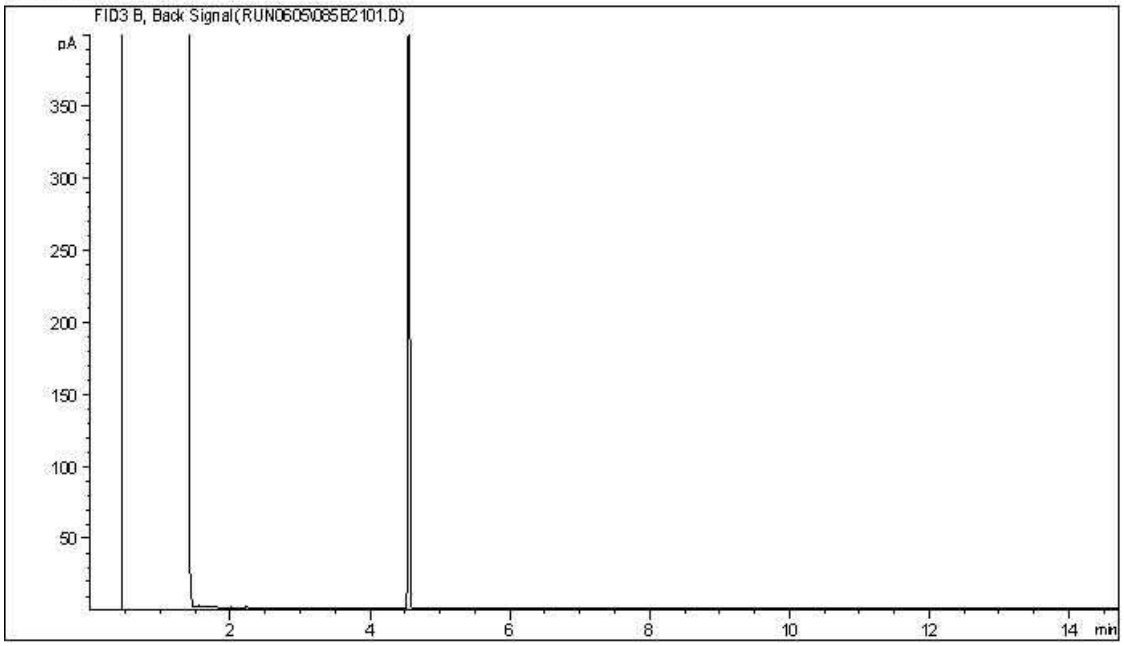

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

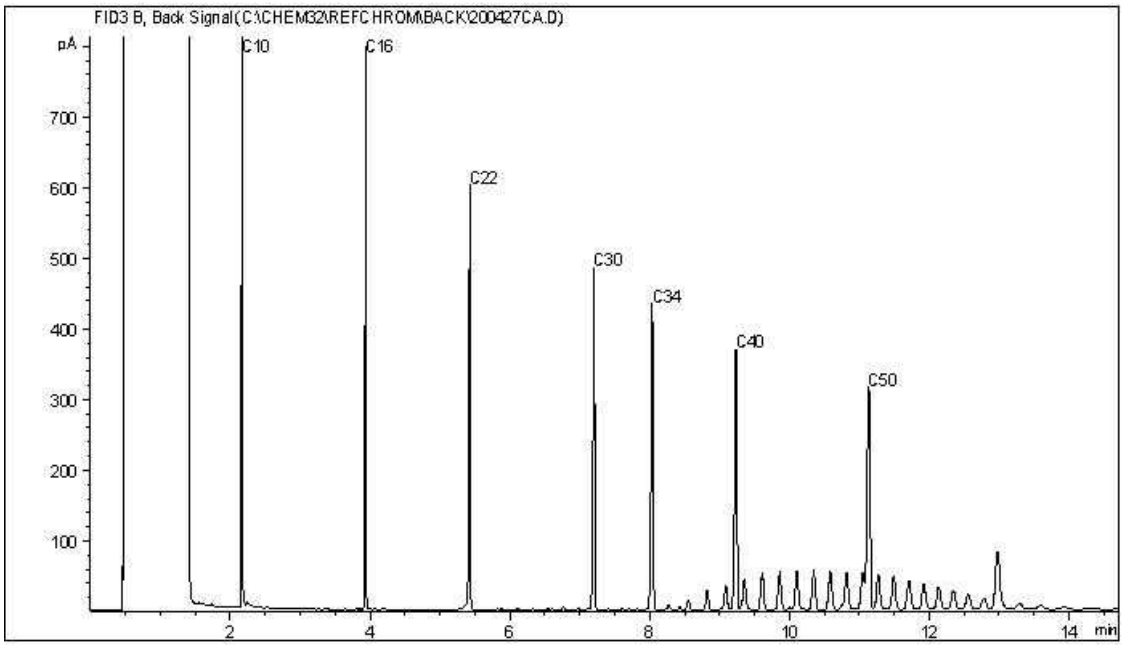
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram



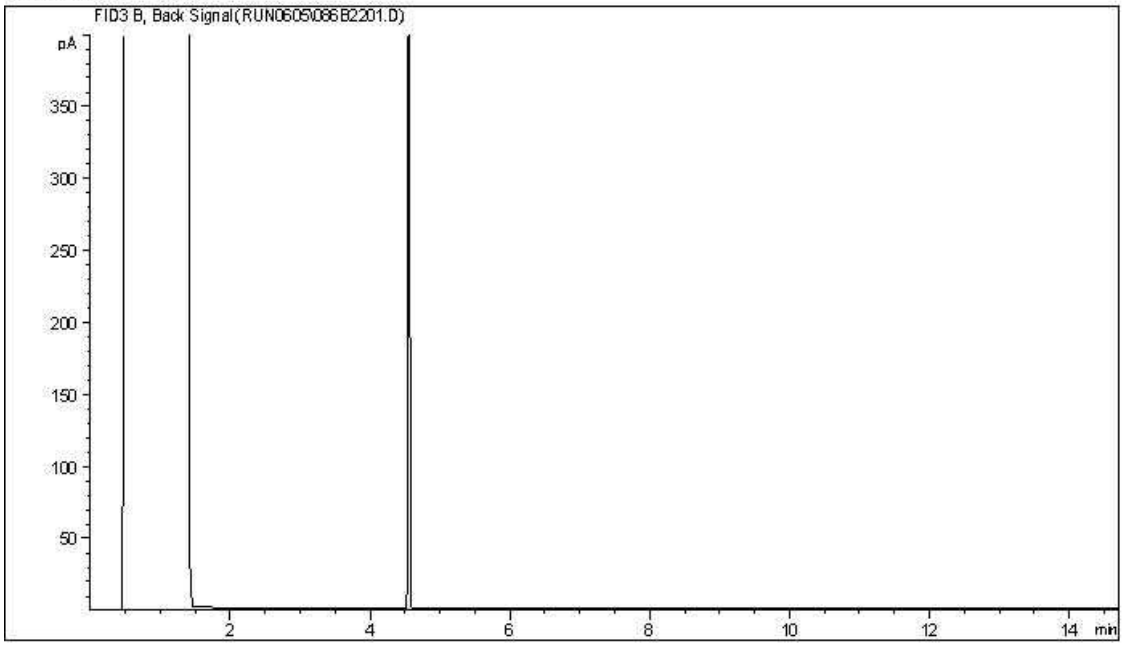

TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

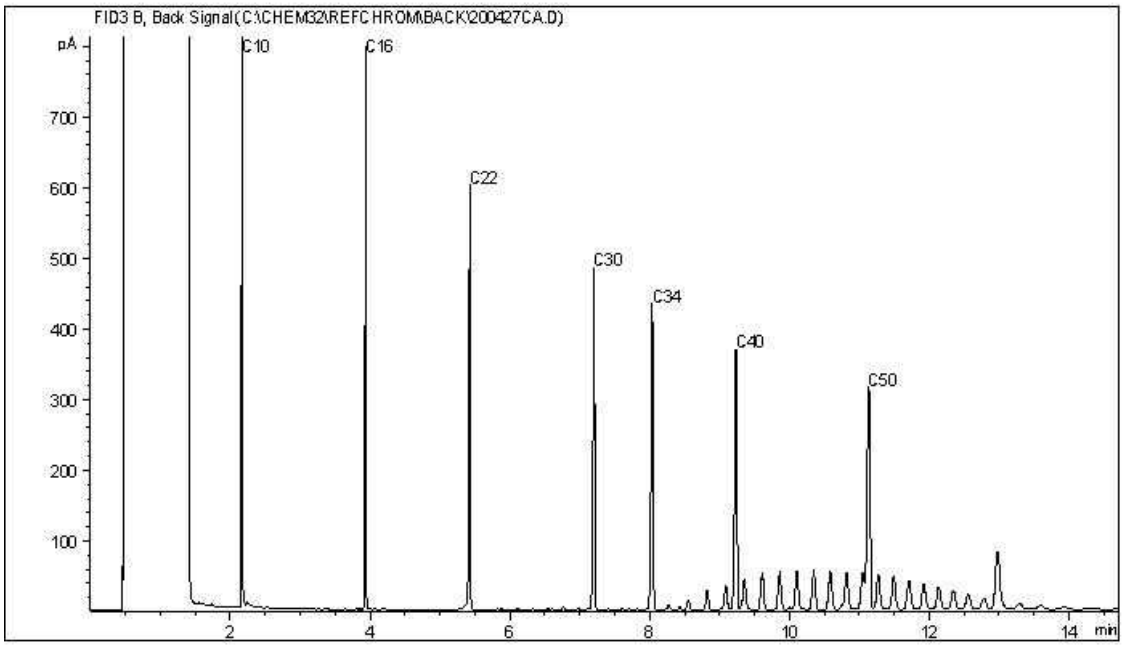
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

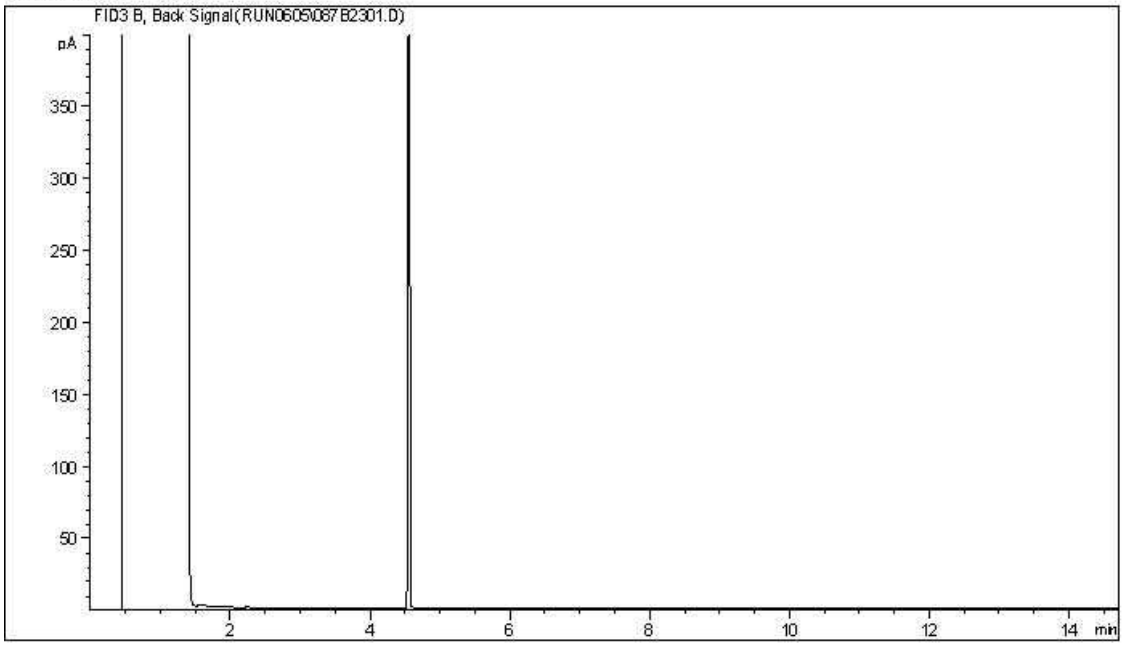
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C037170
Report Date: 2020/06/08
BV Labs Sample: XV9339

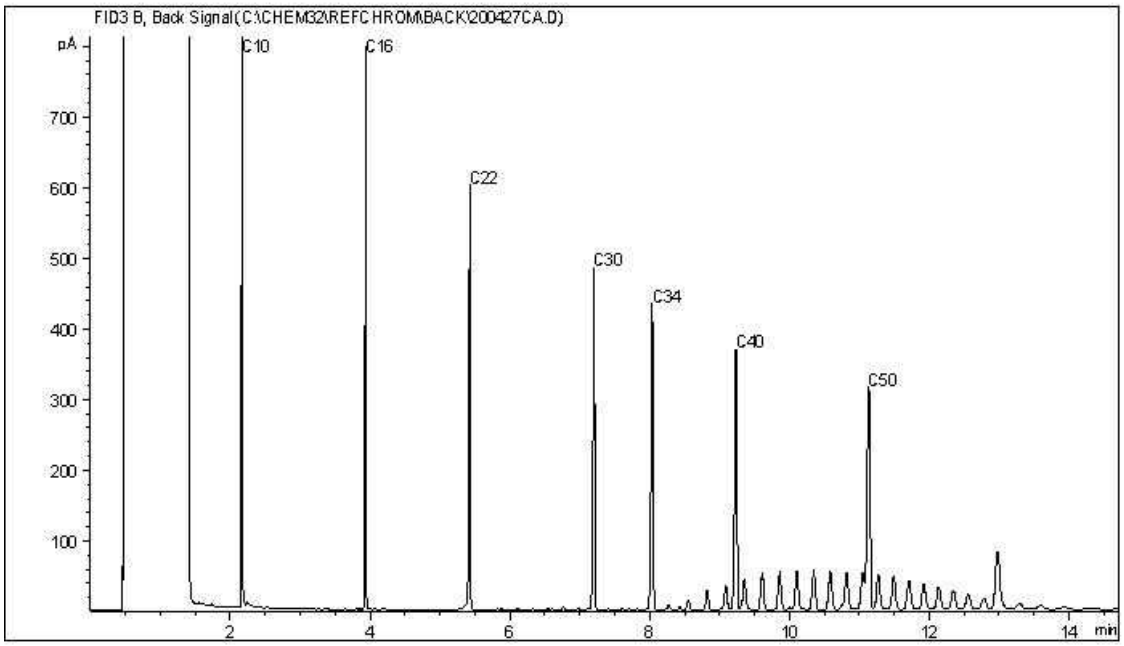
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: HYDRA 5

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC13




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M074210

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/08**
Report #: R2876991
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C030092**
**Received: 2020/05/04, 15:31**

Sample Matrix: Water
# Samples Received: 2

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 2 | N/A | 2020/05/06 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 2 | N/A | 2020/05/07 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 2 | 2020/05/05 | 2020/05/06 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 2 | N/A | 2020/05/08 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 2 | N/A | 2020/05/07 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG2430.1 E49
Your C.O.C. #: M074210

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/08**
Report #: R2876991
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C030092**
**Received: 2020/05/04, 15:31**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XS6636 | XS6637 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/04 14:30 | 2020/05/04 14:45 | | |
| **COC Number** | | M074210 | M074210 | | |
| | **UNITS** | **BAILER 1** | **HYDRA 1** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | 0.10 | 9840103 |
| **Volatiles** | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9841603 |
| Toluene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9841603 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9841603 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | 0.00080 | 9841603 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | 0.00040 | 9841603 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | 0.00089 | 9839092 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | 0.10 | 9839092 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | 0.10 | 9841603 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | 101 | N/A | 9841603 |
| 4-Bromofluorobenzene (sur.) | % | 99 | 98 | N/A | 9841603 |
| D4-1,2-Dichloroethane (sur.) | % | 95 | 96 | N/A | 9841603 |
| O-TERPHENYL (sur.) | % | 70 | 102 | N/A | 9840103 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XS6636 | XS6637 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/04 14:30 | 2020/05/04 14:45 | | |
| **COC Number** | | M074210 | M074210 | | |
| | **UNITS** | **BAILER 1** | **HYDRA 1** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | 0.0013 | 9840061 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9840083 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9840083 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9840083 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9840083 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00020 | 9840083 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9840083 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9840083 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9840083 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9840083 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9840083 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| RDL = Reportable Detection Limit | | | | | |



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XS6636 | XS6637 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/04 14:30 | 2020/05/04 14:45 | | |
| **COC Number** | | M074210 | M074210 | | |
| | **UNITS** | **BAILER 1** | **HYDRA 1** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Trichloroethene | mg/L | <0.00050 | 0.0011 | 0.00050 | 9840083 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9840083 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 99 | 100 | N/A | 9840083 |
| 4-Bromofluorobenzene (sur.) | % | 102 | 103 | N/A | 9840083 |
| D4-1,2-Dichloroethane (sur.) | % | 114 | 111 | N/A | 9840083 |

RDL = Reportable Detection Limit
N/A = Not Applicable



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 11.3°C |

**Results relate only to the items tested.**



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9840083 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/06 | | 108 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/06 | | 106 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/06 | | 103 | % | 50 - 140 |
| | | | Bromoform | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/06 | | 88 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/06 | | 90 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/06 | | 87 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/06 | | 89 | % | 50 - 140 |
| | | | Chloroform | 2020/05/06 | | 93 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/06 | | 80 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/06 | | 100 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/06 | | 94 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/06 | | 96 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/06 | | 107 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/06 | | 85 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/06 | | 96 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/06 | | 84 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/06 | | 91 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/06 | | 101 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/06 | | 119 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/06 | | 127 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/06 | | 119 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/06 | | 102 | % | 50 - 140 |
| | | | Styrene | 2020/05/06 | | 95 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/06 | | 90 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/06 | | 104 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/06 | | 78 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/06 | | 102 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/06 | | 99 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/06 | | 94 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/06 | | 94 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/06 | | 104 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/06 | | 89 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/06 | | 83 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/06 | | 103 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/06 | | 102 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/06 | | 78 | % | 50 - 140 |
| 9840083 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/06 | | 109 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/06 | | 103 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/06 | | 101 | % | 60 - 130 |
| | | | Bromoform | 2020/05/06 | | 95 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/06 | | 88 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/06 | | 93 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/06 | | 91 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/06 | | 97 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/06 | | 91 | % | 60 - 130 |
| | | | Chloroform | 2020/05/06 | | 93 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/06 | | 82 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/06 | | 95 | % | 60 - 130 |



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BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dichlorobenzene | 2020/05/06 | | 100 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/06 | | 98 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/06 | | 94 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/06 | | 96 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/06 | | 102 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/06 | | 88 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/06 | | 95 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/06 | | 85 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/06 | | 88 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/06 | | 100 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/06 | | 111 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/06 | | 116 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/06 | | 111 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/06 | | 100 | % | 60 - 130 |
| | | | Styrene | 2020/05/06 | | 99 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/06 | | 93 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/06 | | 102 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/06 | | 83 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/06 | | 104 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/06 | | 100 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/06 | | 95 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/06 | | 96 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/06 | | 98 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/06 | | 91 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/06 | | 88 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/06 | | 106 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/06 | | 105 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/06 | | 81 | % | 60 - 130 |
| 9840083 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/06 | | 99 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/06 | | 105 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/06 | | 112 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/06 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/06 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/06 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/06 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/06 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/06 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/06 | <0.00050 | | mg/L | |



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BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Methyl-tert-butylether (MTBE) | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/06 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/06 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/06 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/06 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/06 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/06 | <0.00050 | | mg/L | |
| 9840083 | GP4 | RPD | Bromodichloromethane | 2020/05/06 | NC | | % | 30 |
| | | | Bromoform | 2020/05/06 | NC | | % | 30 |
| | | | Bromomethane | 2020/05/06 | NC | | % | 30 |
| | | | Carbon tetrachloride | 2020/05/06 | NC | | % | 30 |
| | | | Chlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | Chlorodibromomethane | 2020/05/06 | NC | | % | 30 |
| | | | Chloroethane | 2020/05/06 | NC | | % | 30 |
| | | | Chloroform | 2020/05/06 | NC | | % | 30 |
| | | | Chloromethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,2-dibromoethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,2-dichlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,3-dichlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,4-dichlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,1-dichloroethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,1-dichloroethene | 2020/05/06 | NC | | % | 30 |
| | | | cis-1,2-dichloroethene | 2020/05/06 | NC | | % | 30 |
| | | | trans-1,2-dichloroethene | 2020/05/06 | NC | | % | 30 |
| | | | Dichloromethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,2-dichloropropane | 2020/05/06 | NC | | % | 30 |
| | | | cis-1,3-dichloropropene | 2020/05/06 | NC | | % | 30 |
| | | | trans-1,3-dichloropropene | 2020/05/06 | NC | | % | 30 |
| | | | Methyl methacrylate | 2020/05/06 | NC | | % | 30 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/06 | NC | | % | 30 |
| | | | Styrene | 2020/05/06 | NC | | % | 30 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/06 | NC | | % | 30 |
| | | | Tetrachloroethene | 2020/05/06 | NC | | % | 30 |
| | | | 1,2,3-trichlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,2,4-trichlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,3,5-trichlorobenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,1,1-trichloroethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,1,2-trichloroethane | 2020/05/06 | NC | | % | 30 |
| | | | Trichloroethene | 2020/05/06 | NC | | % | 30 |
| | | | Trichlorofluoromethane | 2020/05/06 | NC | | % | 30 |
| | | | 1,2,4-trimethylbenzene | 2020/05/06 | NC | | % | 30 |
| | | | 1,3,5-trimethylbenzene | 2020/05/06 | NC | | % | 30 |
| | | | Vinyl chloride | 2020/05/06 | NC | | % | 30 |
| 9840103 | LSH | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/05 | | 103 | % | 60 - 140 |



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BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/05 | | 95 | % | 60 - 140 |
| 9840103 | LSH | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/05 | | 108 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/05 | | 99 | % | 60 - 140 |
| 9840103 | LSH | Method Blank | O-TERPHENYL (sur.) | 2020/05/05 | | 104 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/05 | <0.10 | | mg/L | |
| 9840103 | LSH | RPD | F2 (C10-C16 Hydrocarbons) | 2020/05/05 | NC | | % | 30 |
| 9841603 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/06 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/06 | | 97 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/06 | | 99 | % | 50 - 140 |
| | | | Benzene | 2020/05/06 | | 97 | % | 50 - 140 |
| | | | Toluene | 2020/05/06 | | 93 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/06 | | 91 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/06 | | 90 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/06 | | 90 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/06 | | 86 | % | 60 - 140 |
| 9841603 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/06 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/06 | | 99 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | Benzene | 2020/05/06 | | 93 | % | 60 - 130 |
| | | | Toluene | 2020/05/06 | | 88 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/06 | | 87 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/06 | | 86 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/06 | | 86 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/06 | | 84 | % | 60 - 140 |
| 9841603 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/06 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/06 | | 101 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/06 | | 98 | % | 50 - 140 |
| | | | Benzene | 2020/05/06 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/06 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/06 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/06 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/06 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/06 | <0.10 | | mg/L | |
| 9841603 | DO1 | RPD | Benzene | 2020/05/06 | NC | | % | 30 |
| | | | Toluene | 2020/05/06 | 1.9 | | % | 30 |
| | | | Ethylbenzene | 2020/05/06 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/05/06 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/06 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/06 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C030092
Report Date: 2020/05/08

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

137

# CHAIN OF CUSTODY RECORD

M 074210

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☑ 5-7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 – 30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☐ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | Date Required: |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Rush Confirmation #: |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | AM | |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 13 | 11 | 10 |
| Seal Intact | | | | | | |
| Cooling Media | ✓ | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury ☐ Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Bailer 1 | | 2020/05/04 | 14:30 | | 6 | ✓ | ✓ | | | | | | | | | |
| 2 | Hydra 1 | | 2020/05/04 | 14:45 | | 6 | ✓ | ✓ | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

04-May-20 15:31
Linsay Sunderman
C030092
JK4 INS-0068

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Mei | 2020/05/04 | 15:20 | Josh Kenesky | 2020/05/04 | 15:3 |

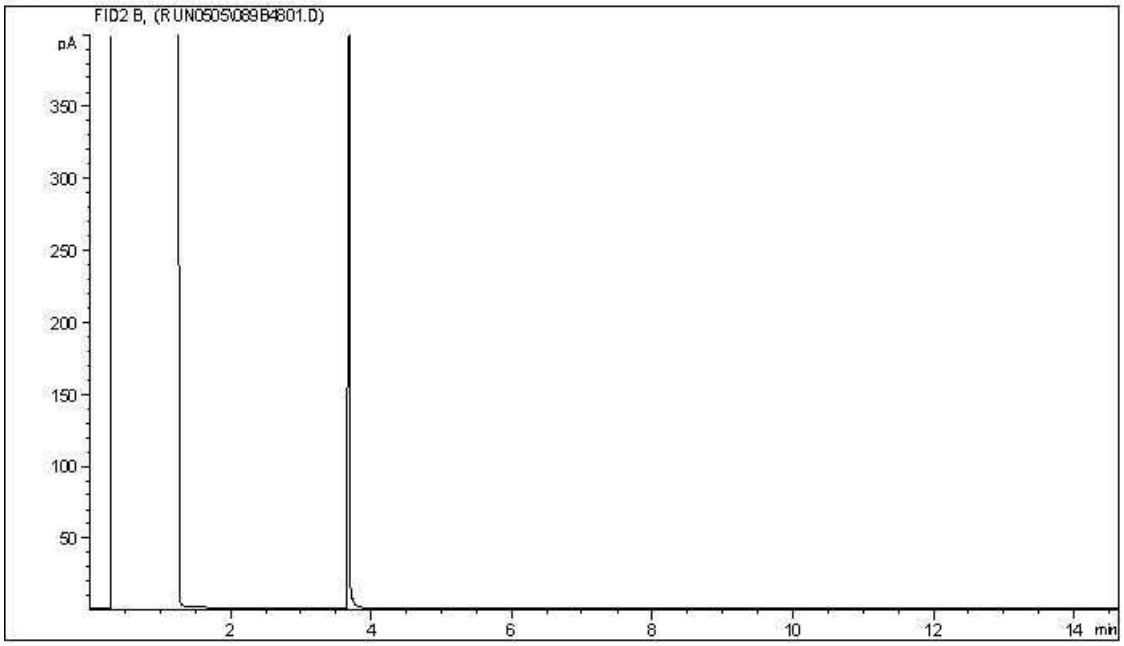
work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

BV Labs Job #: C030092
Report Date: 2020/05/08
BV Labs Sample: XS6636

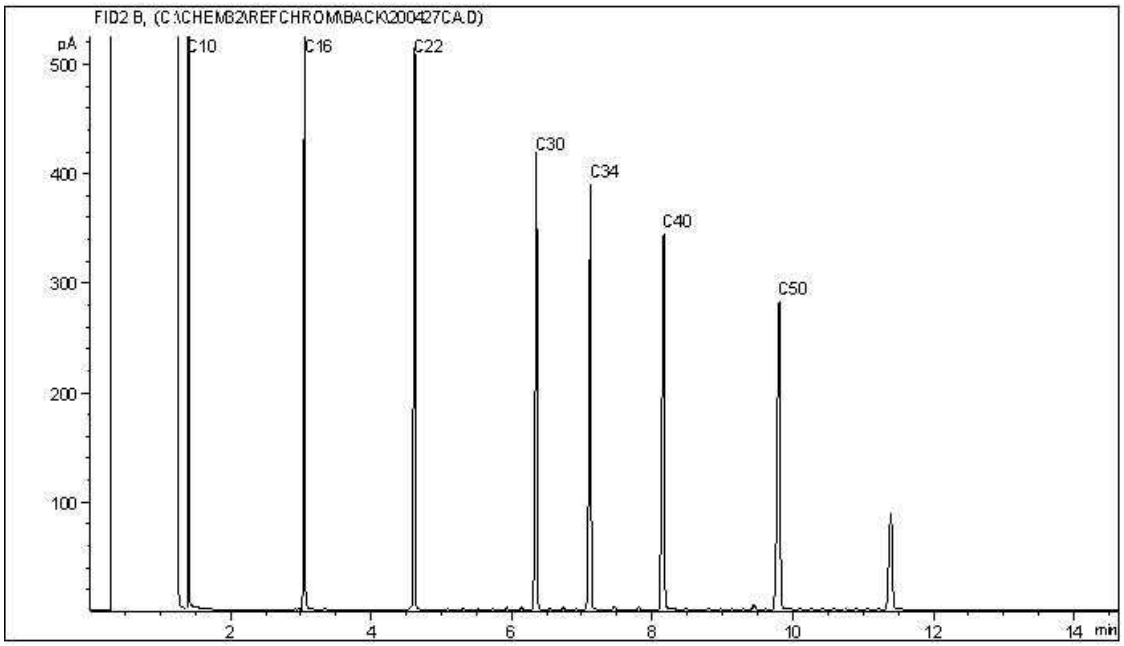
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: BAILER 1

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

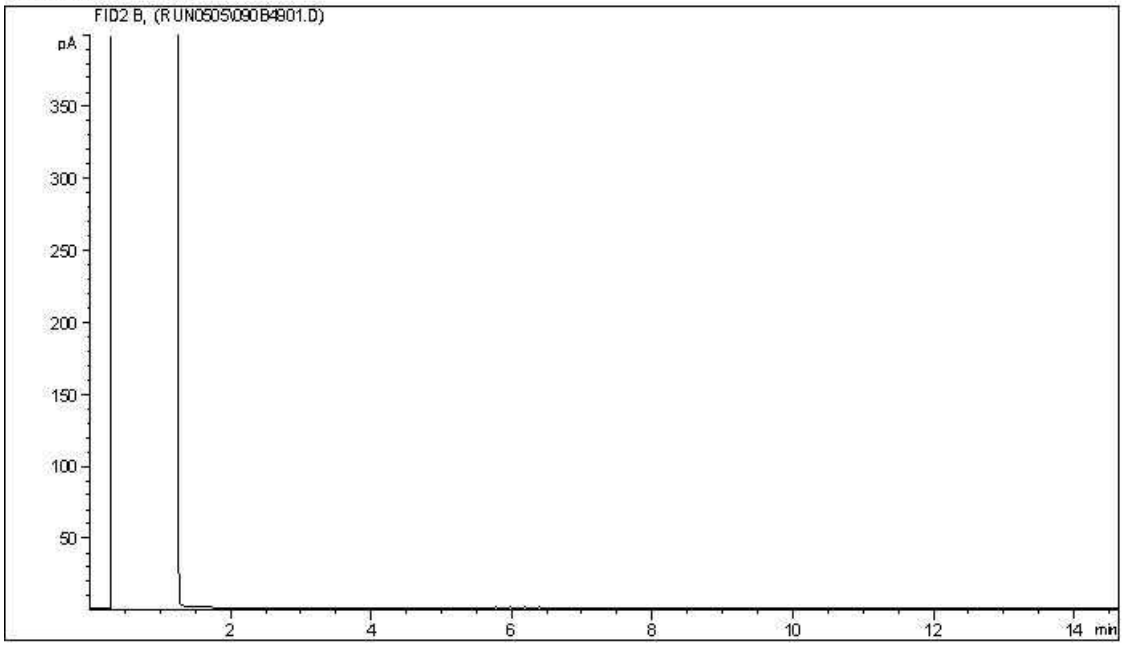
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C030092
Report Date: 2020/05/08
BV Labs Sample: XS6637

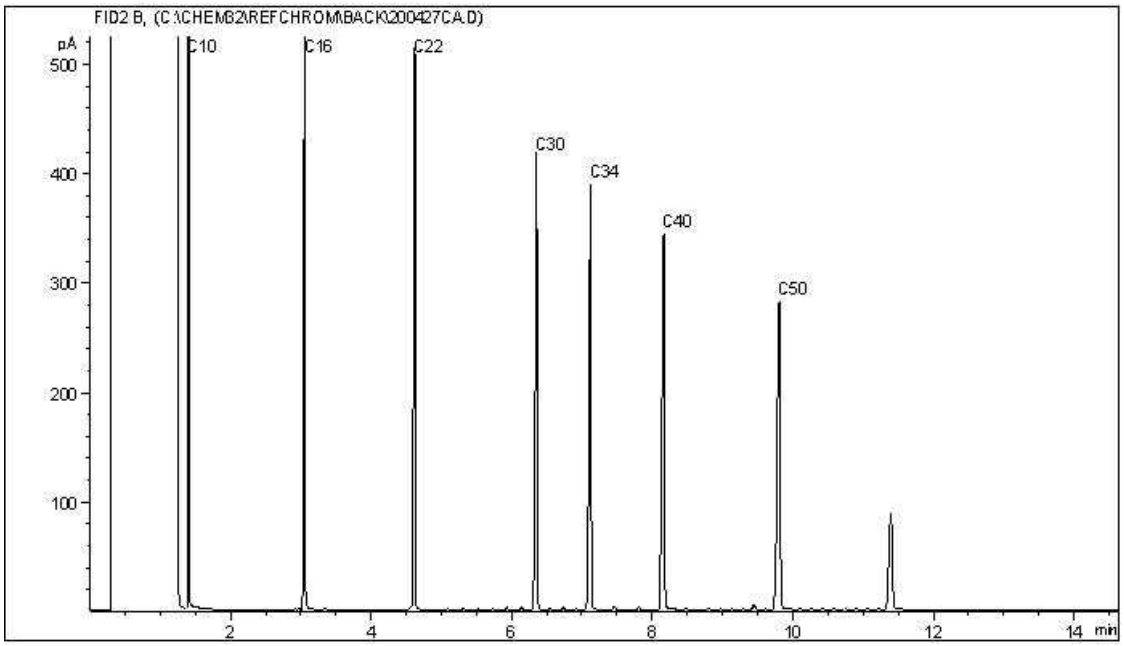
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: HYDRA 1

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG2430.1 E49
Your C.O.C. #: M061023

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/19**
Report #: R2880356
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C032975**
**Received: 2020/05/15, 12:55**

Sample Matrix: Water
# Samples Received: 2

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 2 | N/A | 2020/05/16 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 2 | N/A | 2020/05/19 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 2 | 2020/05/16 | 2020/05/16 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 2 | N/A | 2020/05/19 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 2 | N/A | 2020/05/16 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.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Your Project #: CG2430.1 E49
Your C.O.C. #: M061023

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/19**
Report #: R2880356
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C032975**
**Received: 2020/05/15, 12:55**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
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BV Labs Job #: C032975
Report Date: 2020/05/19

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XT9025 | XT9026 | XT9026 | | |
|---|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/15 12:40 | 2020/05/15 12:45 | 2020/05/15 12:45 | | |
| **COC Number** | | M061023 | M061023 | M061023 | | |
| | **UNITS** | **BAILER 3** | **HYDRA 3** | **HYDRA 3 Lab-Dup** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | <0.10 | <0.10 | 0.10 | 9853149 |
| **Volatiles** | | | | | | |
| Benzene | mg/L | <0.00040 | <0.00040 | N/A | 0.00040 | 9853272 |
| Toluene | mg/L | <0.00040 | 0.00065 | N/A | 0.00040 | 9853272 |
| Ethylbenzene | mg/L | <0.00040 | <0.00040 | N/A | 0.00040 | 9853272 |
| m & p-Xylene | mg/L | <0.00080 | <0.00080 | N/A | 0.00080 | 9853272 |
| o-Xylene | mg/L | <0.00040 | <0.00040 | N/A | 0.00040 | 9853272 |
| Xylenes (Total) | mg/L | <0.00089 | <0.00089 | N/A | 0.00089 | 9852509 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | <0.10 | N/A | 0.10 | 9852509 |
| F1 (C6-C10) | mg/L | <0.10 | <0.10 | N/A | 0.10 | 9853272 |
| **Surrogate Recovery (%)** | | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 97 | 98 | N/A | N/A | 9853272 |
| 4-Bromofluorobenzene (sur.) | % | 103 | 102 | N/A | N/A | 9853272 |
| D4-1,2-Dichloroethane (sur.) | % | 98 | 98 | N/A | N/A | 9853272 |
| O-TERPHENYL (sur.) | % | 124 | 122 | 129 | N/A | 9853149 |

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable



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BV Labs Job #: C032975
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CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT9025 | XT9026 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/15 12:40 | 2020/05/15 12:45 | | |
| **COC Number** | | M061023 | M061023 | | |
| | **UNITS** | **BAILER 3** | **HYDRA 3** | **RDL** | **QC Batch** |
| **Volatiles** | | | | | |
| Total Trihalomethanes | mg/L | <0.0013 | <0.0013 | 0.0013 | 9851705 |
| Bromodichloromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Bromoform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Bromomethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9851792 |
| Carbon tetrachloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Chlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Chlorodibromomethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9851792 |
| Chloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9851792 |
| Chloroform | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Chloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9851792 |
| 1,2-dibromoethane | mg/L | <0.00020 | <0.00020 | 0.00020 | 9851792 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,1-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,2-dichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,1-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Dichloromethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9851792 |
| 1,2-dichloropropane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Methyl methacrylate | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Styrene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | <0.0010 | 0.0010 | 9851792 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | <0.0020 | 0.0020 | 9851792 |
| Tetrachloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9851792 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | <0.0010 | 0.0010 | 9851792 |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| RDL = Reportable Detection Limit | | | | | |



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BV Labs Job #: C032975
Report Date: 2020/05/19

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT9025 | XT9026 | | |
|---|---|---|---|---|---|
| **Sampling Date** | | 2020/05/15 12:40 | 2020/05/15 12:45 | | |
| **COC Number** | | M061023 | M061023 | | |
| | **UNITS** | **BAILER 3** | **HYDRA 3** | **RDL** | **QC Batch** |
| 1,1,1-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Trichloroethene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Trichlorofluoromethane | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| Vinyl chloride | mg/L | <0.00050 | <0.00050 | 0.00050 | 9851792 |
| **Surrogate Recovery (%)** | | | | | |
| 1,4-Difluorobenzene (sur.) | % | 99 | 99 | N/A | 9851792 |
| 4-Bromofluorobenzene (sur.) | % | 94 | 94 | N/A | 9851792 |
| D4-1,2-Dichloroethane (sur.) | % | 102 | 104 | N/A | 9851792 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 18.0°C |

**Results relate only to the items tested.**



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9851792 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/15 | | 103 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/15 | | 114 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/15 | | 96 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/15 | | 101 | % | 50 - 140 |
| | | | Bromoform | 2020/05/15 | | 85 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/15 | | 86 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/15 | | 72 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/15 | | 89 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/15 | | 95 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/15 | | 87 | % | 50 - 140 |
| | | | Chloroform | 2020/05/15 | | 84 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/15 | | 74 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/15 | | 91 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/15 | | 89 | % | 50 - 140 |
| | | | 1,3-dichlorobenzene | 2020/05/15 | | 94 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/15 | | 93 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/15 | | 88 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/15 | | NC | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/15 | | 90 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/15 | | 93 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/15 | | 81 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/15 | | 94 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/15 | | 97 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/15 | | 100 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/15 | | 103 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/15 | | 92 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/15 | | 89 | % | 50 - 140 |
| | | | Styrene | 2020/05/15 | | 85 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/15 | | 89 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/15 | | 79 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/15 | | 82 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/15 | | 76 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/15 | | 73 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/15 | | 75 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/15 | | 95 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/15 | | 101 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/15 | | 102 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/15 | | 86 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/15 | | NC | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/15 | | NC | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/15 | | 75 | % | 50 - 140 |
| 9851792 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/15 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/15 | | 103 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/15 | | 85 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/15 | | 93 | % | 60 - 130 |
| | | | Bromoform | 2020/05/15 | | 94 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/15 | | 75 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/15 | | 91 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/15 | | 94 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/15 | | 100 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/15 | | 82 | % | 60 - 130 |
| | | | Chloroform | 2020/05/15 | | 84 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/15 | | 51 (1) | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/15 | | 89 | % | 60 - 130 |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-dichlorobenzene | 2020/05/15 | | 96 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/15 | | 93 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/15 | | 91 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/15 | | 88 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/15 | | 86 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/15 | | 86 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/15 | | 89 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/15 | | 79 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/15 | | 84 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/15 | | 91 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/15 | | 85 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/15 | | 92 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/15 | | 87 | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/15 | | 89 | % | 60 - 130 |
| | | | Styrene | 2020/05/15 | | 93 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/15 | | 92 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/15 | | 93 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/15 | | 89 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/15 | | 87 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/15 | | 87 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/15 | | 88 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/15 | | 92 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/15 | | 91 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/15 | | 95 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/15 | | 81 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/15 | | 95 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/15 | | 97 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/15 | | 71 | % | 60 - 130 |
| 9851792 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/15 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/15 | | 96 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/15 | | 102 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/15 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/15 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/15 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Chloromethane | 2020/05/15 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/15 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/15 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/15 | <0.00050 | | mg/L | |



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Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Methyl-tert-butylether (MTBE) | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/15 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/15 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/15 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/15 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/15 | <0.00050 | | mg/L | |
| | | | Vinyl chloride | 2020/05/15 | <0.00050 | | mg/L | |
| 9851792 | GP4 | RPD | 1,2-dibromoethane | 2020/05/15 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/15 | 5.3 | | % | 30 |
| 9853149 | MHF | Matrix Spike [XT9025-01] | O-TERPHENYL (sur.) | 2020/05/16 | | 118 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/16 | | 103 | % | 60 - 140 |
| 9853149 | MHF | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/16 | | 123 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/16 | | 109 | % | 60 - 140 |
| 9853149 | MHF | Method Blank | O-TERPHENYL (sur.) | 2020/05/16 | | 126 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/16 | <0.10 | | mg/L | |
| 9853149 | MHF | RPD [XT9026-01] | F2 (C10-C16 Hydrocarbons) | 2020/05/16 | NC | | % | 30 |
| 9853272 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/16 | | 96 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/16 | | 104 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/16 | | 102 | % | 50 - 140 |
| | | | Benzene | 2020/05/16 | | 90 | % | 50 - 140 |
| | | | Toluene | 2020/05/16 | | 87 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/16 | | 87 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/16 | | 87 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/16 | | 86 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/16 | | 97 | % | 60 - 140 |
| 9853272 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/16 | | 97 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/16 | | 103 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/16 | | 99 | % | 50 - 140 |
| | | | Benzene | 2020/05/16 | | 92 | % | 60 - 130 |
| | | | Toluene | 2020/05/16 | | 89 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/16 | | 91 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/16 | | 91 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/16 | | 89 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/16 | | 101 | % | 60 - 140 |
| 9853272 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/16 | | 97 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/16 | | 100 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/16 | | 98 | % | 50 - 140 |
| | | | Benzene | 2020/05/16 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/16 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/16 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/16 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/16 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/16 | <0.10 | | mg/L | |
| 9853272 | GP4 | RPD | Benzene | 2020/05/16 | NC | | % | 30 |
| | | | Toluene | 2020/05/16 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/16 | NC | | % | 30 |



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BV Labs Job #: C032975
Report Date: 2020/05/19

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | m & p-Xylene | 2020/05/16 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/16 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/16 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C032975
Report Date: 2020/05/19

CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
A Bureau Veritas Group Company

Calgary: 4000 19th St. NE, T2E 6P8. Toll Free (800) 386-7247
Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
maxxam.ca

# CHAIN OF CUSTODY RECORD

596 M061023

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☐ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 - 30 Ave NE Calgary AB | Address: | | Project #: | CG2430.1 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☑ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: 19 May 2020 |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 17 | 18 | 19 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | | ✓ | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury ☐ Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Bailer 3 | | 2020/05/15 | 12:40 | W | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | Hydra 3 | | 2020/05/15 | 12:45 | W | 5 | ✓ | ✓ | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) |
|---|---|---|---|---|---|
| Austin Mei | 2020/05/15 | 12:48 | SARA BISCHOFF | 2020/05/15 | 12:55 |
| | | | | | |

15-May-20 12:55
Linsay Sunderman
C032975

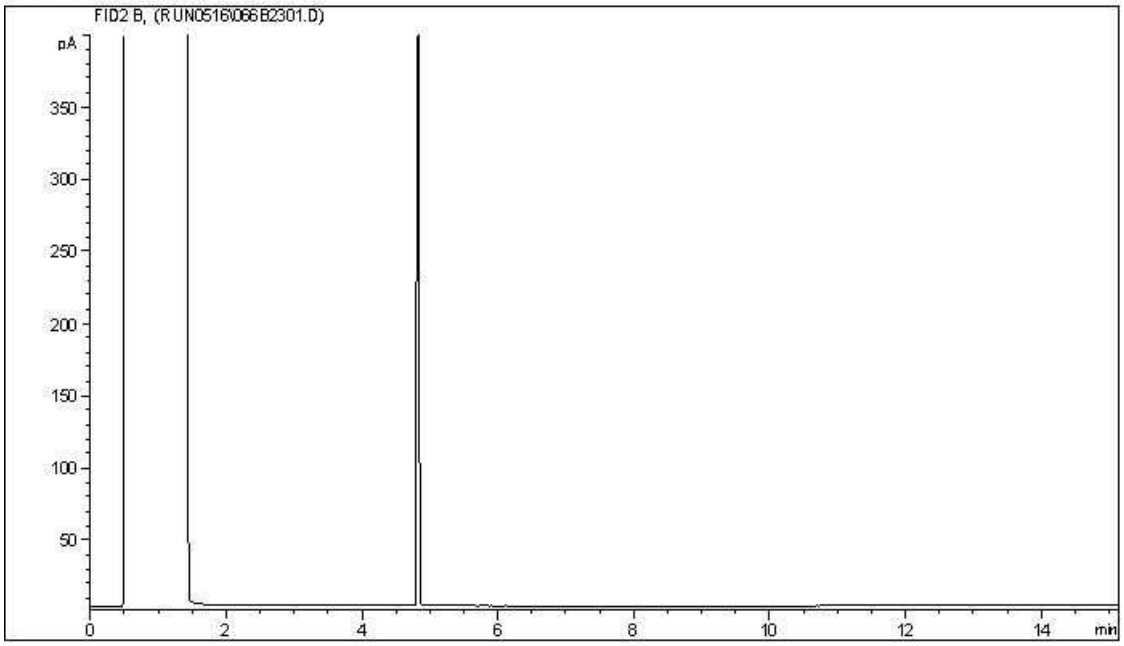
SBZ INS-0139

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxa

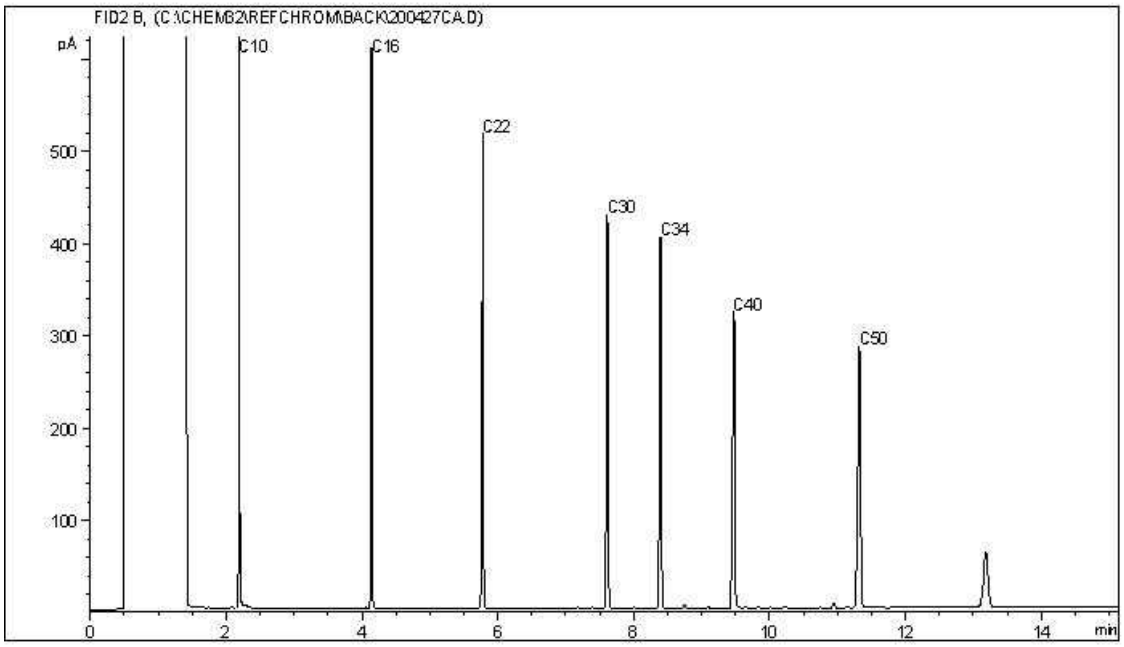
AB FCD-00331/7

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

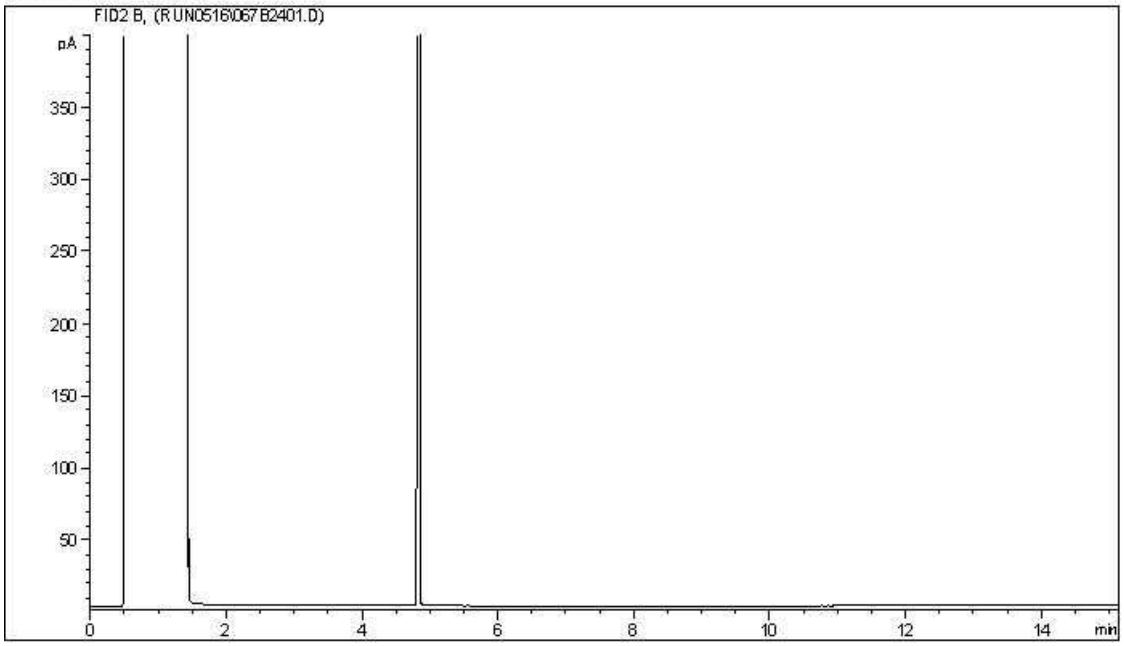
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C032975
Report Date: 2020/05/19
BV Labs Sample: XT9026

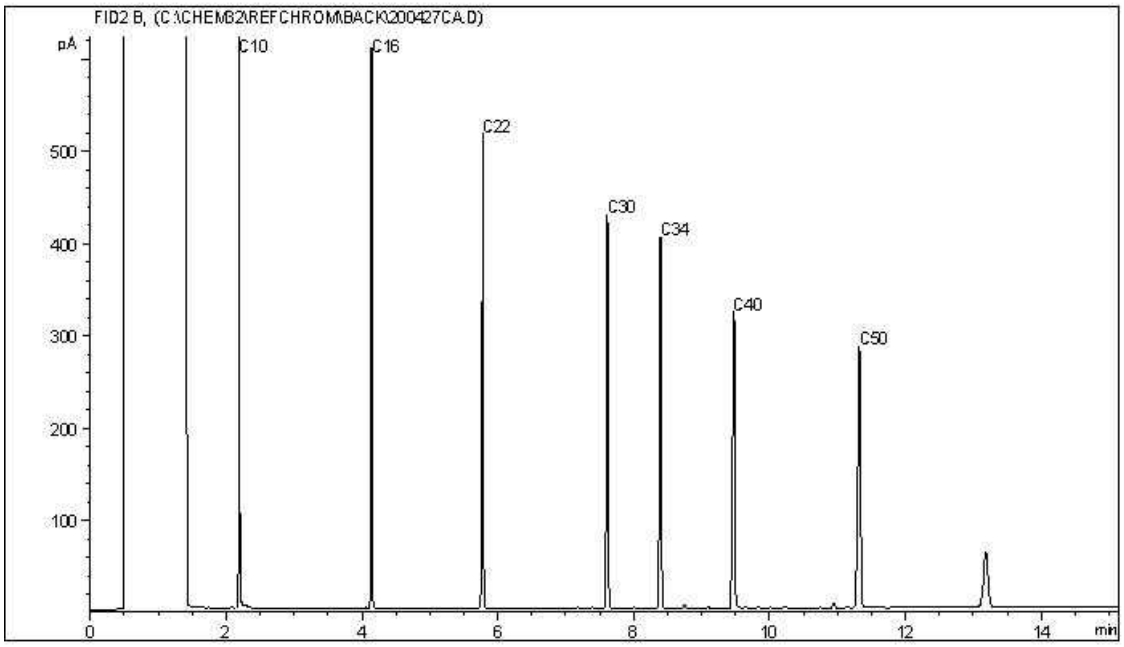
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: HYDRA 3

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

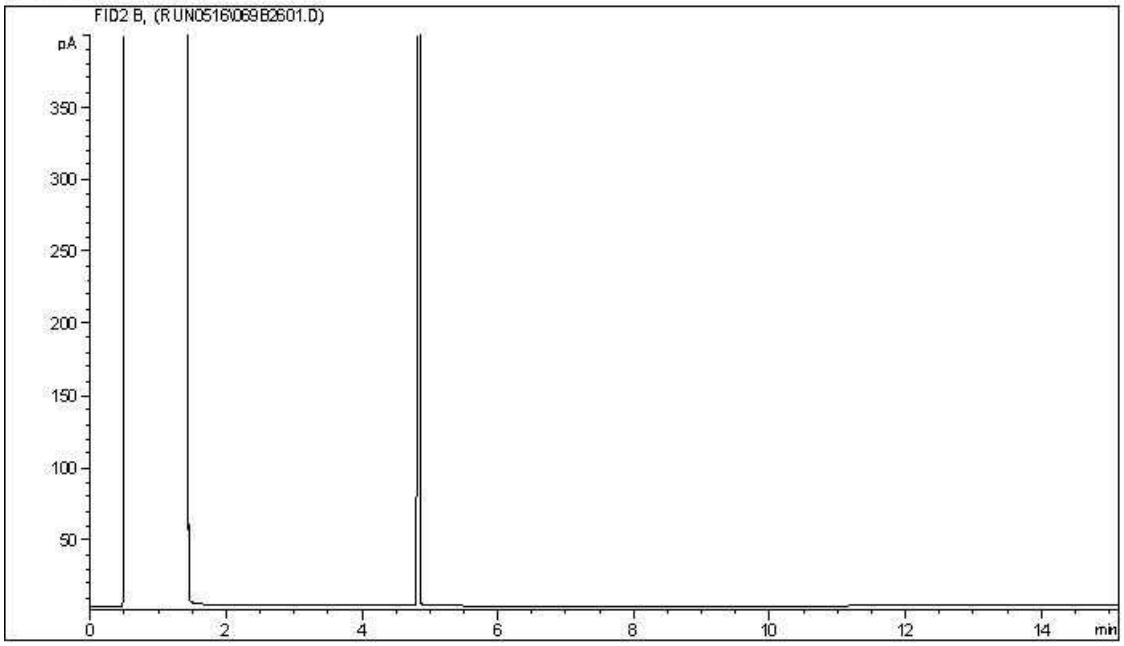
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

BV Labs Job #: C032975
Report Date: 2020/05/19
BV Labs Sample: XT9026 Lab-Dup

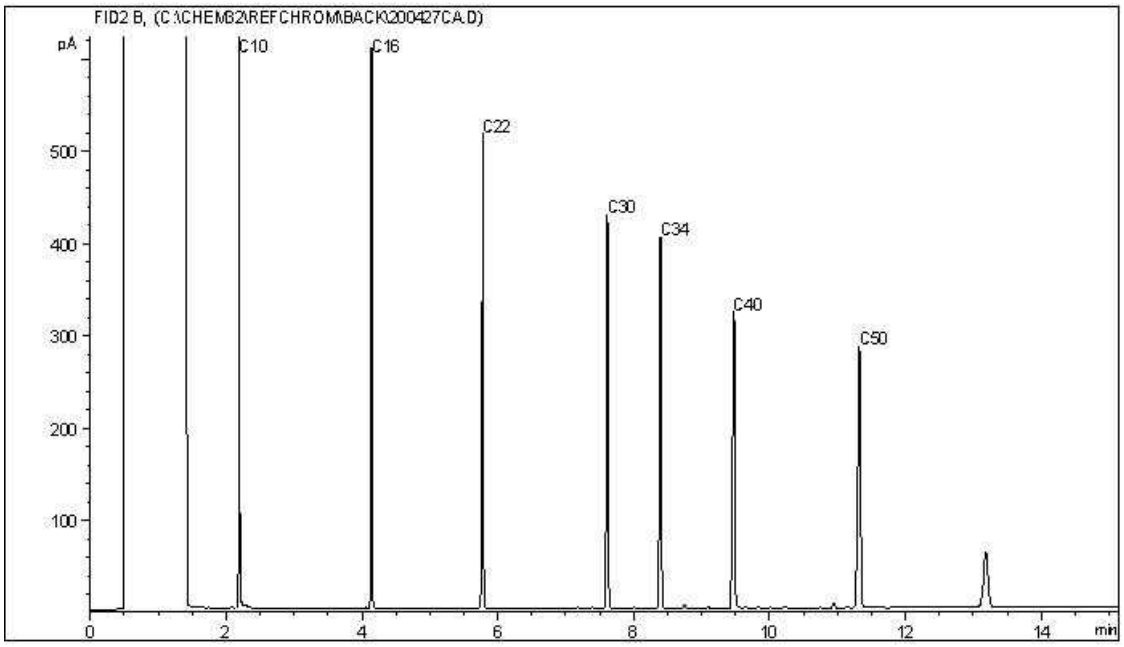
CLIFTON ASSOCIATES LTD.
Client Project #: CG2430.1 E49
Client ID: HYDRA 3

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC12




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

Your Project #: CG24301.E49
Your C.O.C. #: M061033

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/13**
Report #: R2878524
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C031559**
**Received: 2020/05/11, 09:15**

Sample Matrix: Water
# Samples Received: 1

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Analytical Method |
|---|---|---|---|---|---|
| BTEX/F1 in Water by HS GC/MS/FID | 1 | N/A | 2020/05/12 | AB SOP-00039 | CCME CWS/EPA 8260d m |
| F1-BTEX | 1 | N/A | 2020/05/13 | | Auto Calc |
| CCME Hydrocarbons in Water (F2; C10-C16) (1) | 1 | 2020/05/11 | 2020/05/12 | AB SOP-00037<br>AB SOP-00040 | CCME PHC-CWS m |
| Total Trihalomethanes Calculation | 1 | N/A | 2020/05/13 | | Auto Calc |
| VOCs in Water by HS GC/MS (Std List) | 1 | N/A | 2020/05/12 | AB SOP-00056 | EPA 5021a/8260d m |

**Remarks:**

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.


Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your Project #: CG24301.E49
Your C.O.C. #: M061033

**Attention: STEPHEN D'ABADIE**

CLIFTON ASSOCIATES LTD.
2222 30TH AVENUE NE
CALGARY, AB
CANADA T2E 7K9

**Report Date: 2020/05/13**
Report #: R2878524
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**BV LABS JOB #: C031559**
**Received: 2020/05/11, 09:15**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Linsay Sunderman, Key Account Specialist
Email: linsay.sunderman@bvlabs.com
Phone# (403)735-2237 Ext:2237
==========
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BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## AT1 BTEX AND F1-F2 IN WATER (WATER)

| **BV Labs ID** | | XT3083 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/11 09:05 | | |
| **COC Number** | | M061033 | | |
| | **UNITS** | **HYDRA 2** | **RDL** | **QC Batch** |
| **Ext. Pet. Hydrocarbon** | | | | |
| F2 (C10-C16 Hydrocarbons) | mg/L | <0.10 | 0.10 | 9845947 |
| **Volatiles** | | | | |
| Benzene | mg/L | <0.00040 | 0.00040 | 9847285 |
| Toluene | mg/L | <0.00040 | 0.00040 | 9847285 |
| Ethylbenzene | mg/L | <0.00040 | 0.00040 | 9847285 |
| m & p-Xylene | mg/L | <0.00080 | 0.00080 | 9847285 |
| o-Xylene | mg/L | <0.00040 | 0.00040 | 9847285 |
| Xylenes (Total) | mg/L | <0.00089 | 0.00089 | 9846690 |
| F1 (C6-C10) - BTEX | mg/L | <0.10 | 0.10 | 9846690 |
| F1 (C6-C10) | mg/L | <0.10 | 0.10 | 9847285 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 101 | N/A | 9847285 |
| 4-Bromofluorobenzene (sur.) | % | 91 | N/A | 9847285 |
| D4-1,2-Dichloroethane (sur.) | % | 95 | N/A | 9847285 |
| O-TERPHENYL (sur.) | % | 106 | N/A | 9845947 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT3083 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/11 09:05 | | |
| **COC Number** | | M061033 | | |
| | **UNITS** | **HYDRA 2** | **RDL** | **QC Batch** |
| **Volatiles** | | | | |
| Total Trihalomethanes | mg/L | <0.0014 | 0.0014 | 9846692 |
| Bromodichloromethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| Bromoform | mg/L | <0.00050 | 0.00050 | 9847288 |
| Bromomethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| Carbon tetrachloride | mg/L | <0.00050 | 0.00050 | 9847288 |
| Chlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Chlorodibromomethane | mg/L | <0.0010 | 0.0010 | 9847288 |
| Chloroethane | mg/L | <0.0010 | 0.0010 | 9847288 |
| Chloroform | mg/L | <0.00060 (1) | 0.00060 | 9847288 |
| Chloromethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| 1,2-dibromoethane | mg/L | <0.00020 | 0.00020 | 9847288 |
| 1,2-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,3-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,4-dichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1-dichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,2-dichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1-dichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| cis-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| trans-1,2-dichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Dichloromethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| 1,2-dichloropropane | mg/L | <0.00050 | 0.00050 | 9847288 |
| cis-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9847288 |
| trans-1,3-dichloropropene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Methyl methacrylate | mg/L | <0.00050 | 0.00050 | 9847288 |
| Methyl-tert-butylether (MTBE) | mg/L | <0.00050 | 0.00050 | 9847288 |
| Styrene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1,1,2-tetrachloroethane | mg/L | <0.0010 | 0.0010 | 9847288 |
| 1,1,2,2-tetrachloroethane | mg/L | <0.0020 | 0.0020 | 9847288 |
| Tetrachloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,2,3-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9847288 |
| 1,2,4-trichlorobenzene | mg/L | <0.0010 | 0.0010 | 9847288 |

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## VOLATILE ORGANICS BY GC-MS (WATER)

| **BV Labs ID** | | XT3083 | | |
|---|---|---|---|---|
| **Sampling Date** | | 2020/05/11 09:05 | | |
| **COC Number** | | M061033 | | |
| | **UNITS** | **HYDRA 2** | **RDL** | **QC Batch** |
| 1,3,5-trichlorobenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1,1-trichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,1,2-trichloroethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| Trichloroethene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Trichlorofluoromethane | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,2,4-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| 1,3,5-trimethylbenzene | mg/L | <0.00050 | 0.00050 | 9847288 |
| Vinyl chloride | mg/L | <0.00050 | 0.00050 | 9847288 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene (sur.) | % | 98 | N/A | 9847288 |
| 4-Bromofluorobenzene (sur.) | % | 110 | N/A | 9847288 |
| D4-1,2-Dichloroethane (sur.) | % | 110 | N/A | 9847288 |

RDL = Reportable Detection Limit
N/A = Not Applicable



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## GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

| | |
|---|---|
| Package 1 | 9.0°C |

**Results relate only to the items tested.**



Bureau Veritas Laboratories Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 9845947 | LL0 | Matrix Spike | O-TERPHENYL (sur.) | 2020/05/11 | | 109 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/11 | | 99 | % | 60 - 140 |
| 9845947 | LL0 | Spiked Blank | O-TERPHENYL (sur.) | 2020/05/11 | | 111 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/11 | | 94 | % | 60 - 140 |
| 9845947 | LL0 | Method Blank | O-TERPHENYL (sur.) | 2020/05/11 | | 114 | % | 60 - 140 |
| | | | F2 (C10-C16 Hydrocarbons) | 2020/05/11 | <0.10 | | mg/L | |
| 9845947 | LL0 | RPD | F2 (C10-C16 Hydrocarbons) | 2020/05/11 | NC | | % | 30 |
| 9847285 | DO1 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | | 106 | % | 50 - 140 |
| | | | Toluene | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | Ethylbenzene | 2020/05/12 | | 104 | % | 50 - 140 |
| | | | m & p-Xylene | 2020/05/12 | | 102 | % | 50 - 140 |
| | | | o-Xylene | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | F1 (C6-C10) | 2020/05/12 | | 72 | % | 60 - 140 |
| 9847285 | DO1 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | Toluene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | Ethylbenzene | 2020/05/12 | | 101 | % | 60 - 130 |
| | | | m & p-Xylene | 2020/05/12 | | 103 | % | 60 - 130 |
| | | | o-Xylene | 2020/05/12 | | 98 | % | 60 - 130 |
| | | | F1 (C6-C10) | 2020/05/12 | | 68 | % | 60 - 140 |
| 9847285 | DO1 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 93 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 95 | % | 50 - 140 |
| | | | Benzene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | Toluene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | Ethylbenzene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | m & p-Xylene | 2020/05/12 | <0.00080 | | mg/L | |
| | | | o-Xylene | 2020/05/12 | <0.00040 | | mg/L | |
| | | | F1 (C6-C10) | 2020/05/12 | <0.10 | | mg/L | |
| 9847285 | DO1 | RPD | Benzene | 2020/05/12 | NC | | % | 30 |
| | | | Toluene | 2020/05/12 | NC | | % | 30 |
| | | | Ethylbenzene | 2020/05/12 | NC | | % | 30 |
| | | | m & p-Xylene | 2020/05/12 | NC | | % | 30 |
| | | | o-Xylene | 2020/05/12 | NC | | % | 30 |
| | | | F1 (C6-C10) | 2020/05/12 | NC | | % | 30 |
| 9847288 | GP4 | Matrix Spike | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 107 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | | 110 | % | 50 - 140 |
| | | | Bromoform | 2020/05/12 | | 106 | % | 50 - 140 |
| | | | Bromomethane | 2020/05/12 | | 91 | % | 50 - 140 |
| | | | Carbon tetrachloride | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | Chlorobenzene | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | Chlorodibromomethane | 2020/05/12 | | 108 | % | 50 - 140 |
| | | | Chloroethane | 2020/05/12 | | 98 | % | 50 - 140 |
| | | | Chloroform | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | Chloromethane | 2020/05/12 | | 81 | % | 50 - 140 |
| | | | 1,2-dibromoethane | 2020/05/12 | | 109 | % | 50 - 140 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | | 104 | % | 50 - 140 |



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BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,3-dichlorobenzene | 2020/05/12 | | 104 | % | 50 - 140 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 1,1-dichloroethane | 2020/05/12 | | 106 | % | 50 - 140 |
| | | | 1,2-dichloroethane | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | 1,1-dichloroethene | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | cis-1,2-dichloroethene | 2020/05/12 | | 105 | % | 50 - 140 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | | 96 | % | 50 - 140 |
| | | | Dichloromethane | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 1,2-dichloropropane | 2020/05/12 | | 110 | % | 50 - 140 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | | 112 | % | 50 - 140 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | | 117 | % | 50 - 140 |
| | | | Methyl methacrylate | 2020/05/12 | | 123 | % | 50 - 140 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | | 107 | % | 50 - 140 |
| | | | Styrene | 2020/05/12 | | 108 | % | 50 - 140 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | | 100 | % | 50 - 140 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | | 112 | % | 50 - 140 |
| | | | Tetrachloroethene | 2020/05/12 | | 91 | % | 50 - 140 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | | 95 | % | 50 - 140 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | | 94 | % | 50 - 140 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | | 93 | % | 50 - 140 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | | 101 | % | 50 - 140 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | | 108 | % | 50 - 140 |
| | | | Trichloroethene | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | Trichlorofluoromethane | 2020/05/12 | | 88 | % | 50 - 140 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | | 111 | % | 50 - 140 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | | 110 | % | 50 - 140 |
| | | | Vinyl chloride | 2020/05/12 | | 83 | % | 50 - 140 |
| 9847288 | GP4 | Spiked Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 97 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 114 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 115 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | | 108 | % | 60 - 130 |
| | | | Bromoform | 2020/05/12 | | 112 | % | 60 - 130 |
| | | | Bromomethane | 2020/05/12 | | 83 | % | 60 - 130 |
| | | | Carbon tetrachloride | 2020/05/12 | | 90 | % | 60 - 130 |
| | | | Chlorobenzene | 2020/05/12 | | 97 | % | 60 - 130 |
| | | | Chlorodibromomethane | 2020/05/12 | | 111 | % | 60 - 130 |
| | | | Chloroethane | 2020/05/12 | | 92 | % | 60 - 130 |
| | | | Chloroform | 2020/05/12 | | 96 | % | 60 - 130 |
| | | | Chloromethane | 2020/05/12 | | 79 | % | 60 - 130 |
| | | | 1,2-dibromoethane | 2020/05/12 | | 114 | % | 60 - 130 |
| | | | 1,2-dichlorobenzene | 2020/05/12 | | 102 | % | 60 - 130 |
| | | | 1,3-dichlorobenzene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | 1,4-dichlorobenzene | 2020/05/12 | | 95 | % | 60 - 130 |
| | | | 1,1-dichloroethane | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | 1,2-dichloroethane | 2020/05/12 | | 111 | % | 60 - 130 |
| | | | 1,1-dichloroethene | 2020/05/12 | | 87 | % | 60 - 130 |
| | | | cis-1,2-dichloroethene | 2020/05/12 | | 100 | % | 60 - 130 |
| | | | trans-1,2-dichloroethene | 2020/05/12 | | 89 | % | 60 - 130 |
| | | | Dichloromethane | 2020/05/12 | | 98 | % | 60 - 130 |
| | | | 1,2-dichloropropane | 2020/05/12 | | 107 | % | 60 - 130 |
| | | | cis-1,3-dichloropropene | 2020/05/12 | | 104 | % | 60 - 130 |
| | | | trans-1,3-dichloropropene | 2020/05/12 | | 108 | % | 60 - 130 |
| | | | Methyl methacrylate | 2020/05/12 | | 133 (1) | % | 60 - 130 |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | | 104 | % | 60 - 130 |



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BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Styrene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | | 97 | % | 60 - 130 |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | | 118 | % | 60 - 130 |
| | | | Tetrachloroethene | 2020/05/12 | | 83 | % | 60 - 130 |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | | 91 | % | 60 - 130 |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | | 88 | % | 60 - 130 |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | | 85 | % | 60 - 130 |
| | | | 1,1,1-trichloroethane | 2020/05/12 | | 93 | % | 60 - 130 |
| | | | 1,1,2-trichloroethane | 2020/05/12 | | 111 | % | 60 - 130 |
| | | | Trichloroethene | 2020/05/12 | | 91 | % | 60 - 130 |
| | | | Trichlorofluoromethane | 2020/05/12 | | 81 | % | 60 - 130 |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | | 105 | % | 60 - 130 |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | | 104 | % | 60 - 130 |
| | | | Vinyl chloride | 2020/05/12 | | 78 | % | 60 - 130 |
| 9847288 | GP4 | Method Blank | 1,4-Difluorobenzene (sur.) | 2020/05/12 | | 99 | % | 50 - 140 |
| | | | 4-Bromofluorobenzene (sur.) | 2020/05/12 | | 109 | % | 50 - 140 |
| | | | D4-1,2-Dichloroethane (sur.) | 2020/05/12 | | 112 | % | 50 - 140 |
| | | | Bromodichloromethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Bromoform | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Bromomethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | Carbon tetrachloride | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Chlorodibromomethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | Chloroethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | Chloroform | 2020/05/12 | <0.00070 (2) | | mg/L | |
| | | | Chloromethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | 1,2-dibromoethane | 2020/05/12 | <0.00020 | | mg/L | |
| | | | 1,2-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,3-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,4-dichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2-dichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | cis-1,2-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | trans-1,2-dichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Dichloromethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | 1,2-dichloropropane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | cis-1,3-dichloropropene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | trans-1,3-dichloropropene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Methyl methacrylate | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Methyl-tert-butylether (MTBE) | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Styrene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,1,2-tetrachloroethane | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,1,2,2-tetrachloroethane | 2020/05/12 | <0.0020 | | mg/L | |
| | | | Tetrachloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2,3-trichlorobenzene | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,2,4-trichlorobenzene | 2020/05/12 | <0.0010 | | mg/L | |
| | | | 1,3,5-trichlorobenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,1-trichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,1,2-trichloroethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Trichloroethene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | Trichlorofluoromethane | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,2,4-trimethylbenzene | 2020/05/12 | <0.00050 | | mg/L | |
| | | | 1,3,5-trimethylbenzene | 2020/05/12 | <0.00050 | | mg/L | |



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BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Vinyl chloride | 2020/05/12 | <0.00050 | | mg/L | |
| 9847288 | GP4 | RPD | 1,2-dibromoethane | 2020/05/12 | NC | | % | 30 |
| | | | 1,2-dichloroethane | 2020/05/12 | NC | | % | 30 |

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) Detection limit raised due to interferent.



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## NOTIFICATION LOG

No Reportable Regulation Exceedances Noted.



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BV Labs Job #: C031559
Report Date: 2020/05/13

CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Sampler Initials: AM

## VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Dennis Ngondu, B.Sc., P.Chem., QP, Supervisor, Organics

Janet Gao, B.Sc., QP, Supervisor, Organics

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



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Maxxam
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Edmonton: 9331-48 St. T6B 2R4. Toll Free (800) 386-7247
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# CHAIN OF CUSTODY RECORD

M 061033

Page 1 of 1

| Invoice Information | | Report Information (if differs from invoice) | | Project Information | | Turnaround Time (TAT) Required |
|---|---|---|---|---|---|---|
| Company: | Clifton | Company: | | Quotation #: | | ☐ 5 - 7 Days Regular (Most analyses) |
| Contact Name: | Stephen d'Abadie | Contact Name: | | P.O. #/ AFE#: | | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS |
| Address: | 2222 - 30 Ave. NE Calgary AB | Address: | | Project #: | CG24301 E49 | Rush TAT (Surcharges will be applied): ☐ Same Day ☑ 2 Days ☐ 1 Day ☐ 3-4 Days |
| Phone: | 403-701-8226 | Phone: | | Site Location: | | |
| Email: | stephen_dabadie@clifton.ca | Email: | | Site #: | | Date Required: ~~[illegible]~~ May 13 morning |
| Copies: | austin_mei@clifton.ca | Copies: | | Sampled By: | Austin | Rush Confirmation #: |

**Laboratory Use Only**

| | YES | NO | Cooler ID | | | |
|---|---|---|---|---|---|---|
| Seal Present | | ✓ | Temp | 10 | 8 | 9 |
| Seal Intact | | ✓ | | | | |
| Cooling Media | | ✓ | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |
| | YES | NO | Cooler ID | | | |
| Seal Present | | | Temp | | | |
| Seal Intact | | | | | | |
| Cooling Media | | | | | | |

**Depot Reception**

**Analysis Requested**

| | Sample Identification | Depth (Unit) | Date Sampled (YYYY/MM/DD) | Time Sampled (HH:MM) | Matrix | # of containers | BTEX F1 ☐ VOC ☑ | BTEX F1-F2 | BTEX F1-F4 | Routine Water | Regulated Metals ☐ Tot ☐ Diss | Mercury Total ☐ Dissolved | Salinity 4 | Sieve (75 micron) | Texture (% Sand, Silt, Clay) | Basic Class II Landfill | HOLD - DO NOT ANALYZE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Hydra 2 | | 2020/05/11 | 9:05 | W | 5 | ✓ | ✓ | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

*Please indicate Filtered, Preserved or Both (F, P, F/P)*

**Regulatory Criteria**

- ☑ AT1
- ☐ CCME
- ☐ Drinking Water
- ☐ D50 (Drilling Waste)
- ☐ Saskatchewan
- ☐ Other:

**Special Instructions**

| Relinquished by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Received by: (Signature/ Print) | DATE (YYYY/MM/DD) | Time (HH:MM) | Maxxam Job # |
|---|---|---|---|---|---|---|
| Austin Mei | 2020/05/11 | 9:10 | Ardrin Villamayor ARDRIN VILLAMAYOR | 2020/05/11 | 09:15 | C031559 |

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

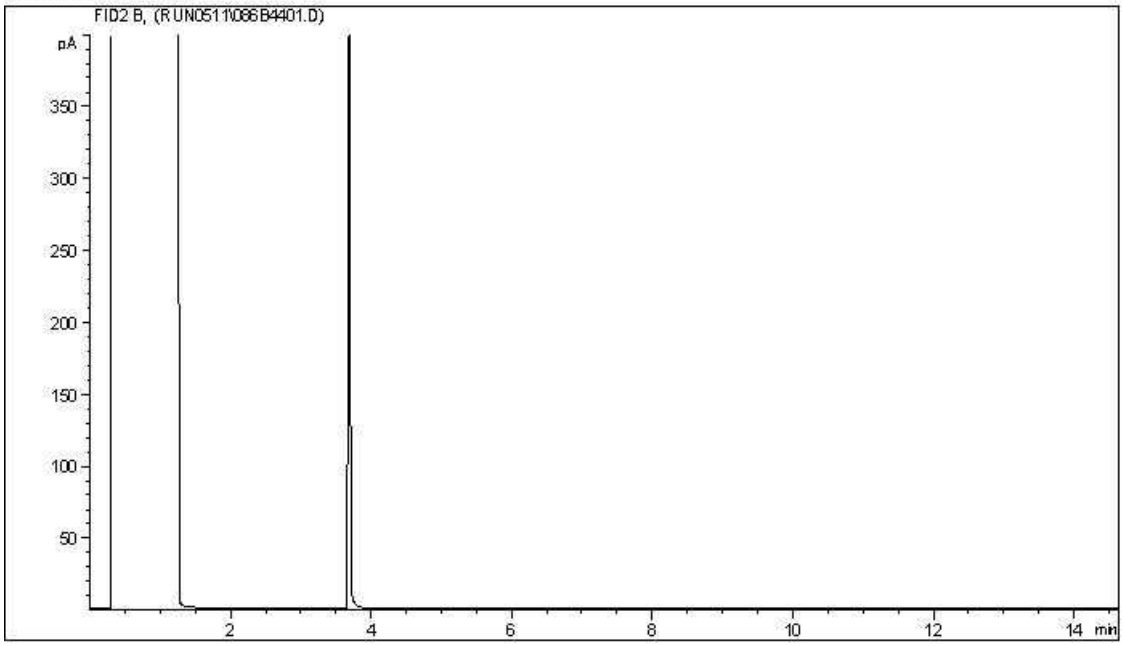
AB FCD-00331/7

BV Labs Job #: C031559
Report Date: 2020/05/13
BV Labs Sample: XT3083

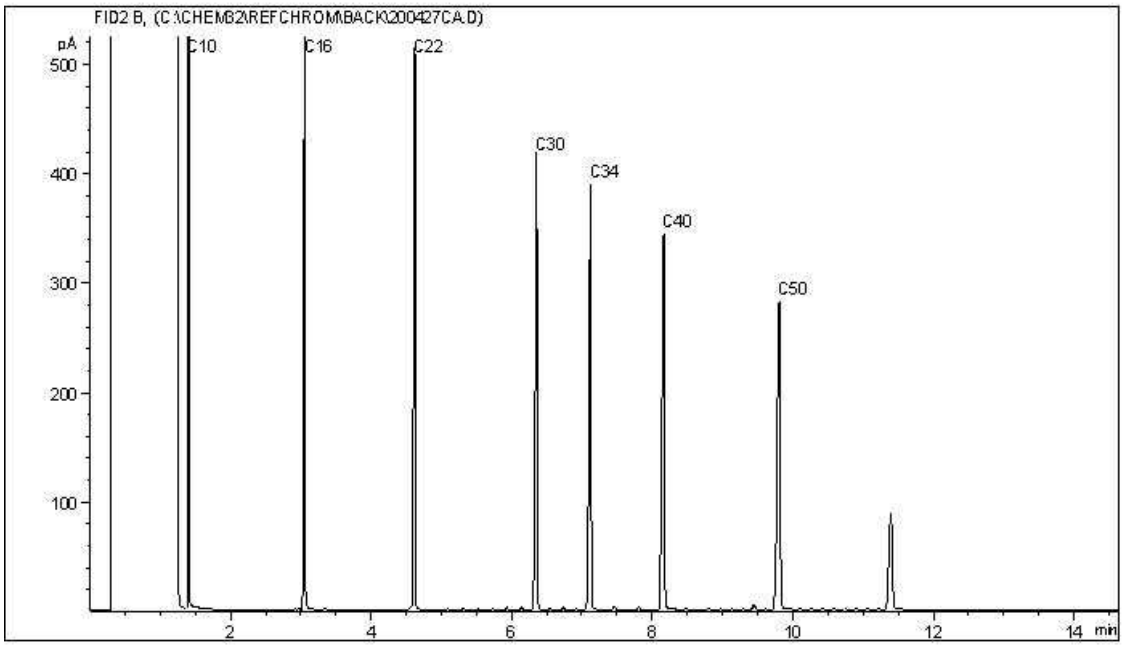
CLIFTON ASSOCIATES LTD.
Client Project #: CG24301.E49
Client ID: HYDRA 2

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Instrument: GC6




Carbon Range Distribution - Reference Chromatogram




TYPICAL PRODUCT CARBON NUMBER RANGES

| | | | |
|---|---|---|---|
| Gasoline: | C4 - C12 | Diesel: | C8 - C22 |
| Varsol: | C8 - C12 | Lubricating Oils: | C20 - C40 |
| Kerosene: | C7 - C16 | Crude Oils: | C3 - C60+ |

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

# Appendix B
# PlumeStop™ Performance Monitoring Results

Clifton

# Table B1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to Water bTOP (m) | Water Elevation (masl) | Notes |
|---|---|---|---|---|---|---|---|---|
| BH1928 | 3,4 | 3/Jul/20 | 1083.60 | 1083.72 | 12.17 | 7.86 | 1075.74 | light black sample, sample submitt |
| | | 2/Jun/20 | 1083.60 | 1083.72 | 10.62 | 7.92 | 1075.68 | light black sample, sample submitt |
| | | 5/May/20 | 1083.60 | 1083.72 | 16.26 | 7.97 | 1075.64 | No Samples |
| | | 2/Apr/20 | 1083.60 | 1083.72 | 16.26 | 7.96 | 1075.64 | No Samples |
| | | 19/Mar/20 | 1083.60 | 1083.72 | 16.26 | 7.96 | 1075.64 | No Samples |
| | | 5/Mar/20 | 1083.60 | 1083.72 | 16.26 | 7.95 | 1075.66 | No Samples |
| | | 20/Feb/20 | 1083.60 | 1083.72 | 16.26 | 7.95 | 1075.66 | Black sample, not submitted |
| | | 6/Feb/20 | 1083.60 | 1083.72 | 16.28 | 8.09 | 1075.51 | Black sample, not submitted |
| | | 22/Jan/20 | 1083.60 | 1083.72 | 16.28 | 8.09 | 1075.51 | Black sample |
| | | 13/Nov/19 | 1083.60 | 1083.72 | 16.14 | 8.56 | 1075.05 | Before injection |
| BH1929 | 3 | 3/Jul/20 | 1082.55 | 1082.67 | 14.53 | 6.98 | 1075.57 | |
| | | 2/Jun/20 | 1082.55 | 1082.67 | 14.56 | 7.36 | 1075.20 | |
| | | 5/May/20 | 1082.55 | 1082.67 | 14.59 | 7.34 | 1075.22 | |
| | | 2/Apr/20 | 1082.55 | 1082.67 | 14.59 | 7.76 | 1074.80 | |
| | | 19/Mar/20 | 1082.55 | 1082.67 | 14.59 | 7.77 | 1074.78 | |
| | | 5/Mar/20 | 1082.55 | 1082.67 | 14.59 | 7.73 | 1074.83 | |
| | | 20/Feb/20 | 1082.55 | 1082.67 | 14.59 | 7.69 | 1074.86 | clear sample |
| | | 6/Feb/20 | 1082.55 | 1082.67 | 14.59 | 7.69 | 1074.86 | cleaned by Sequoia on Feb.5 |
| | | 22/Jan/20 | 1082.55 | 1082.67 | 6.01 | DRY | - | full of actived carbon at bottom |
| | | 13/Nov/19 | 1082.55 | 1082.67 | 13.21 | 7.62 | 1074.93 | Before injection |
| BH1936 | 3 | 3/Jul/20 | 1082.18 | 1082.26 | 10.77 | 7.33 | 1074.85 | dark grey sample, sample submitte |
| | | 2/Jun/20 | 1082.18 | 1082.26 | 10.79 | 7.50 | 1074.68 | light black sample, sample submitt |
| | | 5/May/20 | 1082.18 | 1082.26 | 9.94 | 7.50 | 1074.68 | light black sample, sample submitt |
| | | 2/Apr/20 | 1082.18 | 1082.26 | 9.94 | 7.53 | 1074.64 | light black sample, not submitted |
| | | 19/Mar/20 | 1082.18 | 1082.26 | - | - | - | Black sample, not submitted |
| | | 5/Mar/20 | 1082.18 | 1082.26 | 10.45 | 7.91 | 1074.27 | Black sample, not submitted |
| | | 20/Feb/20 | 1082.18 | 1082.26 | 9.93 | 7.40 | 1074.78 | Black sample, not submitted |
| | | 6/Feb/20 | 1082.18 | 1082.26 | 9.93 | 7.49 | 1074.69 | Black sample, not submitted |
| | | 22/Jan/20 | 1082.18 | 1082.26 | 9.93 | 7.40 | 1074.78 | Black sample |
| | | 12/Nov/19 | 1082.18 | 1082.26 | 10.06 | 7.33 | 1074.85 | |
| BH1937 | 4 | 3/Jul/20 | 1080.60 | 1080.75 | 10.63 | 5.92 | 1074.68 | |
| | | 2/Jun/20 | 1080.60 | 1080.75 | 10.64 | 5.90 | 1074.70 | |
| | | 5/May/20 | 1080.60 | 1080.75 | 10.58 | 6.01 | 1074.59 | |
| | | 2/Apr/20 | 1080.60 | 1080.75 | 10.58 | 5.96 | 1074.64 | |
| | | 19/Mar/20 | 1080.60 | 1080.75 | 10.69 | 5.99 | 1074.61 | |
| | | 5/Mar/20 | 1080.60 | 1080.75 | 10.67 | 5.97 | 1074.63 | |
| | | 20/Feb/20 | 1080.60 | 1080.75 | 10.68 | 5.93 | 1074.67 | |
| | | 6/Feb/20 | 1080.60 | 1080.75 | 10.68 | 5.92 | 1074.68 | |
| | | 22/Jan/20 | 1080.60 | 1080.75 | 10.67 | 5.86 | 1074.74 | |
| | | 12/Nov/19 | 1080.60 | 1080.75 | 10.71 | 5.89 | 1074.71 | |

# Table B1 - Summary of Well Monitoring

| Monitor Well | Screened Unit | Monitor Date (dd-mmm-yy) | Top of PVC Pipe Elevation (masl[1]) | Ground Surface Elevation (masl[2]) | Total Depth bTOP[3] (m) | Depth to Water bTOP (m) | Water Elevation (masl) | Notes |
|---|---|---|---|---|---|---|---|---|
| BH1938 | 2 | 3/Jul/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 2/Jun/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 5/May/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 2/Apr/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 19/Mar/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 5/Mar/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 20/Feb/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 6/Feb/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 22/Jan/20 | 1082.20 | 1082.30 | 5.07 | DRY | - | |
| | | 12/Nov/19 | 1082.20 | 1082.30 | 5.10 | DRY | - | |
| BH1939 | 4 | 3/Jul/20 | 1080.66 | 1080.75 | 8.69 | 5.81 | 1074.85 | |
| | | 2/Jun/20 | 1080.66 | 1080.75 | 8.70 | 5.97 | 1074.69 | |
| | | 5/May/20 | 1080.66 | 1080.75 | 8.70 | 6.04 | 1074.62 | |
| | | 2/Apr/20 | 1080.66 | 1080.75 | 8.70 | 5.99 | 1074.67 | |
| | | 19/Mar/20 | 1080.66 | 1080.75 | 8.70 | 6.00 | 1074.66 | |
| | | 5/Mar/20 | 1080.66 | 1080.75 | 8.70 | 5.96 | 1074.70 | |
| | | 20/Feb/20 | 1080.66 | 1080.75 | 8.69 | 5.99 | 1074.67 | |
| | | 6/Feb/20 | 1080.66 | 1080.75 | 8.69 | 5.92 | 1074.74 | |
| | | 22/Jan/20 | 1080.66 | 1080.75 | 8.70 | 5.88 | 1074.78 | |
| | | 12/Nov/19 | 1080.66 | 1080.75 | 8.70 | 5.88 | 1074.78 | |
| BH1954 | 3,4,5 | 3/Jul/20 | 1076.76 | 1076.90 | 10.68 | 2.99 | 1073.77 | |
| | | 2/Jun/20 | 1076.76 | 1076.90 | 10.68 | 3.23 | 1073.53 | |
| | | 5/May/20 | 1076.76 | 1076.90 | 10.95 | 3.23 | 1073.53 | |
| | | 2/Apr/20 | 1076.76 | 1076.90 | 10.95 | 3.25 | 1073.51 | |
| | | 19/Mar/20 | 1076.76 | 1076.90 | 10.95 | 3.20 | 1073.56 | |
| | | 5/Mar/20 | 1076.76 | 1076.90 | 10.63 | 3.14 | 1073.62 | |
| | | 20/Feb/20 | 1076.76 | 1076.90 | 10.95 | 3.05 | 1073.71 | |
| | | 6/Feb/20 | 1076.76 | 1076.90 | 10.95 | 3.05 | 1073.71 | |
| | | 22/Jan/20 | 1076.76 | 1076.90 | - | - | - | Not measured & sampled |
| | | 13/Nov/19 | 1076.76 | 1076.90 | 10.94 | 3.23 | 1073.53 | |
| BH1982 | 3 | 3/Jul/20 | 1080.85 | 1080.96 | 7.18 | 5.95 | 1074.90 | |
| | | 2/Jun/20 | 1080.85 | 1080.96 | 7.18 | 6.11 | 1074.74 | |
| | | 5/May/20 | 1080.85 | 1080.96 | 7.23 | 6.18 | 1074.67 | |
| | | 2/Apr/20 | 1080.85 | 1080.96 | 7.23 | 6.19 | 1074.66 | |
| | | 19/Mar/20 | 1080.85 | 1080.96 | 7.31 | 6.14 | 1074.72 | |
| | | 5/Mar/20 | 1080.85 | 1080.96 | 7.26 | 6.14 | 1074.71 | |
| | | 20/Feb/20 | 1080.85 | 1080.96 | 7.31 | 6.13 | 1074.72 | |
| | | 6/Feb/20 | 1080.85 | 1080.96 | 7.35 | 6.06 | 1074.80 | |
| | | 22/Jan/20 | 1080.85 | 1080.96 | 7.38 | 6.01 | 1074.84 | |
| | | 12/Nov/19 | 1080.85 | 1080.96 | 7.45 | 6.03 | 1074.82 | |

**Notes:**

1 Meter above sea level
2 Ground surface elevation based on survey completed in May 2015 by Clifton Associates Ltd.
3 Below top of pipe
4 Below ground surface
- not measured

# Table B2 - Summary of Groundwater Laboratory Analyses
# BTEX and PHC fractions F1-F2

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Unit | Benzene | Toluene | Ethylbenzene | Xylenes (Total) | F1 minus BTEX (C6 - C10) | F2 (C10 - C16) |
|---|---|---|---|---|---|---|---|---|---|---|
| **BH1928** | R | 9.45-10.97 | 20/07/03 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/06/02 | 3 | <0.0040 *** | <0.0040 *** | <0.0040 *** | <0.0089 | <1.0 | <0.10 |
| | R | 9.45-10.97 | 20/05/05 | 3 | - | - | - | - | - | - |
| | R | 9.45-10.97 | 20/04/02 | 3 | - | - | - | - | - | - |
| | R | 9.45-10.97 | 20/03/19 | 3 | - | - | - | - | - | - |
| | R | 9.45-10.97 | 20/03/05 | 3 | - | - | - | - | - | - |
| | R | 9.45-10.97 | 20/02/20 | 3 | - | - | - | - | - | - |
| | R | 9.45-10.97 | 20/02/06 | 3 | - | - | - | - | - | - |
| | R | 9.45-10.97 | 20/01/22 | 3 | - | - | - | - | - | - |
| | R | Bulk | 19/11/22 | 3 | **2.7*** | 0.00093 | <0.00040 | **0.13** | 0.43 | <0.10 |
| **BH1929** | R | 8.53-10.06 | 20/07/03 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/06/02 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/05/05 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/04/02 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/03/19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/03/05 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/02/20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/02/06 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.53-10.06 | 20/01/22 | 3 | - | - | - | - | - | - |
| | R | 8.53-10.06 | 19/11/22 | 3 | **0.0052** | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1936** | R | 8.38-9.91 | 20/07/03 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.38-9.91 | 20/06/02 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.38-9.91 | 20/05/05 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.38-9.91 | 20/04/02 | 3 | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/03/19 | 3 | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/03/05 | 3 | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/02/20 | 3 | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/02/06 | 3 | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/01/22 | 3 | - | - | - | - | - | - |
| | R | 8.38-9.91 | 19/12/12 | 3 | **<0.020 **** | **<0.020 **** | **<0.020 **** | **<0.045 **** | **<5.0 **** | <0.10 |
| | R | 8.38-9.91 | 19/05/30 | 3 | **0.016** | <0.00040 | <0.00040 | 0.0018 | 0.29 | <0.10 |
| **BH1937** | R | 8.84-10.36 | 20/07/03 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/06/02 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/05/05 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/04/02 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/03/19 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/03/05 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/02/20 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/02/06 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 20/01/21 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 8.84-10.36 | 19/11/22 | 4,5 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1939** | R | Bulk | 20/07/03 | 4 | 0.0011 | <0.00040 | 0.00058 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/06/02 | 4 | 0.00088 | <0.00040 | 0.00054 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/05/05 | 4 | 0.0012 | <0.00040 | 0.0011 | 0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/04/02 | 4 | 0.0018 | <0.00040 | 0.00051 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/03/19 | 4 | 0.002 | <0.00040 | 0.0012 | 0.0013 | <0.10 | <0.10 |
| | R | Bulk | 20/03/05 | 4 | 0.0034 | <0.00040 | 0.0013 | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/02/20 | 4 | 0.0014 | <0.00040 | 0.00076 | 0.0012 | 0.10 | <0.10 |
| | R | Bulk | 20/02/06 | 4 | <0.00040 | <0.00040 | <0.00040 | 0.0012 | <0.10 | <0.10 |
| | R | Bulk | 20/01/21 | 4 | **0.0065** | <0.00040 | **0.0031** | 0.0014 | <0.10 | <0.10 |
| | R | Bulk | 19/11/22 | 4 | **0.0085** | <0.00040 | **0.0027** | 0.0011 | <0.10 | <0.10 |
| **BH1954** | R | 5.49-7.01 | 20/07/03 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/06/02 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/05/05 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/04/02 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/03/19 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/03/05 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/02/20 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 20/02/06 | 3 | <0.00040 | <0.00040 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| | R | 5.49-7.01 | 19/11/28 | 3 | <0.00040 | 0.0011 | <0.00040 | <0.00089 | <0.10 | <0.10 |
| **BH1982** | R | Bulk | 20/06/02 | 3 | **0.30** | 0.00064 | **0.005** | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/06/02 | 3 | **0.61** | 0.0011 | **0.011** | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/05/05 | 3 | **0.24** | 0.00045 | **0.0024** | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/04/02 | 3 | **0.57** | 0.0011 | **0.011** | <0.00089 | 0.14 | 0.72 |
| | R | Bulk | 20/03/19 | 3 | **0.49** | 0.00096 | **0.0087** | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/03/05 | 3 | **0.53** | 0.00095 | **0.011** | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/02/20 | 3 | **0.99** | 0.0016 | **0.020** | 0.00090 | <0.10 | <0.10 |
| | R | Bulk | 20/02/06 | 3 | **0.76** | 0.0014 | **0.015** | <0.00089 | <0.10 | <0.10 |
| | R | Bulk | 20/01/21 | 3 | **0.41** | 0.00082 | **0.0068** | <0.00089 | 0.15 | <0.10 |
| | R | Bulk | 19/11/22 | 3 | **0.98** | 0.0021 | **0.0068** | 0.00097 | <0.1 | <0.1 |
| | | | **Residential Guideline[2]** | | 0.005 | 0.021 | 0.0016 | 0.02 | 0.81 | 1.1 |
| | | | **Site Specific Tier 2 Guidelines (N2)[3]** | | 4.4 | NGR | NGR | 130 | 31 | NGR |
| | | | **Site Specific Tier 2 Guidelines (S1)[3]** | | 3.2 | NGR | NGR | 94 | 23 | NGR |

**Notes:**

* Detection limit raised due to dilution
** Detection limit raised due to interferent
*** Detection limits raised due to dilution to bring analyte within the calibrated range.
1 Land Use abbreviations: C=Commercial; R=Residential; I=Industrial; N=Natural.
2 AEP 2019 Tier 1 and 2 Guidelines for fine and coarse-grained soil with elimination of the freshwater aquatic life pathway.
3 Site Specific Tier 2 Groundwater Remediation Guidelines for Various Areas in Hounsfield Heights.
**Bold** Indicates that the concentration did not meet the applicable AEP guideline.
**Bold** Indicates that the concentration did not meet the applicable Site Specific and AEP guideline.
Bulk Bulk sample collected using a dedicated, disposable bailer.
m bgs Meters below ground surface
All results in mg/L unless otherwise noted.
Only compounds with detectable concentrations in at least one sample are presented.
Testing was conducted by Bureau Veritas, Calgary, Alberta

# Table B3 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH1928 | R | 9.45-10.92 | 20/07/03 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/06/02 | <0.0050 * | <0.0050 * | <0.025 * | <0.010 * | <0.0050 * | <0.0050 * | <0.025 * | <0.0050 * | <0.010 * | <0.0050 * | <0.020 * | <0.0050 * | <0.0050 * | <0.025 * | <0.025 * | <0.056 | <0.0050 * | <0.0050* | <0.0050 * |
| | R | 9.45-10.92 | 20/05/05 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.92 | 20/04/02 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.92 | 20/03/19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.92 | 20/03/05 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.93 | 20/02/20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.94 | 20/02/06 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.95 | 20/01/22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | Bulk | 19/11/22 | 0.0023 | <0.00050 | <0.00050 | <0.00020 | **0.23** | <0.00050 | <0.00050 | <0.00050 | 0.0013 | <0.00050 | 0.0023 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1929 | R | 8.53-10.06 | 20/07/03 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/06/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/05/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/04/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/03/19 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/03/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **<0.00050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/02/20 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 * | <0.0010 | <0.00050 * | <0.0020 | <0.00050 * | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 ** | <0.00050 |
| | R | 8.53-10.06 | 20/02/06 | <0.00050 | <0.00050 | <0.0025 * | <0.00020 | 0.0025 | <0.00050 | <0.0025 * | <0.00050 | <0.0010 | 0.00060 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.53-10.06 | 20/01/22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.53-10.06 | 19/11/22 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.013** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1936 | R | 8.38-9.91 | 20/07/03 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 20/06/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 20/05/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.38-9.91 | 20/03/19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/03/05 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/02/20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/02/06 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/01/22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 19/12/12 | <0.025 | <0.025 | <0.025 | <0.010 | **<0.025** | <0.025 | <0.025 | <0.025 | <0.050 | <0.025 | <0.10 | <0.025 | <0.025 | <0.025 | <0.025 | <0.066 | <0.025 | <0.025 | <0.025 |
| | R | 8.38-9.91 | 19/05/30 | 0.00066 | <0.00050 | <0.00050 | <0.00020 | **0.063** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1937 | R | 8.84-10.36 | 20/07/03 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00056 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/06/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/05/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00058 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/04/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/03/19 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00058 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/03/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00055 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/02/20 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00059 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/02/06 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00080 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 20/01/21 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00065 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 8.84-10.36 | 19/11/22 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | 0.00058 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| BH1939 | R | Bulk | 20/07/03 | 0.00063 | <0.00050 | <0.00050 | <0.00020 | **0.066** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/06/02 | 0.00060 | <0.00050 | <0.00050 | <0.00020 | **0.050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/05/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.050** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/04/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.052** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/03/19 | 0.00054 | <0.00050 | <0.00050 | <0.00020 | **0.055** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/03/05 | 0.00065 | <0.00050 | <0.00050 | <0.00020 | **0.064** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/02/20 | 0.00062 | <0.00050 | <0.00050 | <0.00020 | **0.060** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/02/06 | 0.00069 | <0.00050 | <0.00050 | <0.00020 | **0.069** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/01/21 | 0.00062 | <0.00050 | <0.00050 | <0.00020 | **0.059** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19/11/22 | 0.00084 | <0.00049 | <0.00050 | <0.00019 | **0.073** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |

# Table B3 - Summary of Groundwater Laboratory Analyses
## VOCs

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | 1,1,2-Trichloroethane | 1,1-Dichloroethane | 1,2,4-Trimethylbenzene | 1,2-Dibromoethane | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3,5-Trimethylbenzene | Bromodichloromethane | Chloroethane | Chloroform | Chloromethane | Methyl methacrylate | Methyl-tert-butylether (MTBE) | Styrene | Tetrachloroethene | Total Trihalomethanes | Trichloroethene | trans-1,2-Dichloroethylene | Vinyl Chloride |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1954** | R | 5.49-7.01 | 20/07/03 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.0011 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/06/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00088 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/05/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | 0.00072 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/04/02 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/03/19 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/03/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/02/20 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 20/02/06 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | 5.49-7.01 | 19/11/28 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **BH1982** | R | Bulk | 20/07/03 | 0.00058 | <0.00050 | <0.00050 | <0.00020 | **0.036** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/06/02 | 0.00086 | <0.00050 | <0.00050 | <0.00020 | **0.047** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/05/05 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.025** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/04/02 | 0.00061 | <0.00050 | <0.00050 | <0.00020 | **0.038** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/03/19 | 0.00059 | <0.00050 | <0.00050 | <0.00020 | **0.038** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/03/05 | 0.00056 | <0.00050 | <0.00050 | <0.00020 | **0.036** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/02/20 | 0.00063 | <0.00050 | <0.00050 | <0.00020 | **0.048** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 20/02/06 | <0.0025 | <0.0025 | <0.0025 | <0.0010 | **0.047** | <0.0025 | <0.0025 | <0.0025 | <0.0050 | <0.0025 | <0.010 | <0.0025 | <0.0025 | <0.0025 | <0.0025 | <0.0066 | <0.0025 | <0.0025 | <0.0025 |
| | R | Bulk | 20/01/21 | <0.00050 | <0.00050 | <0.00050 | <0.00020 | **0.027** | <0.00050 | <0.00050 | <0.00050 | <0.0010 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| | R | Bulk | 19/11/22 | 0.00066 | <0.00050 | <0.00050 | <0.00020 | **0.042** | <0.00050 | <0.00050 | <0.00050 | <0.0009 | <0.00050 | <0.0020 | <0.00050 | <0.00050 | <0.00050 | <0.00050 | <0.0013 | <0.00050 | <0.00050 | <0.00050 |
| **Residential Guideline[2]** | | | | NG | NG | NG | NG | 0.005 | NG | NG | NG | NG | 0.0018 | NG | 0.47 | 0.015 | 0.072 | 0.010 | 0.1 | 0.005 | NG | 0.0011 |
| **Site Specific Tier 2 Guidelines (N2)[3]** | | | | NG | NG | NG | NG | 0.28 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |
| **Site Specific Tier 2 Guidelines (S1)[3]** | | | | NG | NG | NG | NG | 0.2 | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG | NG |

**Notes:**

1 Land Use abbreviations: C=Commercial; R=Residential; I=Industrial; N=Natural.
2 AEP 2019 Tier 1 and 2 Guidelines for fine and coarse-grained soil with elimination of the freshwater aquatic life pathway.
3 Site Specific Tier 2 Guidelines for Various Areas in Hounsfield Heights.
**Bold** Indicates that the concentration did not meet the applicable guideline.
**Bold** Indicates that the concentration did not meet the applicable Site Specific and AEP guideline.
Bulk Bulk sample collected using a dedicated, disposable bailer.
m bgs Meters below ground surface
* Detection limits raised due to dilution as a result of sample matrix interference.
** Matrix spike recovery is above acceptance criteria. This may represent a high bias for the parameters in this sample. However, since the results are non-detect, there is no impact on data quality.
*** Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.
\- Not analyzed.
All results in mg/L unless otherwise noted.
Only compounds with detectable concentrations in at least one sample are presented.
Testing was conducted by Bureau Veritas, Calgary, Alberta

# Table B4 - Summary of Groundwater Laboratory Analyses
## Routine

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Conductivity (µS/cm) | pH | Alkalinity (PP as CaCO3) | Alkalinity (Total as CaCO3) | Bicarbonate (HCO3) | Carbonate (CO3) | Hydroxide (OH) | Dissolved Chloride (Cl) | Dissolved Sulphate (SO4) | Dissolved Nitrite (N) | Dissolved Nitrate (N) | Dissolved Calcium (Ca) | Dissolved Iron (Fe) | Dissolved Magnesium (Mg) | Dissolved Manganese (Mn) | Dissolved Potassium (K) | Dissolved Sodium (Na) | Anion Sum (meq/L) | Cation Sum (meq/L) | Hardness (CaCO3) | Ion Balance (% Difference) | Dissolved Nitrate (NO3) | Nitrate plus Nitrite (N) | Dissolved Nitrite (NO2) | Calculated TDS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1928** | R | 9.45-10.92 | 20/07/03 | 3000 | 7.67 | <1.0 | 580 | 710 | <1.0 | <1.0 | **580 *** | 110 | 0.019 | **20 *** | 280 | **0.11** | 74 | **0.59** | 37 | 190 | 32 | 29 | 1000 | 4.1 | 88 | 20 | 0.062 | **1700** |
| | R | Bulk | 20/06/02 | 11000 | 7.36 | <1.0 | 710 | 870 | <1.0 | <1.0 | **3200 *** | 81 | 3.0 | **42 *** | 1500 * | **0.31** | 280 | **3.1** | 95 | **340** | 110 | 110 | 4900 | 2.0 | 190 | 45 | 9.8 | **6100** |
| | R | 9.45-10.92 | 20/05/05 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.92 | 20/04/02 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.92 | 20/03/19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.92 | 20/03/05 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.93 | 20/02/20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 9.45-10.94 | 20/02/06 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | Bulk | 20/01/22 | 5500 | **11.30** | 1700 | 4800 | 1600 | 2100 | <100 | **2900 ***** | <1000 *** | <50 * | <50 * | 1300 | **33** | 93 | **3** | 410 | **1900** | 180 | 160 | 3500 | 3.6 | <220 | <71 | <160 | **9400** |
| **BH1929** | R | 8.53-10.06 | 20/07/03 | 8000 | **12.50** | 1600 | 1600 | <1.0 | 29 | 540 | **170 *** | 33 | <0.010 | **25 *** | 850 * | <0.060 | <0.20 | <0.0040 | 8.0 | 54 | 40 | 45 | 2100 | 6.1 | 110 | 25 | <0.033 | **2200** |
| | R | 8.53-10.06 | 20/06/02 | 8800 | **12.30** | 1900 | 1900 | <1.0 | 12 | 640 | **180** | 20 | <0.010 | **26 *** | 930 * | <0.060 | <0.20 | <0.0040 | 11 | 56 | 45 | 49 | 2300 | 3.8 | 110 | 26 | <0.033 | **2500** |
| | R | 8.53-10.06 | 20/05/05 | 8800 | **12.50** | 1900 | 1900 | <1.0 | 18 | 630 | 100 | 8.1 | <0.010 | **26 *** | 880 * | <0.060 | 0.39 | 0.0053 | 13 | 78 | 43 | 48 | 2200 | 5.3 | 120 | 26 | <0.033 | **2300** |
| | R | 8.53-10.06 | 20/03/19 | 11000 | **12.40** | 2400 | 2400 | <1.0 | 70 | 780 | 42 | 15 | 0.13 | 0.32 | 840* | <0.060 | <0.20 | <0.0040 | 58 | **280** | 50 | 56 | 2100 | 5.6 | 1.4 | 0.45 | 0.44 | **2700** |
| | R | 8.53-10.06 | 20/03/19 | 11000 | **12.50** | 2300 | 2400 | <1.0 | 64 | 770 | 43 | 19 | 0.15 | 0.32 | 860* | <0.060 | <0.20 | <0.0040 | 61 | **290** | 49 | 57 | 2100 | 7.4 | 1.4 | 0.46 | 0.48 | **2700** |
| | R | 8.53-10.06 | 20/03/05 | 10000 | **12.40** | 2300 | 2400 | <1.0 | 53 | 780 | 37 * | 26 | 0.14 | 0.34 | 810 * | <0.060 | <0.20 | <0.0040 | 58 | **300** | 49 | 55 | 2000 | 5.7 | 1.5 | 0.48 | 0.45 | **2700** |
| | R | 8.53-10.06 | 20/02/20 | 9700 | **12.40** | 2000 | 2000 | <1.0 | 25 | 680 | 38 | 55 | 0.13 | 0.37 | 740 * | <0.060 | <0.20 | <0.0040 | 51 | **270** | 43 | 50 | 1800 | 7.6 | 1.6 | 0.49 | 0.41 | **2400** |
| | R | 8.53-10.06 | 20/02/06 | 7100 | **12.20** | 1500 | 1500 | <1.0 | 24 | 500 | 38 | 85 | 0.074 | 0.51 | 530 * | <0.060 | <0.20 | <0.0040 | 30 | **210** | 33 | 36 | 1300 | 4.7 | 2.3 | 0.58 | 0.24 | **1800** |
| | R | 8.53-10.06 | 20/01/22 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **BH1936** | R | 8.38-9.91 | 20/07/03 | 13000 | **12.60** | 2300 | 2300 | <1.0 | 70 | 750 | **970 *** | 8.8 | 0.15 | 0.31 | 1300 * | <0.060 | <0.20 | <0.0040 | 52 | **160** | 74 | 74 | 3300 | 0.065 | 1.4 | 0.46 | 0.49 | **3900** |
| | R | 8.38-9.91 | 20/06/02 | 14000 | **12.40** | 2300 | 2400 | <1.0 | 56 | 780 | **1500 *** | <1.0 | 0.16 | 0.33 | 1700 * | <0.060 | <0.20 | <0.0040 | 61 | **200** | 91 | 96 | 4300 | 2.8 | 1.5 | 0.48 | 0.51 | **4900** |
| | R | 8.38-9.91 | 20/05/05 | 15000 | **12.50** | 2100 | 2200 | <1.0 | 83 | 690 | **2400 *** | 24 | 0.17 | 0.37 | 2400 * | <0.060 | <0.20 | <0.0040 | 68 | **260** | 110 | 130 | 5900 | 8.0 | 1.6 | 0.54 | 0.57 | **6400** |
| | R | 8.38-9.91 | 20/04/02 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/03/19 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/03/05 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/02/20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/02/06 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | R | 8.38-9.91 | 20/01/22 | 11000 | **12.40** | 2200 | 2200 | <10 | 99 | 710 | 35 * | 16 | 0.16 | 0.41 | 800 * | <0.060 | <0.20 | <0.0040 | 97 | **360** | 46 | 58 | 2000 | 11 | 1.8 | 0.57 | 0.53 | **2700** |
| **BH1937** | R | 8.84-10.36 | 20/07/03 | 5000 | **12.40** | 1100 | 1100 | <1.0 | 24 | 360 | 25 | 7.1 | 0.010 | 0.58 | 460 | <0.060 | <0.20 | <0.0040 | 7.5 | 26 | 23 | 24 | 1200 | 3.8 | 2.6 | 0.59 | 0.034 | **1200** |
| | R | 8.84-10.36 | 20/06/02 | 4900 | **12.20** | 1100 | 1100 | <1.0 | 16 | 360 | 38 * | 9.6 | 0.010 | 0.55 | 440 | <0.060 | <0.20 | <0.0040 | 8.7 | 30 | 23 | 24 | 1100 | 0.99 | 2.4 | 0.56 | 0.034 | **1200** |
| | R | 8.84-10.36 | 20/05/05 | 5000 | **12.10** | 1100 | 1100 | <1.0 | 23 | 350 | 52 | 10 | 0.014 | 0.60 | 460 | <0.060 | <0.20 | <0.0040 | 9.1 | 33 | 23 | 25 | 1200 | 3.0 | 2.6 | 0.61 | 0.045 | **1200** |
| | R | 8.84-10.36 | 20/04/02 | 5300 | **12.20** | 1200 | 1200 | <1.0 | 29 | 390 | 19 | 4.1 | 0.011 | 0.65 | 500* | <0.060 | <0.20 | <0.0040 | 8.0 | 33 | 24 | 26 | 1200 | 3.9 | 2.9 | 0.66 | 0.035 | **1300** |
| | R | 8.84-10.36 | 20/03/19 | 5800 | **12.30** | 1300 | 1300 | <1.0 | 17 | 440 | 31 | 8.2 | 0.012 | 0.65 | 570* | <0.060 | <0.20 | <0.0040 | 8.2 | 33 | 28 | 30 | 1400 | 4.0 | 2.9 | 0.66 | 0.039 | **1400** |
| | R | 8.84-10.36 | 20/03/05 | 5800 | **12.20** | 1200 | 1200 | <1.0 | 12 | 420 | 39 | 13 | <0.010 | 0.71 | 530 * | <0.060 | <0.20 | <0.0040 | 7.8 | 34 | 26 | 28 | 1300 | 3.7 | 3.1 | 0.71 | <0.033 | **1400** |
| | R | 8.84-10.36 | 20/02/20 | 5700 | **12.20** | 1200 | 1200 | <1.0 | 6.6 | 410 | 25 | 6.4 | 0.015 | 0.69 | 510 * | <0.060 | <0.20 | <0.0040 | 7.8 | 34 | 25 | 27 | 1300 | 3.2 | 3 | 0.7 | 0.05 | **1300** |
| | R | 8.84-10.36 | 20/02/06 | 5900 | **12.20** | 1300 | 1300 | <1.0 | 8.9 | 440 | 25 | 7 | 0.015 | 0.85 | 600 * | <0.060 | <0.20 | <0.0040 | 7.9 | 39 | 27 | 32 | 1500 | 8 | 3.8 | 0.87 | 0.05 | **1500** |
| | R | 8.84-10.36 | 20/01/21 | 6000 | **12.20** | 1400 | 1400 | <1.0 | 13 | 470 | 50 | 17 | 0.012 | 0.8 | 570 * | <0.060 | <0.20 | <0.0040 | 8.2 | 43 | 30 | 31 | 1400 | 1.4 | 3.6 | 0.82 | 0.041 | **1500** |
| **BH1939** | R | Bulk | 20/07/03 | 1200 | 7.53 | <1.0 | 530 | 650 | <1.0 | <1.0 | 57 | 53 | <0.010 | 0.012 | 140 | **<0.060** | 77 | **0.90** | 2.6 | 17 | 13 | 14 | 660 | 2.2 | 0.054 | <0.014 | <0.033 | **670** |
| | R | Bulk | 20/06/02 | 1200 | 7.54 | <1.0 | 540 | 660 | <1.0 | <1.0 | 64 | 51 | <0.010 | 0.010 | 140 | **1.0** | 74 | **0.95** | 2.6 | 17 | 14 | 14 | 650 | 0.55 | 0.046 | <0.014 | <0.033 | **670** |
| | R | Bulk | 20/05/05 | 1200 | 7.57 | <1.0 | 530 | 650 | <1.0 | <1.0 | 67 | 84 | <0.010 | <0.010 | 140 | **1.1** | 73 | **0.92** | 2.3 | 16 | 14 | 14 | 650 | 1.5 | <0.044 | <0.014 | <0.033 | **710** |
| | R | Bulk | 20/04/02 | 1200 | 7.66 | <1.0 | 530 | 650 | <1.0 | <1.0 | 67 | 57 | <0.010 | 0.013 | 120 | **2.1** | 68 | **0.90** | 2.4 | 17 | 14 | 13 | 590 | 4.1 | 0.057 | <0.014 | <0.033 | **660** |
| | R | Bulk | 20/03/19 | 1200 | 7.49 | <1.0 | 540 | 660 | <1.0 | <1.0 | 68 | 54 | <0.010 | <0.010 | 140 | **2.5** | 81 | **0.97** | 2.8 | 18 | 14 | 14 | 670 | 2.0 | <0.044 | <0.014 | <0.033 | **690** |
| | R | Bulk | 20/03/05 | 1200 | 7.46 | <1.0 | 550 | 670 | <1.0 | <1.0 | 67 | 49 | <0.010 | <0.010 | 140 | **2.4** | 79 | **1** | 2.6 | 18 | 14 | 15 | 680 | 2.5 | <0.044 | <0.014 | <0.033 | **690** |
| | R | Bulk | 20/02/20 | 1200 | 7.56 | <1.0 | 520 | 630 | <1.0 | <1.0 | 67 | 54 | <0.010 | <0.010 | 130 | **2.2** | 71 | **0.96** | 2.5 | 16 | 13 | 13 | 620 | 0.76 | <0.044 | <0.014 | <0.033 | **660** |
| | R | Bulk | 20/02/06 | 1200 | 7.57 | <1.0 | 510 | 630 | <1.0 | <1.0 | 63 | 52 | <0.010 | 0.013 | 150 | **3** | 78 | **1.1** | 2.4 | 17 | 13 | 15 | 690 | 6.1 | 0.059 | <0.014 | <0.033 | **670** |
| | R | Bulk | 20/01/21 | 1200 | 7.27 | <1.0 | 530 | 640 | <1.0 | <1.0 | 60 | 52 | <0.010 | 0.045 | 140 | **3.8** | 74 | **1** | 2.6 | 18 | 13 | 14 | 650 | 2.4 | 0.2 | 0.045 | <0.033 | **670** |

# Table B4 - Summary of Groundwater Laboratory Analyses
## Routine

| Sample ID | Land Use[1] | Sampling Depth (m bgs) | Sample Date | Conductivity (µS/cm) | pH | Alkalinity (PP as CaCO3) | Alkalinity (Total as CaCO3) | Bicarbonate (HCO3) | Carbonate (CO3) | Hydroxide (OH) | Dissolved Chloride (Cl) | Dissolved Sulphate (SO4) | Dissolved Nitrite (N) | Dissolved Nitrate (N) | Dissolved Calcium (Ca) | Dissolved Iron (Fe) | Dissolved Magnesium (Mg) | Dissolved Manganese (Mn) | Dissolved Potassium (K) | Dissolved Sodium (Na) | Anion Sum (meq/L) | Cation Sum (meq/L) | Hardness (CaCO3) | Ion Balance (% Difference) | Dissolved Nitrate (NO3) | Nitrate plus Nitrite (N) | Dissolved Nitrite (NO2) | Calculated TDS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BH1954** | R | 5.49-7.01 | 20/07/03 | 850 | 7.86 | <1.0 | 420 | 510 | <1.0 | <1.0 | 21 | 30 | <0.010 | 0.011 | 97 | 0.073 | 45 | **0.20** | 2.5 | 11 | 9.5 | 9.2 | 430 | 2.1 | 0.048 | <0.014 | <0.033 | 460 |
| | R | 5.49-7.01 | 20/06/02 | 900 | 7.86 | <1.0 | 440 | 530 | <1.0 | <1.0 | 22 | 32 | <0.010 | <0.010 | 110 | <0.060 | 49 | **0.24** | 2.8 | 13 | 10 | 10 | 480 | 0.59 | <0.044 | <0.014 | <0.033 | 490 |
| | R | 5.49-7.01 | 20/05/05 | 830 | 8.27 | <1.0 | 420 | 510 | <1.0 | <1.0 | 15 | 27 | <0.010 | 0.012 | 110 | 0.066 | 47 | **0.095** | 2.7 | 13 | 9.3 | 10 | 470 | 3.2 | 0.052 | <0.014 | <0.033 | 460 |
| | R | 5.49-7.01 | 20/04/20 | 720 | 8.45 | 7.1 | 350 | 410 | 8.5 | <1.0 | 14 | 28 | <0.010 | 0.024 | 79 | <0.060 | 41 | **0.059** | 2.9 | 16 | 8.0 | 8.1 | 360 | 0.40 | 0.11 | 0.024 | <0.033 | 390 |
| | R | 5.49-7.01 | 20/03/19 | 680 | 8.47 | 7.5 | 310 | 370 | 9.0 | <1.0 | 13 | 32 | <0.010 | 0.032 | 74 | <0.060 | 41 | 0.050 | 3.1 | 18 | 7.3 | 8.0 | 360 | 4.0 | 0.14 | 0.032 | <0.033 | 370 |
| | R | 5.49-7.01 | 20/03/05 | 590 | **8.78** | 18 | 260 | 270 | 21 | <1.0 | 41 | 37 | <0.010 | 0.059 | 43 | <0.060 | 32 | 0.021 | 3.1 | 33 | 7.1 | 6.3 | 240 | 6.5 | 0.26 | 0.06 | <0.033 | 350 |
| | R | 5.49-7.01 | 20/02/20 | 460 | **9.21** | 44 | 210 | 140 | 53 | <1.0 | 14 | 41 * | 0.016 | 0.1 | 40 | <0.060 | 22 | <0.0040 | 2.8 | 30 | 5.4 | 5.2 | 190 | 1.6 | 0.46 | 0.12 | 0.052 | 270 |
| | R | 5.49-7.01 | 20/02/06 | 480 | **9.32** | 69 | 240 | 130 | 83 | <1.0 | 9.7 | 36 | 0.018 | 0.068 | 49 | <0.060 | 33 | <0.0040 | 2.8 | 22 | 5.9 | 6.2 | 260 | 2.7 | 0.3 | 0.086 | 0.058 | 300 |
| **BH1982** | R | Bulk | 20/07/03 | 2100 | 7.70 | <1.0 | 490 | 600 | <1.0 | <1.0 | **340 *** | 80 | <0.010 | **8.0** | 100 | 0.18 | 110 | **0.14** | 2.6 | 120 | 21 | 19 | 700 | 5.1 | 35 | 8.0 | <0.033 | **1100** |
| | R | Bulk | 20/06/02 | 1700 | 7.60 | <1.0 | 530 | 640 | <1.0 | <1.0 | **190 *** | 72 | <0.010 | **7.3** | 100 | 0.071 | 95 | **0.45** | 2.7 | 110 | 18 | 18 | 650 | 0.39 | 32 | 7.3 | <0.033 | **920** |
| | R | Bulk | 20/05/05 | 1800 | 7.70 | <1.0 | 530 | 640 | <1.0 | <1.0 | **200** | 69 | <0.010 | **7.5** | 96 | 0.22 | 87 | **0.28** | 2.4 | 140 | 18 | 18 | 600 | 0.25 | 33 | 7.5 | <0.033 | **950** |
| | R | Bulk | 20/04/20 | 2000 | 7.76 | <1.0 | 550 | 670 | <1.0 | <1.0 | **250*** | 94 | <0.010 | **8.2** | 73 | 0.18 | 72 | **0.21** | 2.4 | 190 | 20 | 18 | 480 | 6.6 | 36 | 8.2 | <0.033 | **1000** |
| | R | Bulk | 20/03/19 | 2000 | 7.79 | <1.0 | 550 | 670 | <1.0 | <1.0 | **250 *** | 94 | <0.010 | **8.4** | 83 | 0.18 | 90 | **0.2** | 2.8 | **230** | 21 | 22 | 580 | 2.2 | 37 | 8.4 | <0.033 | **1100** |
| | R | Bulk | 20/03/05 | 2000 | 7.80 | <1.0 | 570 | 690 | <1.0 | <1.0 | **250 *** | 98 | <0.010 | **8.2** | 87 | <0.060 | 86 | **0.2** | 2.8 | **240** | 21 | 22 | 570 | 1.7 | 36 | 8.2 | <0.033 | **1100** |
| | R | Bulk | 20/02/20 | 2100 | 7.62 | <1.0 | 560 | 680 | <1.0 | <1.0 | **290 *** | 100 | <0.010 | **8.0** | 98 | 0.11 | 100 | **0.19** | 3.2 | **280** | 22 | 25 | 660 | 6.7 | 36 | 8 | <0.033 | **1200** |
| | R | Bulk | 20/02/06 | 2300 | 7.77 | <1.0 | 570 | 690 | <1.0 | <1.0 | **310 *** | 120 | <0.010 | **8.0** | 100 | 0.14 | 100 | **0.22** | 2.8 | **250** | 23 | 25 | 670 | 2.6 | 35 | 8 | <0.033 | **1300** |
| | R | Bulk | 20/01/21 | 3300 | 6.72 | <1.0 | 380 | 460 | <1.0 | <1.0 | **390 *** | 140 | 0.013 | **170 *** | 220 | <0.060 | 120 | **0.48** | 3.6 | **330** | 34 | 36 | 1100 | 2.6 | 760 | 170 | 0.043 | **2200** |
| **Residential Guideline[2]** | | | | NG | 6.5-8.5 | NG | NG | NG | NG | NG | 120 | 429 [3] | NG | 3 | NG | 0.3 | NG | 0.05 | NG | 200 | NG | NG | NG | NG | NG | NG | NG | 500 |

**Notes:**

1 Land Use abbreviations: C=Commercial; R=Residential; I=Industrial; N=Natural.
2 AEP 2019 Tier 1 and 2 Guidelines for fine and coarse-grained soil with elimination of the freshwater aquatic life pathway.
3 Site Specific Tier 2 Guidelines for Various Areas in Hounsfield Heights.
Bulk Bulk sample collected using a dedicated, disposable bailer.
m bgs Meters below ground surface
* Detection limits raised due to dilution to bring analyte within the calibrated range.
** Detection limits raised due to sample matrix.
*** Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
\- Not analyzed.
All results in mg/L unless otherwise noted.
Only compounds with detectable concentrations in at least one sample are presented.
Testing was conducted by Bureau Veritas, Calgary, Alberta

# Appendix C
## GSI Mann-Kendall Toolkit Results

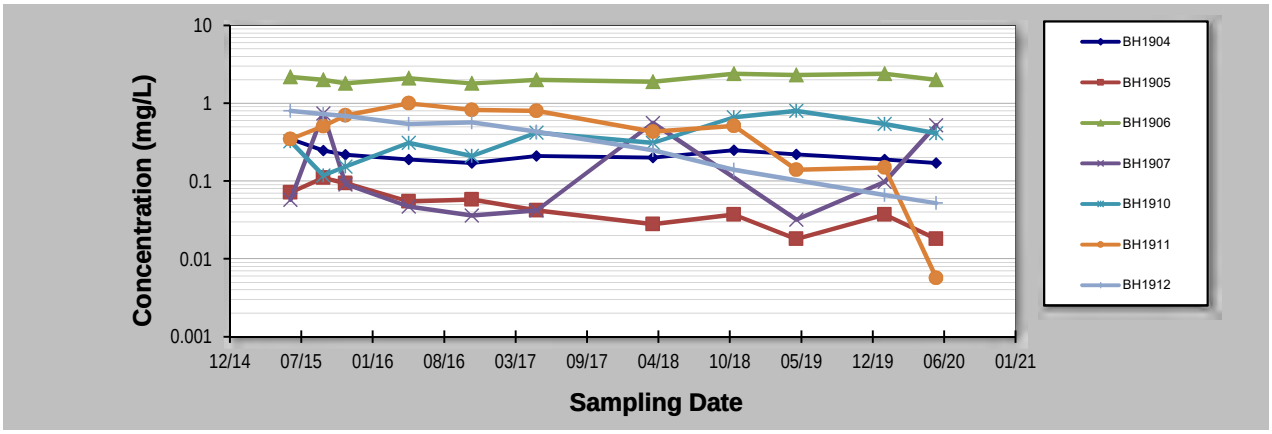
Clifton

# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **Benzene**
Concentration Units: **mg/L**

| Sampling Point ID: | | BH1904 | BH1905 | BH1906 | BH1907 | BH1910 | BH1911 | BH1912 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | | |
| 1 | 15-Jun-15 | 0.35 | 0.0714 | 2.19 | 0.0572 | 0.324 | 0.346 | 0.799 |
| 2 | 15-Sep-15 | 0.246 | 0.11 | 2.01 | 0.742 | 0.118 | 0.509 | 0.727 |
| 3 | 16-Nov-15 | 0.218 | 0.0938 | 1.81 | 0.0909 | 0.154 | 0.701 | 0.688 |
| 4 | 11-May-16 | 0.19 | 0.055 | 2.1 | 0.047 | 0.31 | 1.0 | 0.54 |
| 5 | 4-Nov-16 | 0.17 | 0.058 | 1.8 | 0.036 | 0.21 | 0.82 | 0.57 |
| 6 | 4-May-17 | 0.21 | 0.042 | 2.0 | 0.042 | 0.42 | 0.8 | 0.43 |
| 7 | 26-Mar-18 | 0.20 | 0.028 | 1.9 | 0.56 | 0.31 | 0.43 | 0.25 |
| 8 | 7-Nov-18 | 0.25 | 0.037 | 2.4 | | 0.66 | 0.51 | 0.14 |
| 9 | 1-May-19 | 0.22 | 0.018 | 2.3 | 0.032 | 0.8 | 0.14 | |
| 10 | 3-Jan-20 | 0.19 | 0.037 | 2.4 | 0.098 | 0.54 | 0.15 | 0.066 |
| 11 | 27-May-20 | 0.17 | 0.018 | 2.0 | 0.52 | 0.41 | 0.0057 | 0.052 |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.23 | 0.58 | 0.10 | 1.22 | 0.54 | 0.65 | 0.66 |
| Mann-Kendall Statistic (S): | | -21 | -41 | 9 | -3 | 28 | -21 | -43 |
| Confidence Factor: | | 94.0% | 100.0% | 72.9% | 56.9% | 98.4% | 94.0% | >99.9% |
| Concentration Trend: | | Prob. Decreasing | Decreasing | No Trend | No Trend | Increasing | Prob. Decreasing | Decreasing |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **Benzene**
Concentration Units: **mg/L**

| Sampling Point ID: | | BH1915 | BH1921 | BH1924 | BH1925 | BH1928 (before) | BH1929 (before) | BH1930 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | | |
| 1 | 26-Feb-15 | 1.01 | | | | | | |
| 2 | 17-Jun-15 | | 0.417 | 6.32 | 1.5 | | 0.681 | 0.113 |
| 3 | 8-Sep-15 | | 0.174 | 3.9 | 2.54 | | 0.77 | 0.066 |
| 4 | 12-Nov-15 | | 0.187 | 2.45 | 3.28 | | 0.664 | 0.0699 |
| 5 | 10-May-16 | | 0.12 | 2.2 | 2.1 | | 0.47 | 0.076 |
| 6 | 3-Nov-16 | 0.57 | 0.17 | 2.8 | 1.8 | 4.0 | 0.31 | 0.026 |
| 7 | 17-May-17 | 0.21 | 0.1 | 2.6 | 0.43 | 4.1 | 0.22 | 0.028 |
| 8 | 5-Apr-18 | 0.078 | 0.044 | 1.6 | 0.32 | 3.0 | 0.1 | 0.027 |
| 9 | 29-Oct-18 | 0.043 | 0.002 | 2.1 | 0.47 | 2.5 | | 0.039 |
| 10 | 30-Apr-19 | 0.032 | | 1.1 | 0.19 | 2.3 | 0.0073 | 0.0004 |
| 11 | 9-Dec-19 | 0.023 | 0.010 | 1.6 | 0.023 | 2.7 | 0.0052 | 0.0004 |
| 12 | 25-May-20 | 0.013 | 0.024 | 1.5 | 0.025 | | | 0.0004 |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
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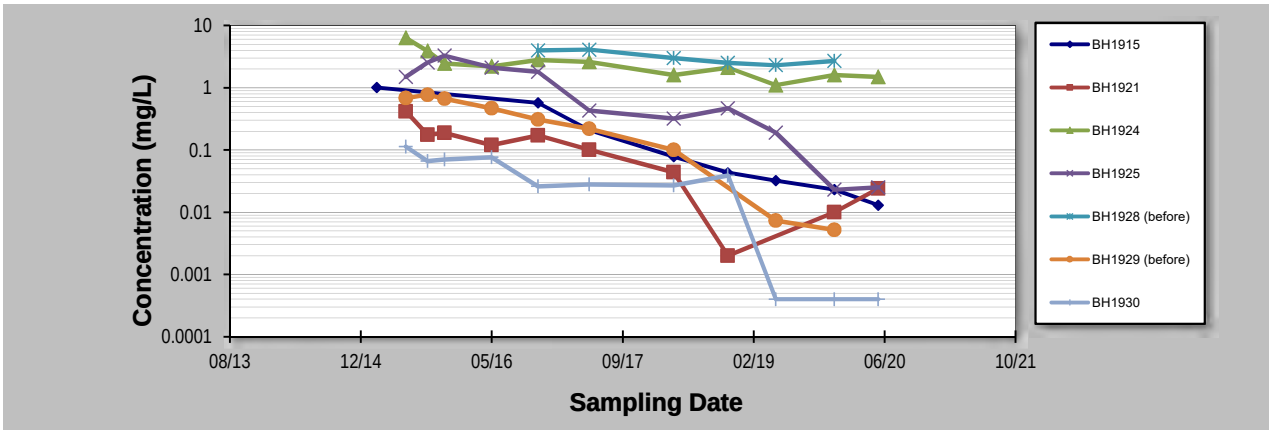
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 1.46 | 1.00 | 0.57 | 0.99 | 0.25 | 0.83 | 0.90 |
| Mann-Kendall Statistic (S): | | -28 | -35 | -40 | -39 | -9 | -34 | -36 |
| Confidence Factor: | | >99.9% | 100.0% | 100.0% | 99.9% | 93.2% | >99.9% | 99.8% |
| Concentration Trend: | | Decreasing | Decreasing | Decreasing | Decreasing | Prob. Decreasing | Decreasing | Decreasing |




**Notes:**

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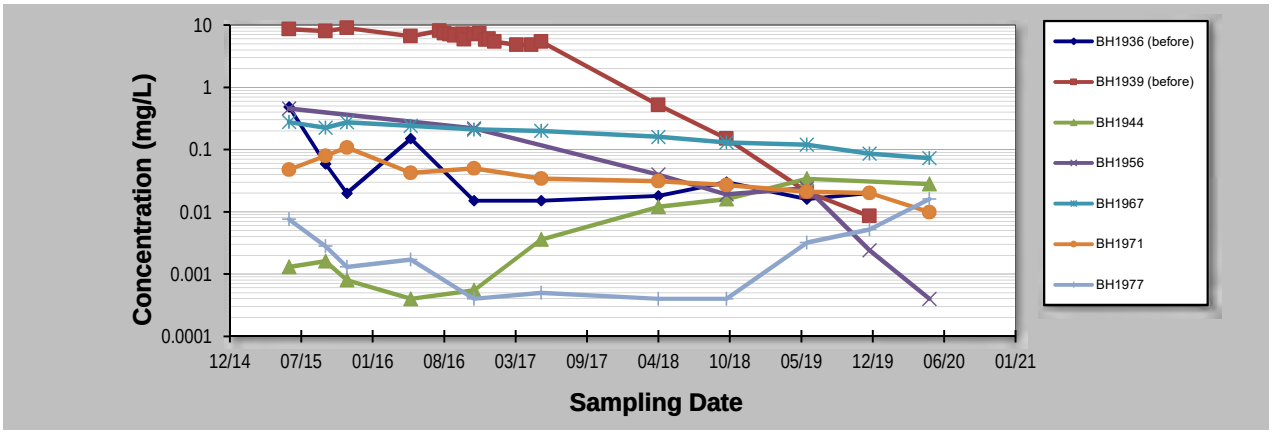
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **Benzene**
Concentration Units: **mg/L**

| Sampling Point ID: | | BH1936 (before) | BH1939 (before) | BH1944 | BH1956 | BH1967 | BH1971 | BH1977 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | | |
| 1 | 11-Jun-15 | 0.484 | 8.57 | 0.0013 | 0.456 | 0.276 | 0.0474 | 0.0076 |
| 2 | 21-Sep-15 | 0.0589 | 8.00 | 0.0016 | | 0.225 | 0.0795 | 0.0028 |
| 3 | 20-Nov-15 | 0.0199 | 8.99 | 0.0008 | | 0.275 | 0.108 | 0.0013 |
| 4 | 17-May-16 | 0.15 | 6.6 | 0.0004 | | 0.24 | 0.042 | 0.0017 |
| 5 | 5-Aug-16 | | 8.1 | | | | | |
| 6 | 19-Aug-16 | | 7.4 | | | | | |
| 7 | 3-Sep-16 | | 7.1 | | | | | |
| 8 | 16-Sep-16 | | 6.8 | | | | | |
| 9 | 10-Oct-16 | | 7.2 | | | | | |
| 10 | 13-Oct-16 | | 5.9 | | | | | |
| 11 | 10-Nov-16 | 0.015 | 7.1 | 0.00055 | 0.22 | 0.21 | 0.05 | 0.0004 |
| 12 | 25-Nov-16 | | 7.4 | | | | | |
| 13 | 12-Dec-16 | | 5.8 | | | | | |
| 14 | 21-Dec-16 | | 6 | | | | | |
| 15 | 6-Jan-17 | | 5.4 | | | | | |
| 16 | 9-Mar-17 | | 4.8 | | | | | |
| 17 | 19-Apr-17 | | 4.8 | | | | | |
| 18 | 17-May-17 | 0.015 | 5.4 | 0.0036 | | 0.20 | 0.034 | 0.0005 |
| 19 | 10-Apr-18 | 0.018 | 0.52 | 0.012 | 0.040 | 0.16 | 0.031 | 0.0004 |
| 20 | 18-Oct-18 | 0.03 | 0.15 | 0.016 | 0.019 | 0.13 | 0.027 | 0.0004 |
| 21 | 31-May-19 | 0.016 | 0.021 | 0.034 | 0.024 | 0.12 | 0.021 | 0.0032 |
| 22 | 22-Nov-19 | 0.02 | 0.0085 | 0.021 | 0.0024 | 0.086 | 0.020 | 0.0052 |
| 23 | 8-May-20 | | | 0.028 | 0.0004 | 0.073 | 0.0099 | 0.016 |
| 24 | | | | | | | | |
| 25 | | | | | | | | |
| Coefficient of Variation: | | 1.78 | 0.51 | 1.27 | 1.57 | 0.40 | 0.67 | 1.31 |
| Mann-Kendall Statistic (S): | | -14 | -181 | 35 | -19 | -51 | -45 | 2 |
| Confidence Factor: | | 87.3% | >99.9% | 100.0% | 99.9% | >99.9% | >99.9% | 53.0% |
| Concentration Trend: | | No Trend | Decreasing | Increasing | Decreasing | Decreasing | Decreasing | No Trend |

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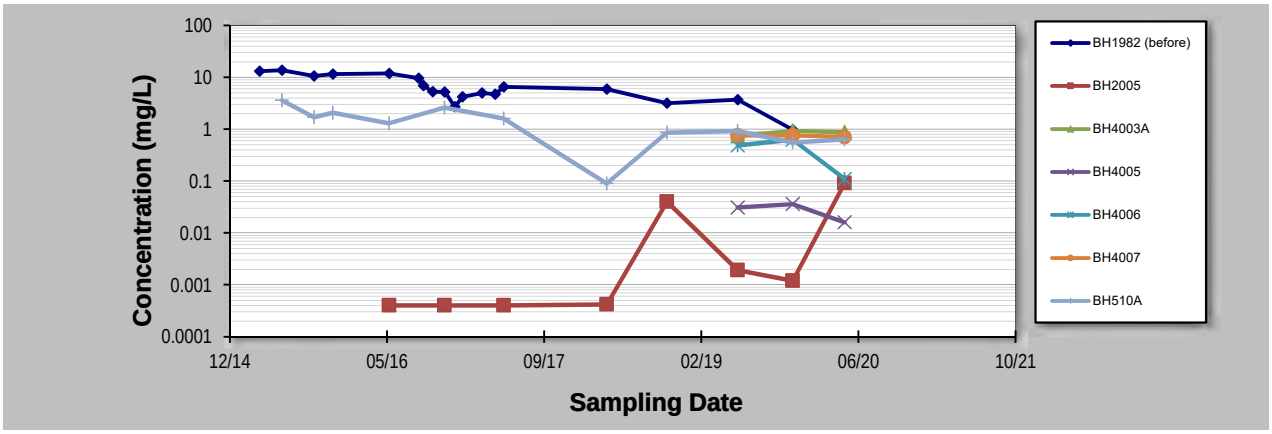
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **Benzene**
Concentration Units: **mg/L**

| Sampling Point ID: | | BH1982 (before) | BH2005 | BH4003A | BH4005 | BH4006 | BH4007 | BH510A |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | | |
| 1 | 1-Apr-15 | 13.1 | | | | | | |
| 2 | 11-Jun-15 | 13.8 | | | | | | 3.61 |
| 3 | 21-Sep-15 | 10.7 | | | | | | 1.7 |
| 4 | 20-Nov-15 | 11.6 | | | | | | 2.07 |
| 5 | 17-May-16 | 12 | 0.0004 | | | | | 1.3 |
| 6 | 19-Aug-16 | 9.6 | | | | | | |
| 7 | 3-Sep-16 | 6.9 | | | | | | |
| 8 | 3-Oct-16 | 5.3 | | | | | | |
| 9 | 10-Nov-16 | 5.2 | 0.0004 | | | | | 2.6 |
| 10 | 12-Dec-16 | 2.7 | | | | | | |
| 11 | 6-Jan-17 | 4.2 | | | | | | |
| 12 | 9-Mar-17 | 5.0 | | | | | | |
| 13 | 19-Apr-17 | 4.7 | | | | | | |
| 14 | 17-May-17 | 6.6 | 0.0004 | | | | | 1.6 |
| 15 | 10-Apr-18 | 5.9 | 0.00042 | | | | | 0.09 |
| 16 | 18-Oct-18 | 3.2 | 0.04 | | | | | 0.86 |
| 17 | 31-May-19 | 3.7 | 0.0019 | 0.74 | 0.031 | 0.49 | 0.76 | 0.92 |
| 18 | 22-Nov-19 | 0.98 | 0.0012 | 0.93 | 0.036 | 0.63 | 0.76 | 0.55 |
| 19 | 5-May-20 | | 0.091 | 0.87 | 0.016 | 0.11 | 0.71 | 0.64 |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.56 | 1.94 | 0.11 | 0.38 | 0.66 | 0.04 | 0.70 |
| Mann-Kendall Statistic (S): | | -105 | 19 | 1 | -1 | -1 | -2 | -33 |
| Confidence Factor: | | >99.9% | 98.9% | | | | | 99.5% |
| Concentration Trend: | | Decreasing | Increasing | | | | | Decreasing |

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# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **Benzene**
Concentration Units: **mg/L**

| Sampling Point ID: | BH1704 | EX1 | EX2 | EX3 | EX4 | EX5 | EX6 |
|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | |
| 1 | 2-Apr-15 | 0.806 | 10.0 | 1.56 | 0.078 | 2.21 | | 0.389 |
| 2 | 11-Jun-15 | 1.26 | 10.2 | 2.01 | 0.0016 | | 3.61 | 0.426 |
| 3 | 21-Sep-15 | 1.92 | 7.66 | 1.95 | 0.0015 | | 2.57 | 0.497 |
| 4 | 20-Nov-15 | 0.731 | 7.97 | 1.75 | 0.0032 | 2.17 | 4.17 | 0.414 |
| 5 | 17-May-16 | 1.2 | 9.3 | 1.1 | 0.019 | 2.5 | 7.4 | 0.42 |
| 6 | 10-Nov-16 | 1.2 | 6.3 | 0.97 | 0.0004 | 1.3 | 2.6 | 0.35 |
| 7 | 11-May-17 | 0.96 | 0.058 | 0.19 | 0.00045 | 0.7 | 3.7 | 0.32 |
| 8 | 10-Apr-18 | 0.52 | 0.3 | 0.47 | 0.0004 | 0.47 | 2.7 | 0.13 |
| 9 | 18-Oct-18 | 0.39 | 0.13 | 0.41 | 0.0004 | 0.26 | 2.3 | 0.29 |
| 10 | 31-May-19 | 0.4 | 0.087 | 0.20 | 0.003 | 0.49 | 1.8 | 2.2 |
| 11 | 22-Nov-19 | 0.31 | 0.0004 | 0.11 | 0.016 | 0.22 | 2.2 | 0.25 |
| 12 | 5-May-20 | 0.28 | 0.0022 | 0.17 | 0.0004 | 0.29 | 2.5 | 0.22 |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
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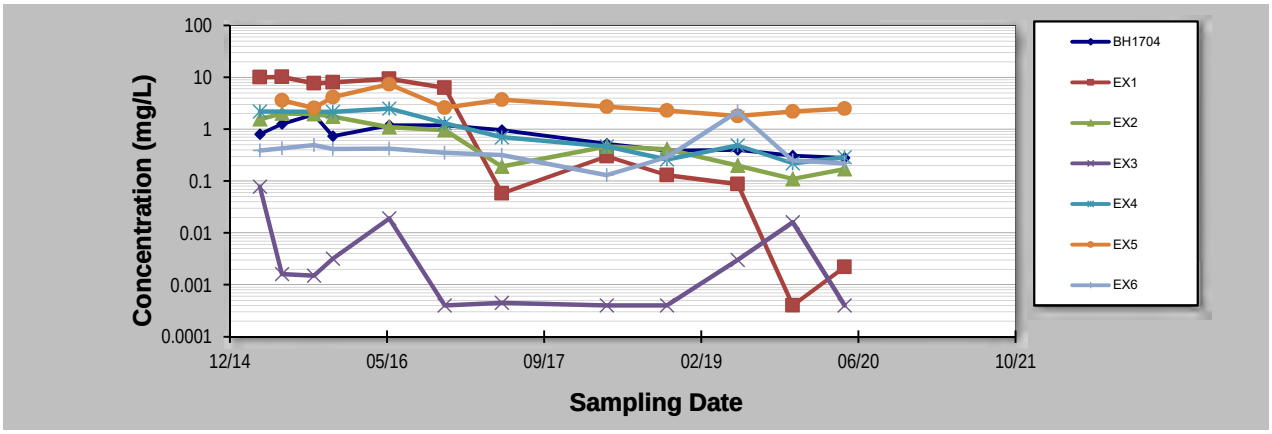
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.60 | 1.05 | 0.82 | 2.15 | 0.86 | 0.48 | 1.11 |
| Mann-Kendall Statistic (S): | | -45 | -50 | -52 | -20 | -33 | -25 | -30 |
| Confidence Factor: | | 100.0% | >99.9% | >99.9% | 90.2% | 99.9% | 97.0% | 97.8% |
| Concentration Trend: | | Decreasing | Decreasing | Decreasing | Prob. Decreasing | Decreasing | Decreasing | Decreasing |




**Notes:**

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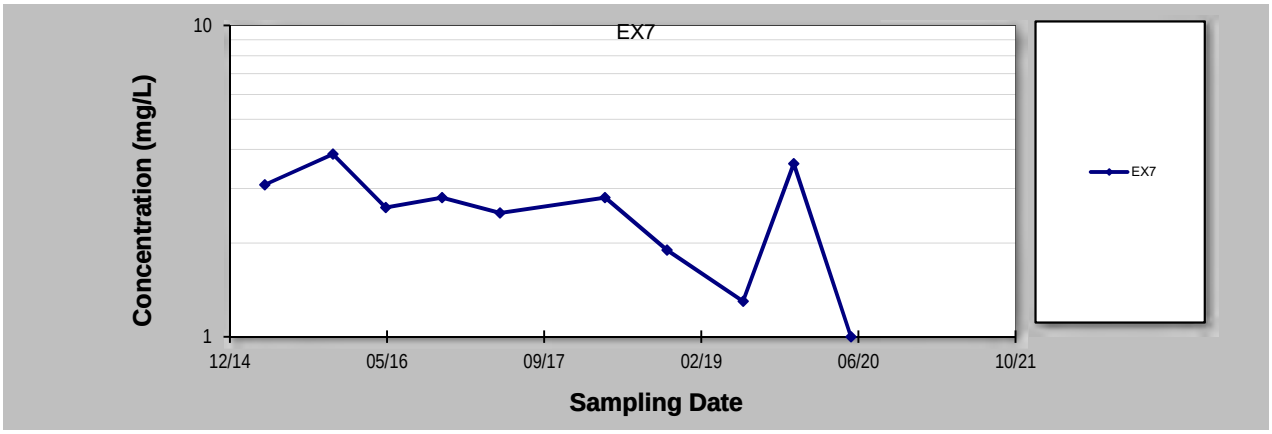
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 18-Jun-20 | Job ID: | Sears Canada |
| Facility Name: | Hounsfield Heights and North Hill Mall | Constituent: | Benzene |
| Conducted By: | Kelsey Blanchette | Concentration Units: | mg/L |

Sampling Point ID: **EX7**

| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 17-Apr-15 | 3.08 | | | | | | |
| 2 | 11-Jun-15 | | | | | | | |
| 3 | 17-Sep-15 | | | | | | | |
| 4 | 20-Nov-15 | 3.86 | | | | | | |
| 5 | 6-May-16 | 2.6 | | | | | | |
| 6 | 1-Nov-16 | 2.8 | | | | | | |
| 7 | 5-May-17 | 2.5 | | | | | | |
| 8 | 4-Apr-18 | 2.8 | | | | | | |
| 9 | 18-Oct-18 | 1.9 | | | | | | |
| 10 | 17-Jun-19 | 1.3 | | | | | | |
| 11 | 25-Nov-19 | 3.6 | | | | | | |
| 12 | 25-May-20 | 1.0 | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.36 | | | | | | |
| Mann-Kendall Statistic (S): | | -22 | | | | | | |
| Confidence Factor: | | 97.1% | | | | | | |
| Concentration Trend: | | Decreasing | | | | | | |

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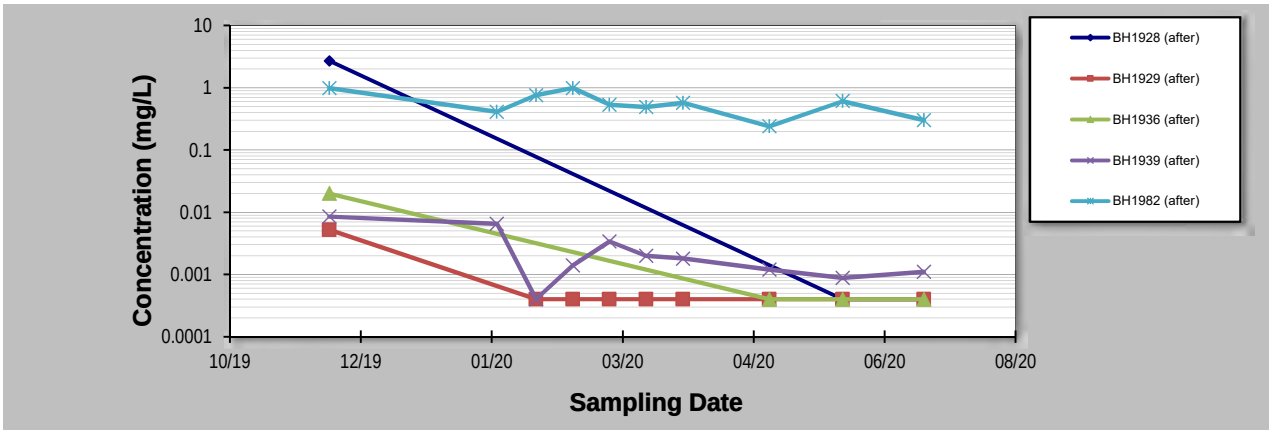
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **Benzene**
Concentration Units: **mg/L**

Sampling Point ID: **BH1928 (after) BH1929 (after) BH1936 (after) BH1939 (after) BH1982 (after)**

| Sampling Event | Sampling Date | BENZENE CONCENTRATION (mg/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 19-Nov-19 | 2.7 | 0.0052 | 0.02 | 0.0085 | 0.98 | | |
| 2 | 22-Jan-20 | | | | 0.0065 | 0.41 | | |
| 3 | 6-Feb-20 | | 0.0004 | | 0.0004 | 0.76 | | |
| 4 | 20-Feb-20 | | 0.0004 | | 0.0014 | 0.99 | | |
| 5 | 5-Mar-20 | | 0.0004 | | 0.0034 | 0.53 | | |
| 6 | 19-Mar-20 | | 0.0004 | | 0.002 | 0.49 | | |
| 7 | 2-Apr-20 | | 0.0004 | | 0.0018 | 0.57 | | |
| 8 | 5-May-20 | | 0.0004 | 0.0004 | 0.0012 | 0.24 | | |
| 9 | 2-Jun-20 | 0.0004 | 0.0004 | 0.0004 | 0.00088 | 0.61 | | |
| 10 | 3-Jul-20 | 0.0004 | 0.0004 | 0.0004 | 0.0011 | 0.3 | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 1.73 | 1.71 | 1.85 | 0.99 | 0.44 | | |
| Mann-Kendall Statistic (S): | | -2 | -8 | -3 | -23 | -15 | | |
| Confidence Factor: | | | 76.2% | 72.9% | 97.7% | 89.2% | | |
| Concentration Trend: | | | No Trend | No Trend | Decreasing | Stable | | |

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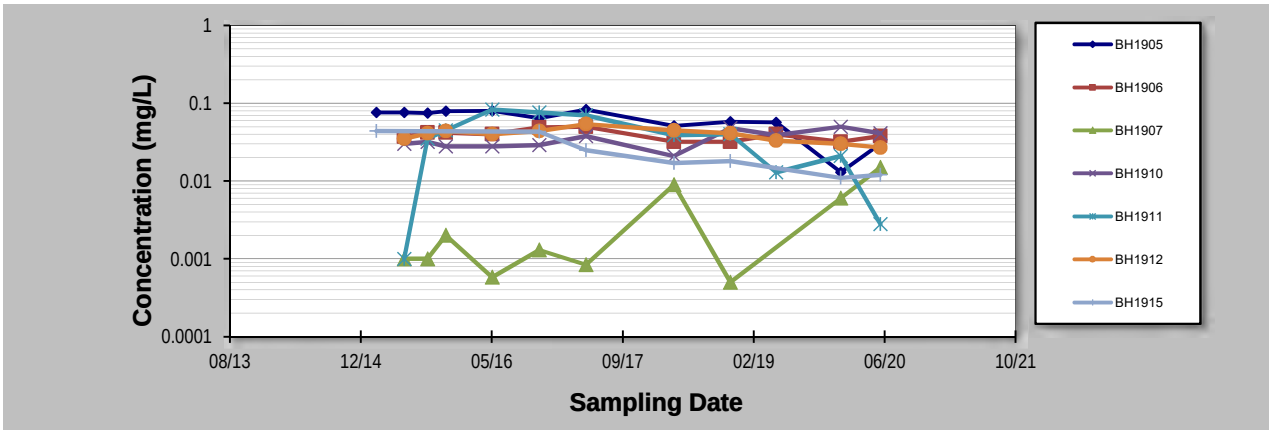
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 18-Jun-20 | Job ID: | Sears Canada |
| Facility Name: | Hounsfield Heights and North Hill Mall | Constituent: | 1,2 -DCA |
| Conducted By: | Kelsey Blanchette | Concentration Units: | mg/L |

| Sampling Point ID: | | BH1905 | BH1906 | BH1907 | BH1910 | BH1911 | BH1912 | BH1915 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 1,2 -DCA CONCENTRATION (mg/L) | | | | | | |
| 1 | 25-Feb-15 | 0.076 | | | | | | 0.044 |
| 2 | 11-Jun-15 | 0.076 | 0.037 | 0.001 | 0.03 | 0.001 | 0.035 | |
| 3 | 8-Sep-15 | 0.075 | 0.042 | 0.001 | 0.032 | 0.035 | 0.041 | |
| 4 | 17-Nov-15 | 0.079 | 0.042 | 0.002 | 0.028 | 0.045 | 0.044 | |
| 5 | 12-May-16 | 0.08 | 0.04 | 0.00058 | 0.028 | 0.083 | 0.04 | |
| 6 | 8-Nov-16 | 0.064 | 0.049 | 0.0013 | 0.029 | 0.076 | 0.044 | 0.043 |
| 7 | 5-May-17 | 0.083 | 0.05 | 0.00084 | 0.038 | 0.07 | 0.054 | 0.025 |
| 8 | 6-Apr-18 | 0.051 | 0.032 | 0.009 | 0.021 | 0.039 | 0.045 | 0.017 |
| 9 | 7-Nov-18 | 0.058 | 0.032 | 0.0005 | 0.048 | 0.04 | 0.041 | 0.018 |
| 10 | 1-May-19 | 0.057 | 0.04 | | 0.039 | 0.013 | 0.033 | |
| 11 | 3-Jan-20 | 0.013 | 0.032 | 0.006 | 0.050 | 0.021 | 0.03 | 0.011 |
| 12 | 2-Jun-20 | 0.030 | 0.038 | 0.015 | 0.041 | 0.0028 | 0.027 | 0.012 |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.35 | 0.16 | 1.31 | 0.26 | 0.73 | 0.20 | 0.57 |
| Mann-Kendall Statistic (S): | | -33 | -12 | 12 | 24 | -13 | -15 | -17 |
| Confidence Factor: | | 98.7% | 79.9% | 83.2% | 96.4% | 82.1% | 85.9% | 99.5% |
| Concentration Trend: | | Decreasing | Stable | No Trend | Increasing | Stable | Stable | Decreasing |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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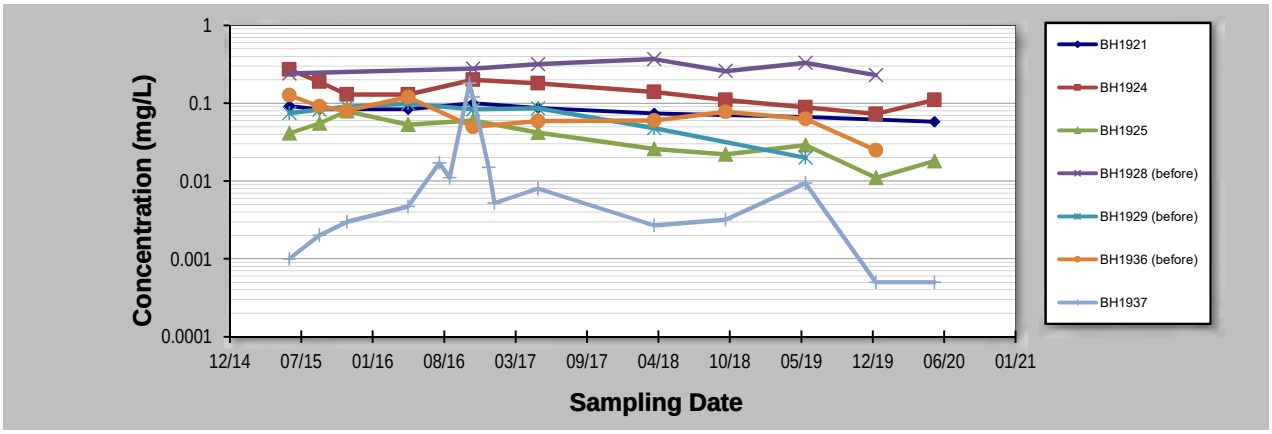
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 18-Jun-20 | Job ID: | Sears Canada |
| Facility Name: | Hounsfield Heights and North Hill Mall | Constituent: | 1,2 -DCA |
| Conducted By: | Kelsey Blanchette | Concentration Units: | mg/L |

| Sampling Point ID: | | BH1921 | BH1924 | BH1925 | BH1928 (before) | BH1929 (before) | BH1936 (before) | BH1937 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 1,2 -DCA CONCENTRATION (mg/L) | | | | | | |
| 1 | 12-Jun-15 | 0.092 | 0.271 | 0.041 | 0.243 | 0.075 | 0.127 | 0.001 |
| 2 | 4-Sep-15 | 0.084 | 0.189 | 0.055 | | 0.083 | 0.091 | 0.002 |
| 3 | 20-Nov-15 | 0.084 | 0.129 | 0.079 | | 0.090 | 0.081 | 0.003 |
| 4 | 9-May-16 | 0.084 | 0.13 | 0.053 | | 0.099 | 0.12 | 0.0047 |
| 5 | 5-Aug-16 | | | | | | | 0.017 |
| 6 | 3-Sep-16 | | | | | | | 0.011 |
| 7 | 28-Oct-16 | | | | | | | 0.18 |
| 8 | 7-Nov-16 | 0.1 | 0.2 | 0.06 | 0.28 | 0.084 | 0.05 | 0.12 |
| 9 | 21-Dec-16 | | | | | | | 0.015 |
| 10 | 6-Jan-17 | | | | | | | 0.0052 |
| 11 | 8-May-17 | 0.087 | 0.18 | 0.042 | 0.32 | 0.086 | 0.059 | 0.0080 |
| 12 | 29-Mar-18 | 0.074 | 0.14 | 0.026 | 0.37 | 0.048 | 0.06 | 0.0027 |
| 13 | 15-Oct-18 | 0.068 | 0.11 | 0.022 | 0.26 | | 0.078 | 0.0032 |
| 14 | 27-May-19 | 0.067 | 0.089 | 0.029 | 0.33 | 0.02 | 0.063 | 0.0094 |
| 15 | 10-Dec-19 | 0.085 | 0.073 | 0.011 | 0.23 | 0.013 | 0.025 | 0.0005 |
| 16 | 22-May-20 | 0.058 | 0.11 | 0.018 | | | | 0.0005 |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.16 | 0.39 | 0.52 | 0.18 | 0.36 | 0.41 | 2.12 |
| Mann-Kendall Statistic (S): | | -6 | -34 | -33 | 1 | 2 | -23 | -11 |
| Confidence Factor: | | 69.4% | 99.6% | 99.5% | 50.0% | 54.8% | 97.7% | 67.1% |
| Concentration Trend: | | Stable | Decreasing | Decreasing | No Trend | No Trend | Decreasing | No Trend |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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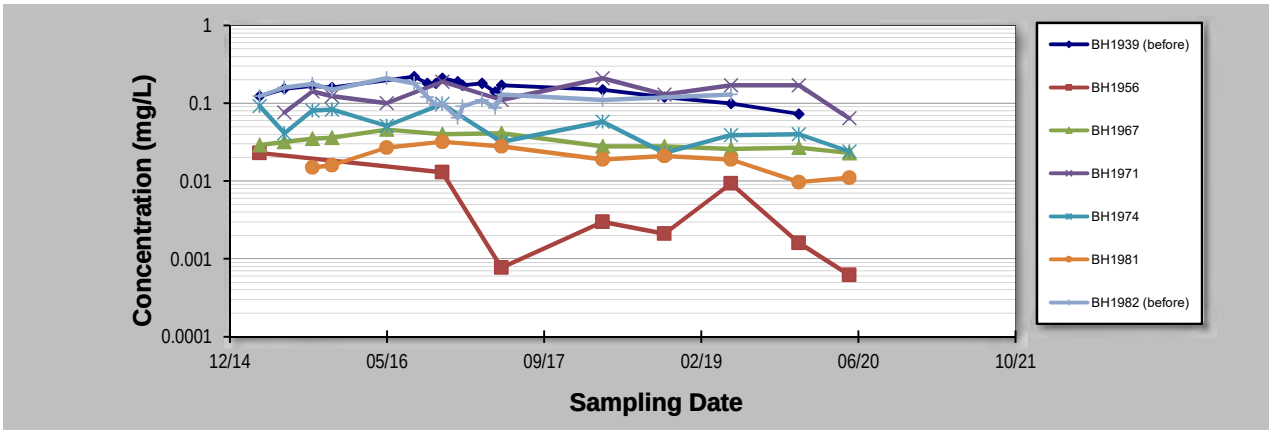
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **1,2 - DCA**
Concentration Units: **mg/L**

| Sampling Point ID: | | BH1939 (before) | BH1956 | BH1967 | BH1971 | BH1974 | BH1981 | BH1982 (before) |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 1,2 - DCA CONCENTRATION (mg/L) | | | | | | |
| 1 | 1-Apr-15 | 0.124 | 0.023 | 0.029 | | 0.092 | | 0.124 |
| 2 | 19-Jun-15 | 0.154 | | 0.032 | 0.076 | 0.041 | | 0.159 |
| 3 | 16-Sep-15 | 0.167 | | 0.035 | 0.142 | 0.081 | 0.015 | 0.177 |
| 4 | 17-Nov-15 | 0.16 | | 0.036 | 0.124 | 0.083 | 0.016 | 0.150 |
| 5 | 9-May-16 | | | 0.046 | 0.1 | 0.051 | 0.027 | 0.21 |
| 6 | 5-Aug-16 | 0.22 | | | | | | 0.18 |
| 7 | 16-Sep-16 | 0.18 | | | | | | 0.12 |
| 8 | 13-Oct-16 | 0.18 | | | | | | 0.095 |
| 9 | 2-Nov-16 | 0.21 | 0.013 | 0.04 | 0.19 | 0.098 | 0.032 | 0.099 |
| 10 | 21-Dec-16 | 0.19 | | | | | | 0.065 |
| 11 | 6-Jan-17 | 0.17 | | | | | | 0.091 |
| 12 | 9-Mar-17 | 0.18 | | | | | | 0.11 |
| 13 | 19-Apr-17 | 0.14 | | | | | | 0.087 |
| 14 | 10-May-17 | 0.17 | 0.00077 | 0.041 | 0.11 | 0.032 | 0.028 | 0.13 |
| 15 | 27-Mar-18 | 0.15 | 0.003 | 0.028 | 0.21 | 0.058 | 0.019 | 0.11 |
| 16 | 10-Oct-18 | 0.12 | 0.0021 | 0.028 | 0.13 | 0.023 | 0.021 | 0.068 |
| 17 | 10-May-19 | 0.099 | 0.0093 | 0.026 | 0.17 | 0.039 | 0.019 | 0.13 |
| 18 | 12-Dec-19 | 0.073 | 0.0016 | 0.027 | 0.17 | 0.04 | 0.0097 | 0.042 |
| 19 | 20-May-20 | | 0.00062 | 0.023 | 0.064 | 0.024 | 0.011 | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.24 | 1.19 | 0.22 | 0.34 | 0.49 | 0.37 | 0.31 |
| Mann-Kendall Statistic (S): | | -40 | -16 | -25 | 8 | -30 | -10 | -7 |
| Confidence Factor: | | 94.6% | 96.9% | 95.0% | 70.3% | 97.8% | 78.4% | 60.5% |
| Concentration Trend: | | Prob. Decreasing | Decreasing | Prob. Decreasing | No Trend | Decreasing | Stable | Stable |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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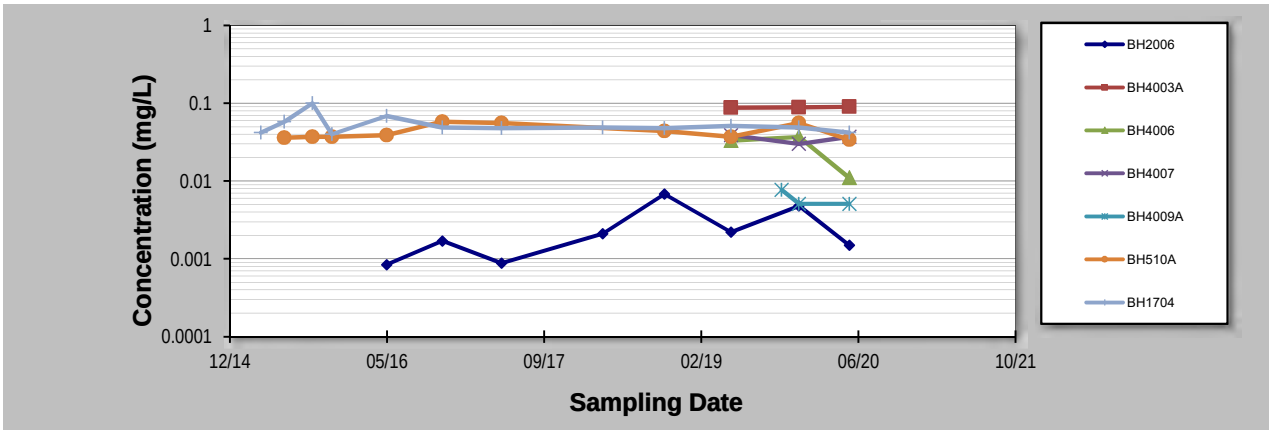
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

| | | | |
|---|---|---|---|
| Evaluation Date: | 18-Jun-20 | Job ID: | Sears Canada |
| Facility Name: | Hounsfield Heights and North Hill Mall | Constituent: | 1,2-DCA |
| Conducted By: | Kelsey Blanchette | Concentration Units: | mg/L |

| Sampling Point ID: | | BH2006 | BH4003A | BH4006 | BH4007 | BH4009A | BH510A | BH1704 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 1,2-DCA CONCENTRATION (mg/L) | | | | | | |
| 1 | 5-Apr-15 | | | | | | | 0.042 |
| 2 | 19-Jun-15 | | | | | | 0.036 | 0.058 |
| 3 | 16-Sep-15 | | | | | | 0.037 | 0.1 |
| 4 | 17-Nov-15 | | | | | | 0.037 | 0.04 |
| 5 | 9-May-16 | 0.00084 | | | | | 0.039 | 0.069 |
| 6 | 2-Nov-16 | 0.0017 | | | | | 0.058 | 0.049 |
| 7 | 10-May-17 | 0.00088 | | | | | 0.056 | 0.048 |
| 8 | 27-Mar-18 | 0.0021 | | | | | | 0.049 |
| 9 | 10-Oct-18 | 0.0068 | | | | | 0.044 | 0.048 |
| 10 | 10-May-19 | 0.0022 | 0.088 | 0.033 | 0.039 | | 0.037 | 0.051 |
| 11 | 18-Oct-19 | | | | | 0.0077 | | |
| 12 | 12-Dec-19 | 0.0048 | 0.089 | 0.037 | 0.030 | 0.0051 | 0.056 | 0.049 |
| 13 | 20-May-20 | 0.0015 | 0.090 | 0.011 | 0.037 | 0.0051 | 0.034 | 0.042 |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 0.81 | 0.01 | 0.52 | 0.13 | 0.25 | 0.22 | 0.31 |
| Mann-Kendall Statistic (S): | | 12 | 3 | -1 | -1 | -2 | 7 | -9 |
| Confidence Factor: | | 91.1% | | | | | 70.0% | 70.4% |
| Concentration Trend: | | Prob. Increasing | | | | | No Trend | Stable |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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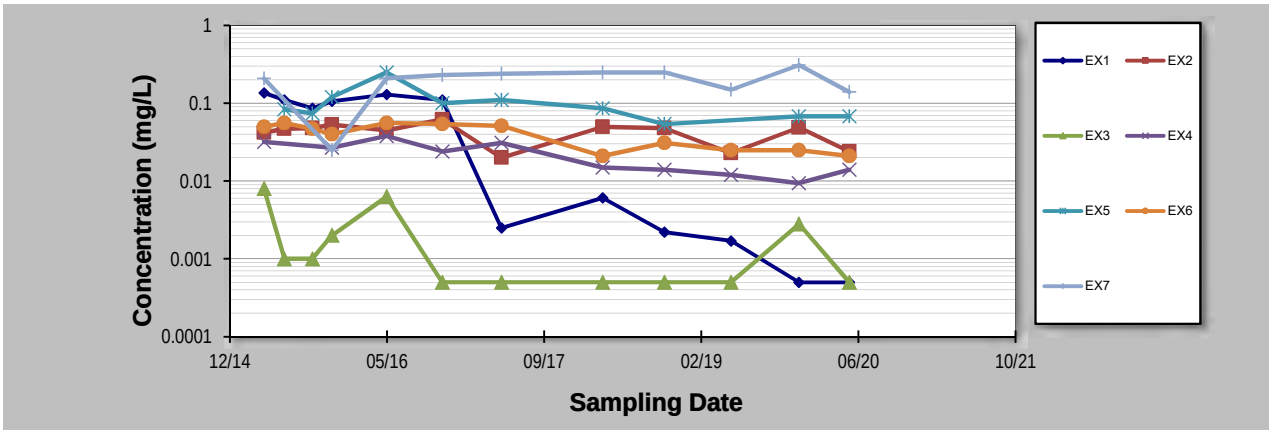
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **1,2 - DCA**
Concentration Units: **mg/L**

| Sampling Point ID: | | EX1 | EX2 | EX3 | EX4 | EX5 | EX6 | EX7 |
|---|---|---|---|---|---|---|---|---|
| Sampling Event | Sampling Date | 1,2 - DCA CONCENTRATION (mg/L) | | | | | | |
| 1 | 15-Apr-15 | 0.136 | 0.042 | 0.008 | 0.032 | | 0.050 | 0.209 |
| 2 | 19-Jun-15 | 0.11 | 0.047 | 0.001 | | 0.084 | 0.056 | |
| 3 | 16-Sep-15 | 0.086 | 0.048 | 0.001 | | 0.074 | 0.047 | |
| 4 | 17-Nov-15 | 0.106 | 0.053 | 0.002 | 0.027 | 0.120 | 0.04 | 0.025 |
| 5 | 9-May-16 | 0.13 | 0.045 | 0.0063 | 0.038 | 0.25 | 0.056 | 0.21 |
| 6 | 2-Nov-16 | 0.11 | 0.062 | 0.0005 | 0.024 | 0.10 | 0.054 | 0.23 |
| 7 | 10-May-17 | 0.0025 | 0.020 | 0.0005 | 0.031 | 0.11 | 0.051 | 0.24 |
| 8 | 27-Mar-18 | 0.0061 | 0.050 | 0.0005 | 0.015 | 0.086 | 0.021 | 0.25 |
| 9 | 10-Oct-18 | 0.0022 | 0.048 | 0.0005 | 0.014 | 0.054 | 0.031 | 0.25 |
| 10 | 10-May-19 | 0.0017 | 0.023 | 0.0005 | 0.012 | | 0.025 | 0.15 |
| 11 | 12-Dec-19 | 0.0005 | 0.049 | 0.0028 | 0.0094 | 0.068 | 0.025 | 0.31 |
| 12 | 20-May-20 | 0.0005 | 0.024 | 0.0005 | 0.014 | 0.068 | 0.021 | 0.14 |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 1.03 | 0.31 | 1.26 | 0.46 | 0.55 | 0.36 | 0.39 |
| Mann-Kendall Statistic (S): | | -50 | -3 | -24 | -32 | -16 | -37 | 14 |
| Confidence Factor: | | >99.9% | 55.4% | 94.2% | 99.9% | 90.7% | 99.5% | 87.3% |
| Concentration Trend: | | Decreasing | Stable | Prob. Decreasing | Decreasing | Prob. Decreasing | Decreasing | No Trend |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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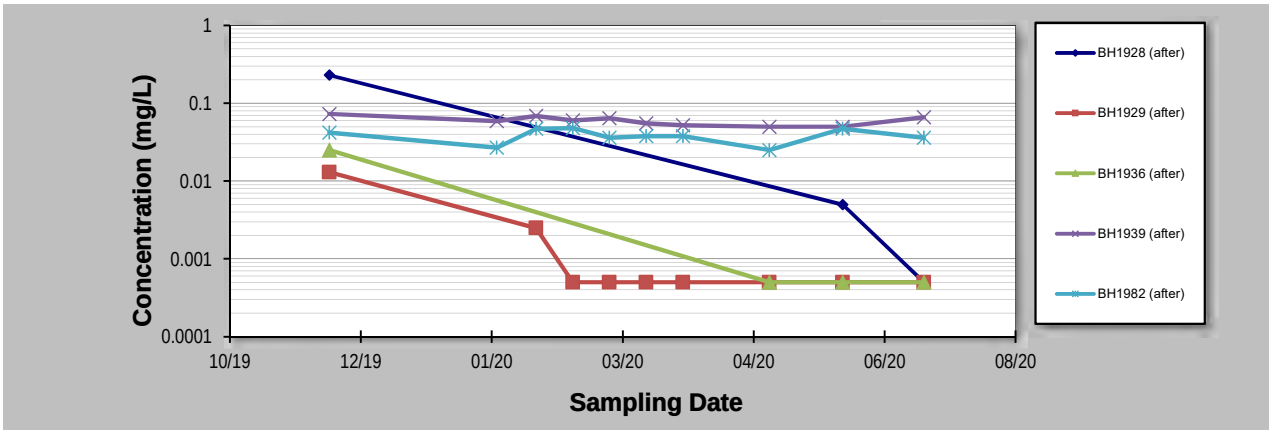
# GSI MANN-KENDALL TOOLKIT
## for Constituent Trend Analysis

Evaluation Date: **18-Jun-20**
Facility Name: **Hounsfield Heights and North Hill Mall**
Conducted By: **Kelsey Blanchette**

Job ID: **Sears Canada**
Constituent: **1,2-DCA**
Concentration Units: **mg/L**

Sampling Point ID: **BH1928 (after)** **BH1929 (after)** **BH1936 (after)** **BH1939 (after)** **BH1982 (after)**

| Sampling Event | Sampling Date | 1,2-DCA CONCENTRATION (mg/L) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 19-Nov-19 | 0.23 | 0.013 | 0.025 | 0.073 | 0.042 | | |
| 2 | 22-Jan-20 | | | | 0.059 | 0.027 | | |
| 3 | 6-Feb-20 | | 0.0025 | | 0.069 | 0.047 | | |
| 4 | 20-Feb-20 | | 0.0005 | | 0.06 | 0.048 | | |
| 5 | 5-Mar-20 | | 0.0005 | | 0.064 | 0.036 | | |
| 6 | 19-Mar-20 | | 0.0005 | | 0.055 | 0.038 | | |
| 7 | 2-Apr-20 | | 0.0005 | | 0.052 | 0.038 | | |
| 8 | 5-May-20 | | 0.0005 | 0.0005 | 0.05 | 0.025 | | |
| 9 | 2-Jun-20 | 0.005 | 0.0005 | 0.0005 | 0.05 | 0.047 | | |
| 10 | 3-Jul-20 | 0.0005 | 0.0005 | 0.0005 | 0.066 | 0.036 | | |
| 11 | | | | | | | | |
| 12 | | | | | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | | | | | | |
| 17 | | | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |
| Coefficient of Variation: | | 1.67 | 1.96 | 1.85 | 0.14 | 0.21 | | |
| Mann-Kendall Statistic (S): | | -3 | -15 | -3 | -22 | -6 | | |
| Confidence Factor: | | | 92.5% | 72.9% | 97.1% | 66.8% | | |
| Concentration Trend: | | | Prob. Decreasing | No Trend | Decreasing | Stable | | |




**Notes:**

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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# Appendix D
## GSI Source Decay Results

Clifton

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH510A

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 3.61 | | | |
| 2 | 9/15/2015 | 1.7 | | | |
| 3 | 11/16/2015 | 2.07 | | | |
| 4 | 5/11/2016 | 1.3 | | | |
| 5 | 11/4/2016 | 2.6 | | | |
| 6 | 5/4/2017 | 1.6 | | | |
| 7 | 3/26/2018 | 0.09 | | | |
| 8 | 10/18/2018 | 0.86 | | | |
| 9 | 5/1/2019 | 0.92 | | | |
| 10 | 12/2/2019 | 0.55 | | | |
| 11 | 5/27/2020 | 0.64 | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

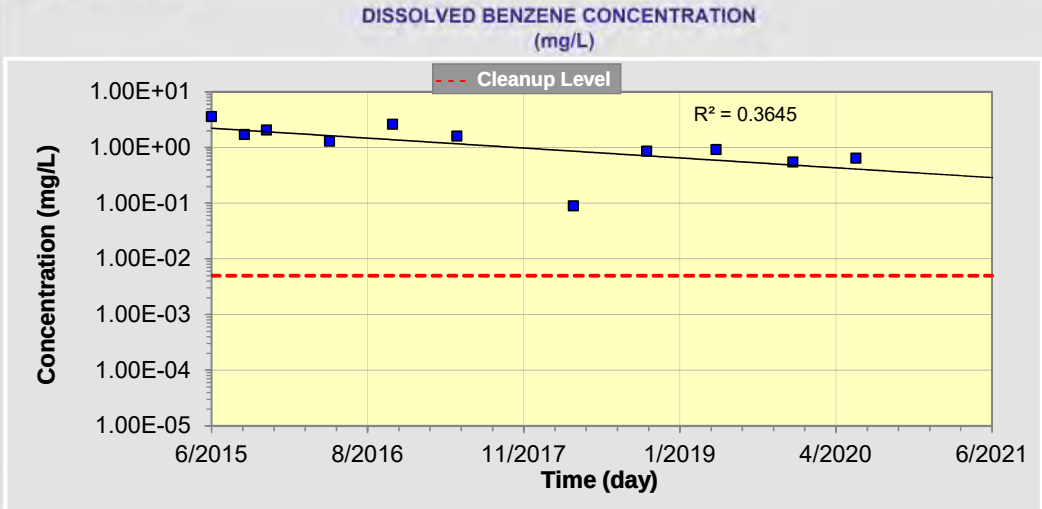
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2033**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2023** (Lower Limit on Confidence Interval) to **> 500 years** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.41E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1704

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| | | Benzene | | | |
| 1 | 9/15/2015 | 1.92 | | | |
| 2 | 11/16/2015 | 0.731 | | | |
| 3 | 5/11/2016 | 1.2 | | | |
| 4 | 11/4/2016 | 1.2 | | | |
| 5 | 5/4/2017 | 0.96 | | | |
| 6 | 3/26/2018 | 0.52 | | | |
| 7 | 10/18/2018 | 0.39 | | | |
| 8 | 5/1/2019 | 0.4 | | | |
| 9 | 12/2/2019 | 0.31 | | | |
| 10 | 5/27/2020 | 0.28 | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

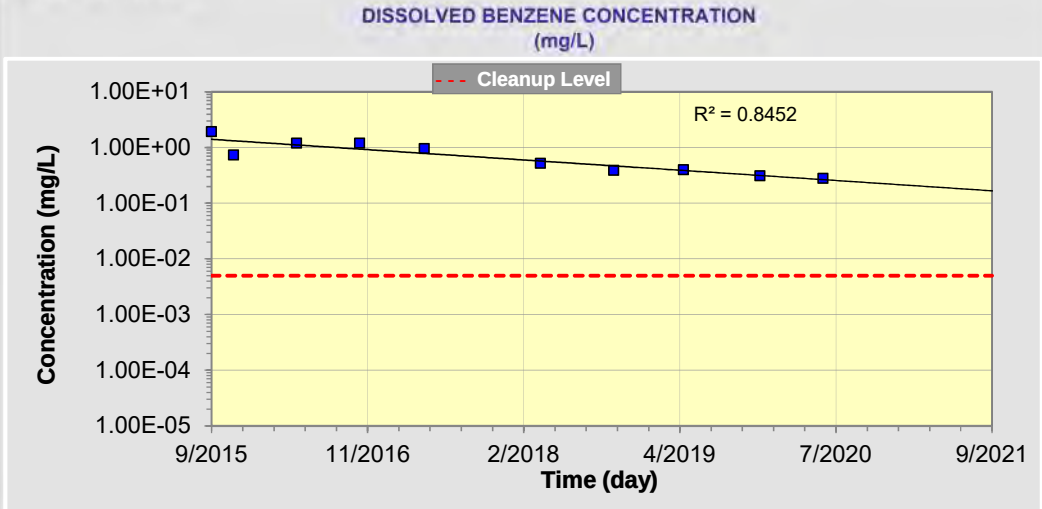
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2031**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2026** (Lower Limit on Confidence Interval) to **2041** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.56E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1904

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 0.35 | | | |
| 2 | 9/15/2015 | 0.246 | | | |
| 3 | 11/16/2015 | 0.218 | | | |
| 4 | 5/11/2016 | 0.19 | | | |
| 5 | 11/4/2016 | 0.17 | | | |
| 6 | 5/4/2017 | 0.21 | | | |
| 7 | 3/26/2018 | 0.2 | | | |
| 8 | 11/1/2018 | 0.25 | | | |
| 9 | 5/1/2019 | 0.22 | | | |
| 10 | 1/3/2020 | 0.19 | | | |
| 11 | 5/27/2020 | 0.17 | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

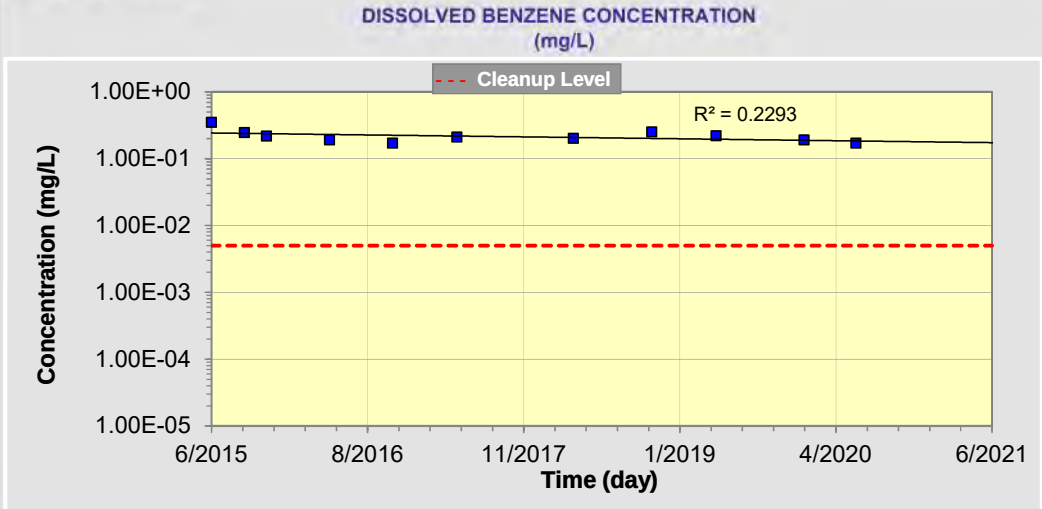
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2085**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2043** (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **5.53E-02**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1905

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 9/15/2015 | 0.11 | | | |
| 2 | 11/16/2015 | 0.0938 | | | |
| 3 | 5/11/2016 | 0.055 | 0.08 | | |
| 4 | 11/4/2016 | 0.058 | 0.064 | | |
| 5 | 5/4/2017 | 0.042 | 0.083 | | |
| 6 | 3/26/2018 | 0.028 | 0.051 | | |
| 7 | 11/7/2018 | 0.037 | 0.058 | | |
| 8 | 5/1/2019 | 0.018 | 0.057 | | |
| 9 | 1/2/2020 | 0.037 | 0.013 | | |
| 10 | 5/27/2020 | 0.018 | 0.03 | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

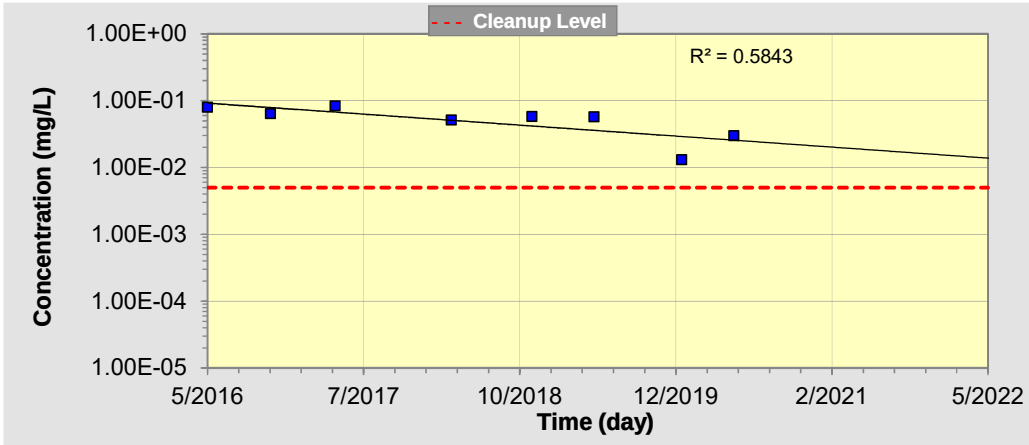
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene 0.005 (mg/L)
- ◉ **1,2 - DCA** 0.005 (mg/L)
- ○ Constituent C (mg/L)
- ○ Constituent D (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED 1,2 - DCA CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2025**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2020** (Lower Limit on Confidence Interval) to **2088** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.17E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1905

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 9/15/2015 | 0.11 | | | |
| 2 | 11/16/2015 | 0.0938 | | | |
| 3 | 5/11/2016 | 0.055 | 0.08 | | |
| 4 | 11/4/2016 | 0.058 | 0.064 | | |
| 5 | 5/4/2017 | 0.042 | 0.083 | | |
| 6 | 3/26/2018 | 0.028 | 0.051 | | |
| 7 | 11/7/2018 | 0.037 | 0.058 | | |
| 8 | 5/1/2019 | 0.018 | 0.057 | | |
| 9 | 1/2/2020 | 0.037 | 0.013 | | |
| 10 | 5/27/2020 | 0.018 | 0.03 | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

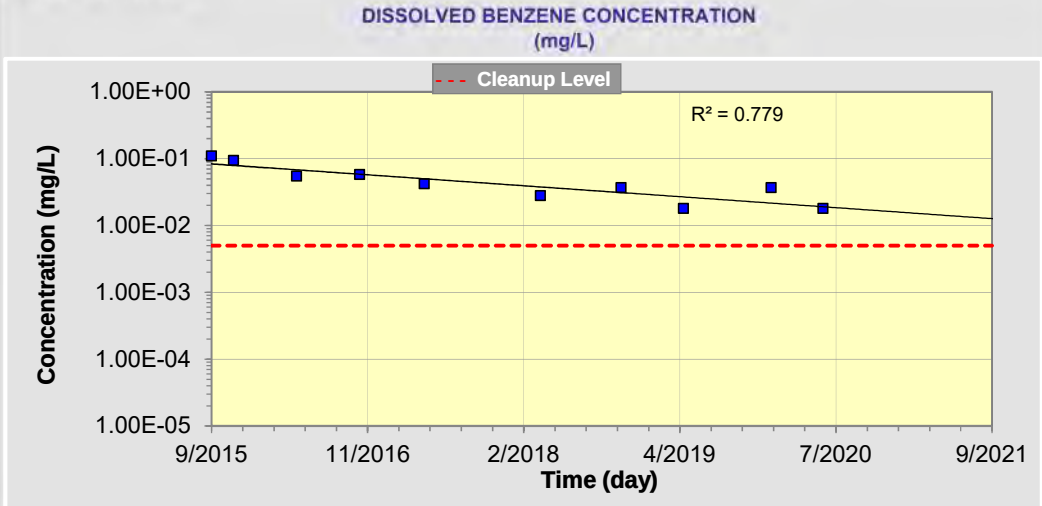
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2 - DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2024**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2021** (Lower Limit on Confidence Interval) to **2033** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.15E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1911

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| | | Benzene | | | |
| 1 | 5/11/2016 | 1 | | | |
| 2 | 11/4/2016 | 0.82 | | | |
| 3 | 5/4/2017 | 0.8 | | | |
| 4 | 3/26/2018 | 0.43 | | | |
| 5 | 11/7/2018 | 0.51 | | | |
| 6 | 5/1/2019 | 0.14 | | | |
| 7 | 1/3/2020 | 0.15 | | | |
| 8 | 5/27/2020 | 0.0057 | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

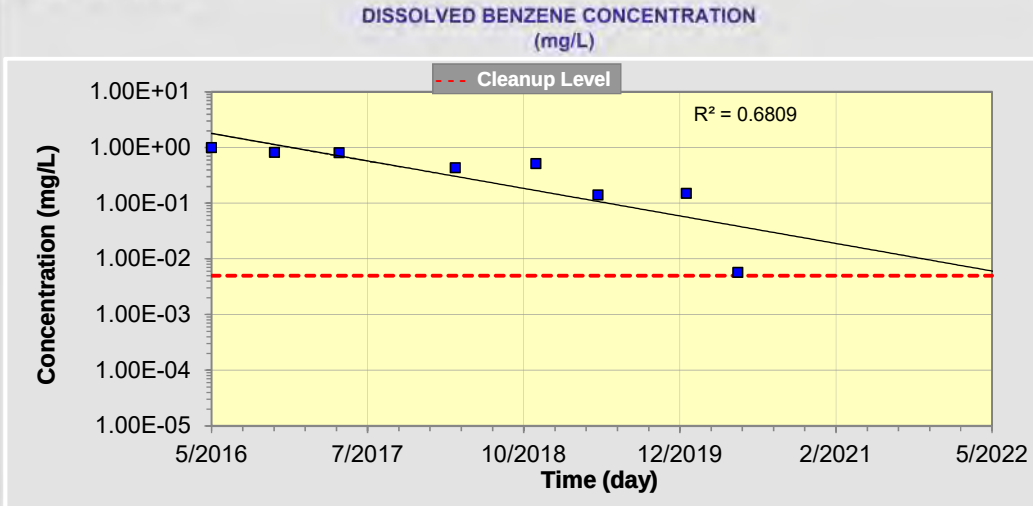
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2022**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2019** (Lower Limit on Confidence Interval) to **2041** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **9.49E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1912

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 0.727 | | | |
| 2 | 9/15/2015 | 0.688 | | | |
| 3 | 11/16/2015 | 0.54 | | | |
| 4 | 5/11/2016 | 0.57 | | | |
| 5 | 11/4/2016 | 0.43 | | | |
| 6 | 5/4/2017 | 0.25 | | | |
| 7 | 3/26/2018 | 0.18 | | | |
| 8 | 11/7/2018 | 0.14 | | | |
| 9 | 1/2/2020 | 0.066 | | | |
| 10 | 5/27/2020 | 0.052 | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

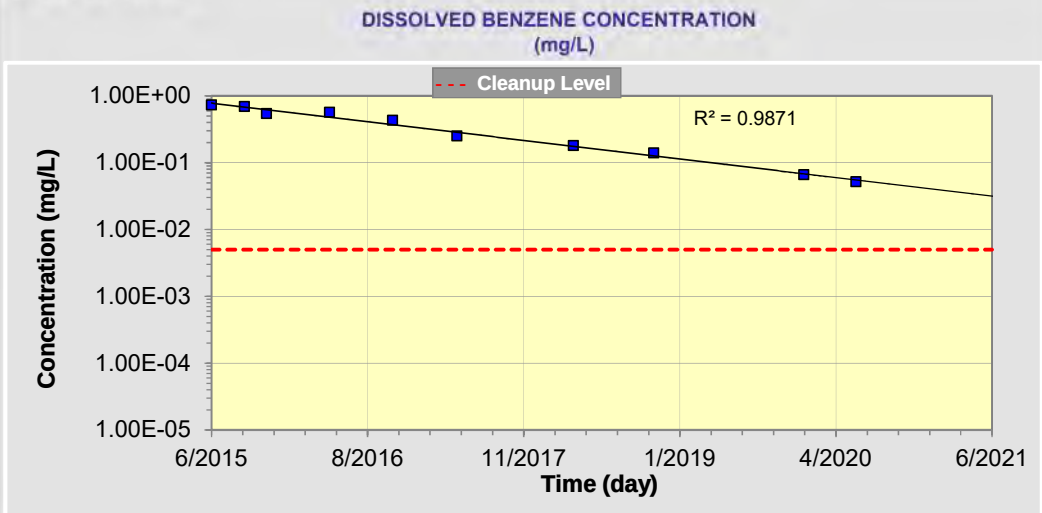
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2024**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2023** (Lower Limit on Confidence Interval) to **2026** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **5.36E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1915

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 2/26/2015 | 1.01 | 0.044 | | |
| 2 | 11/4/2016 | 0.57 | 0.043 | | |
| 3 | 5/4/2017 | 0.21 | 0.025 | | |
| 4 | 4/5/2018 | 0.078 | 0.017 | | |
| 5 | 10/29/2018 | 0.043 | 0.018 | | |
| 6 | 4/30/2019 | 0.032 | | | |
| 7 | 12/9/2019 | 0.023 | 0.011 | | |
| 8 | 5/27/2020 | 0.013 | 0.012 | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

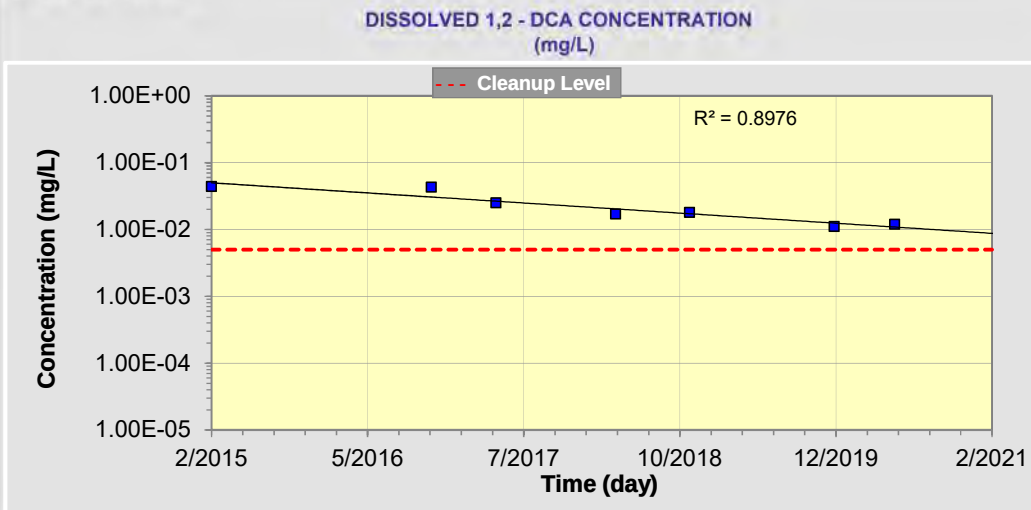
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

| | | | |
|---|---|---|---|
| ○ | Benzene | 0.005 | (mg/L) |
| ◉ | **1,2 - DCA** | 0.005 | (mg/L) |
| ○ | Constituent C | | (mg/L) |
| ○ | Constituent D | | (mg/L) |

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2023**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2019** (Lower Limit on Confidence Interval) to **2030** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.91E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1915

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 2/26/2015 | 1.01 | 0.044 | | |
| 2 | 11/4/2016 | 0.57 | 0.043 | | |
| 3 | 5/4/2017 | 0.21 | 0.025 | | |
| 4 | 4/5/2018 | 0.078 | 0.017 | | |
| 5 | 10/29/2018 | 0.043 | 0.018 | | |
| 6 | 4/30/2019 | 0.032 | | | |
| 7 | 12/9/2019 | 0.023 | 0.011 | | |
| 8 | 5/27/2020 | 0.013 | 0.012 | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

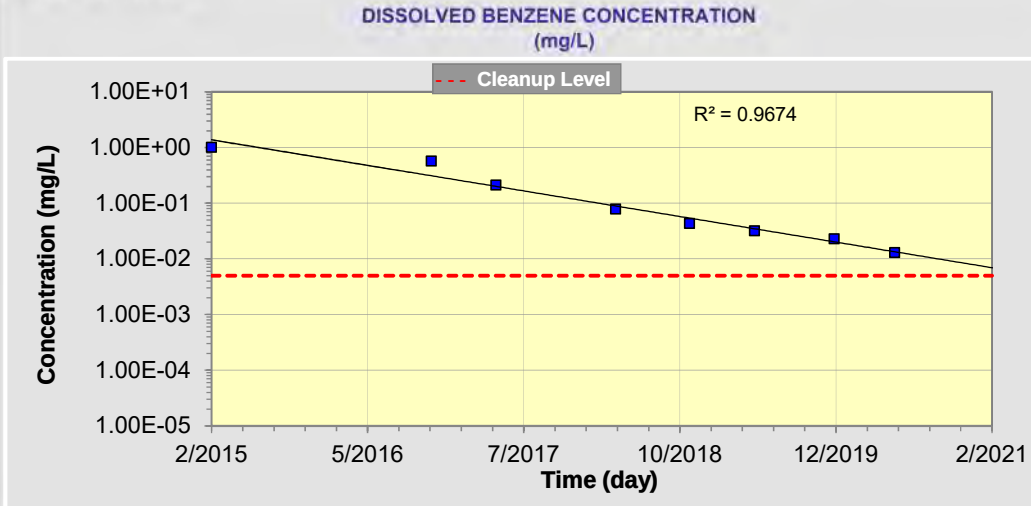
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

| | | | |
|---|---|---|---|
| ◉ | Benzene | 0.005 | (mg/L) |
| ○ | 1,2 - DCA | 0.005 | (mg/L) |
| ○ | Constituent C | | (mg/L) |
| ○ | Constituent D | | (mg/L) |

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2021**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2019** (Lower Limit on Confidence Interval) to **2023** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **8.83E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1921

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 0.417 | | | |
| 2 | 9/15/2015 | 0.174 | | | |
| 3 | 11/16/2015 | 0.187 | | | |
| 4 | 5/11/2016 | 0.12 | | | |
| 5 | 11/4/2016 | 0.17 | | | |
| 6 | 5/17/2017 | 0.1 | | | |
| 7 | 4/5/2018 | 0.044 | | | |
| 8 | 10/29/2018 | 0.002 | | | |
| 9 | 12/9/2019 | 0.01 | | | |
| 10 | 5/27/2020 | 0.024 | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

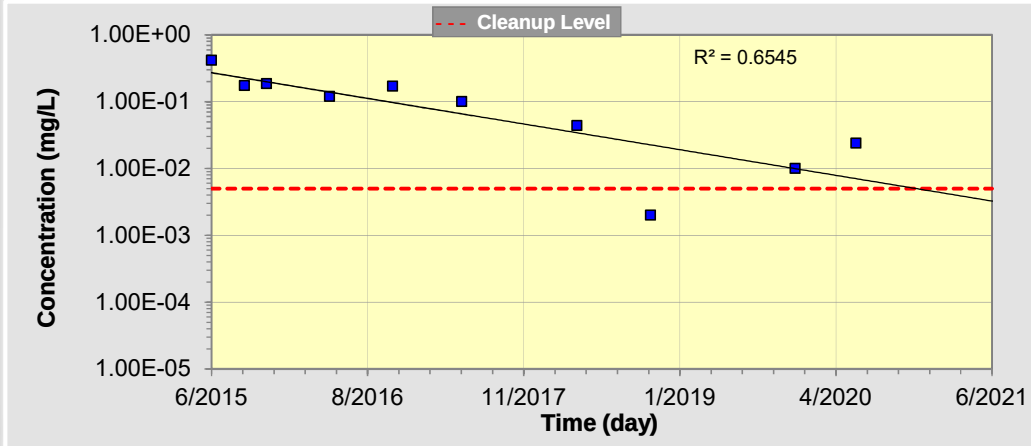
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED BENZENE CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2020**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2017** (Lower Limit on Confidence Interval) to **2032** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **7.38E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1924

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 6.32 | 0.271 | | |
| 2 | 9/15/2015 | 3.9 | 0.189 | | |
| 3 | 11/16/2015 | 2.45 | 0.129 | | |
| 4 | 5/11/2016 | 2.2 | 0.13 | | |
| 5 | 11/4/2016 | 2.8 | 0.2 | | |
| 6 | 5/4/2017 | 2.6 | 0.18 | | |
| 7 | 3/26/2018 | 1.6 | 0.14 | | |
| 8 | 10/29/2018 | 2.1 | 0.11 | | |
| 9 | 5/1/2019 | 1.1 | 0.089 | | |
| 10 | 12/9/2019 | 1.6 | 0.073 | | |
| 11 | 5/27/2020 | 1.5 | 0.11 | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

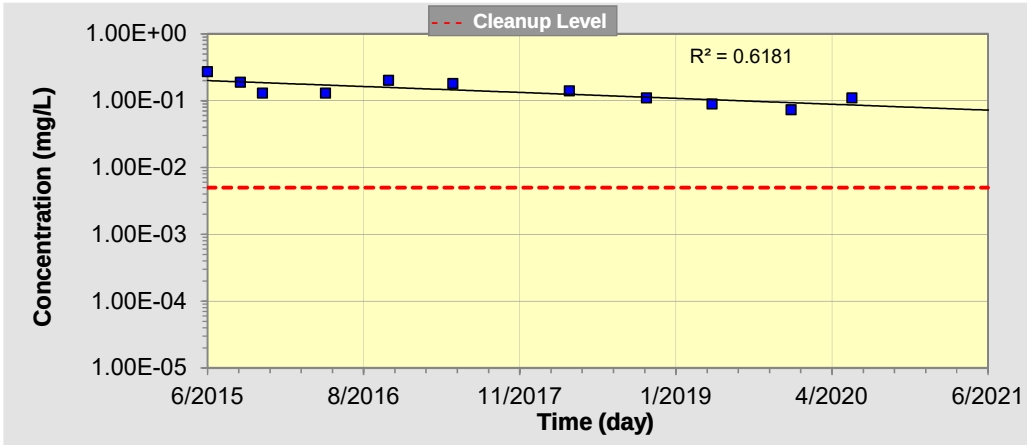
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene 0.005 (mg/L)
- ◉ **1,2 - DCA** 0.005 (mg/L)
- ○ Constituent C (mg/L)
- ○ Constituent D (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED 1,2 - DCA CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2037**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2028** (Lower Limit on Confidence Interval) to **2072** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.70E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1924

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 6.32 | 0.271 | | |
| 2 | 9/15/2015 | 3.9 | 0.189 | | |
| 3 | 11/16/2015 | 2.45 | 0.129 | | |
| 4 | 5/11/2016 | 2.2 | 0.13 | | |
| 5 | 11/4/2016 | 2.8 | 0.2 | | |
| 6 | 5/4/2017 | 2.6 | 0.18 | | |
| 7 | 3/26/2018 | 1.6 | 0.14 | | |
| 8 | 10/29/2018 | 2.1 | 0.11 | | |
| 9 | 5/1/2019 | 1.1 | 0.089 | | |
| 10 | 12/9/2019 | 1.6 | 0.073 | | |
| 11 | 5/27/2020 | 1.5 | 0.11 | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

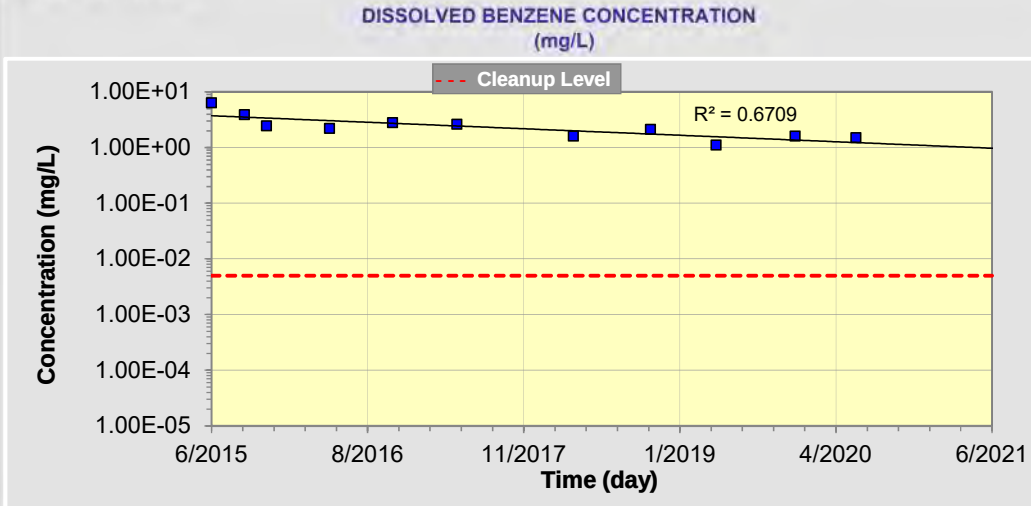
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2 - DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2044**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2033** (Lower Limit on Confidence Interval) to **2081** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.24E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1925

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 11/16/2015 | 3.28 | 0.079 | | |
| 2 | 5/11/2016 | 2.1 | 0.053 | | |
| 3 | 11/4/2016 | 1.8 | 0.06 | | |
| 4 | 5/4/2017 | 0.43 | 0.042 | | |
| 5 | 3/26/2018 | 0.32 | 0.026 | | |
| 6 | 10/29/2018 | 0.47 | 0.022 | | |
| 7 | 5/1/2019 | 0.19 | 0.029 | | |
| 8 | 12/9/2020 | 0.023 | 0.011 | | |
| 9 | 5/27/2020 | 0.025 | 0.018 | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

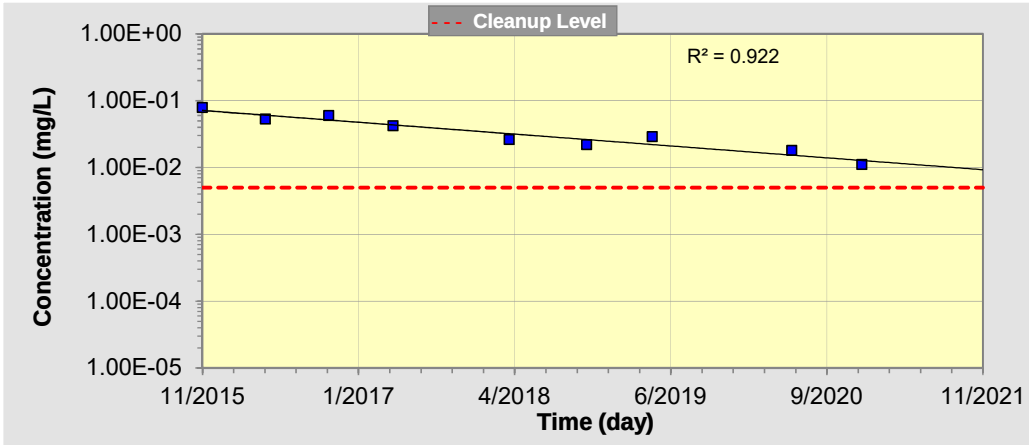
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene 0.005 (mg/L)
- ◉ **1,2 - DCA** 0.005 (mg/L)
- ○ Constituent C (mg/L)
- ○ Constituent D (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED 1,2 - DCA CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2023**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2021** (Lower Limit on Confidence Interval) to **2027** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.41E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1925

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 11/16/2015 | 3.28 | 0.079 | | |
| 2 | 5/11/2016 | 2.1 | 0.053 | | |
| 3 | 11/4/2016 | 1.8 | 0.06 | | |
| 4 | 5/4/2017 | 0.43 | 0.042 | | |
| 5 | 3/26/2018 | 0.32 | 0.026 | | |
| 6 | 10/29/2018 | 0.47 | 0.022 | | |
| 7 | 5/1/2019 | 0.19 | 0.029 | | |
| 8 | 12/9/2020 | 0.023 | 0.011 | | |
| 9 | 5/27/2020 | 0.025 | 0.018 | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

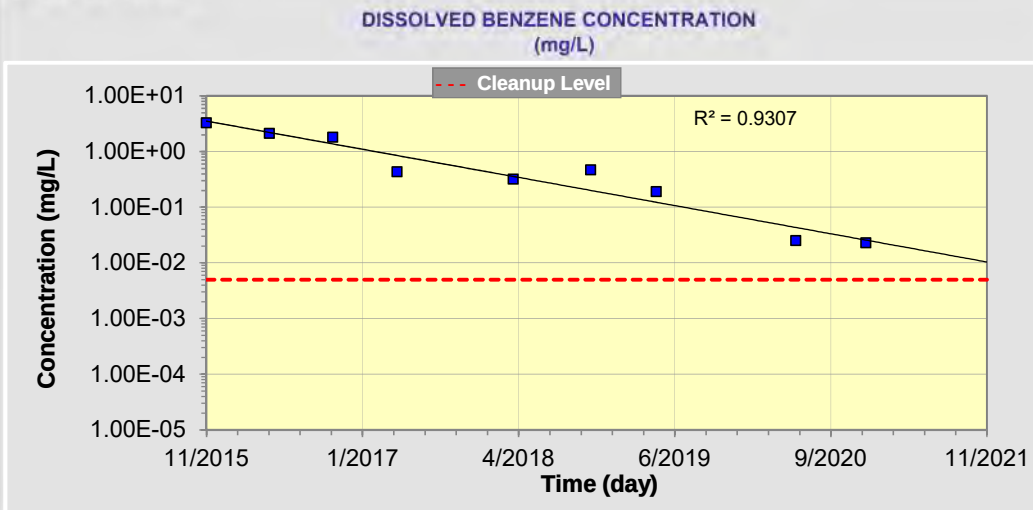
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2 - DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2022**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2020** (Lower Limit on Confidence Interval) to **2025** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **9.72E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1939 (after PlumeStop injection)

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A 1,2-DCA | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 11/19/2019 | 0.073 | | | |
| 2 | 1/22/2020 | 0.059 | | | |
| 3 | 2/6/2020 | 0.069 | | | |
| 4 | 2/20/2020 | 0.06 | | | |
| 5 | 3/5/2020 | 0.064 | | | |
| 6 | 3/19/2020 | 0.055 | | | |
| 7 | 4/2/2020 | 0.052 | | | |
| 8 | 5/5/2020 | 0.05 | | | |
| 9 | 6/2/2020 | 0.05 | | | |
| 10 | 7/3/2020 | 0.066 | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

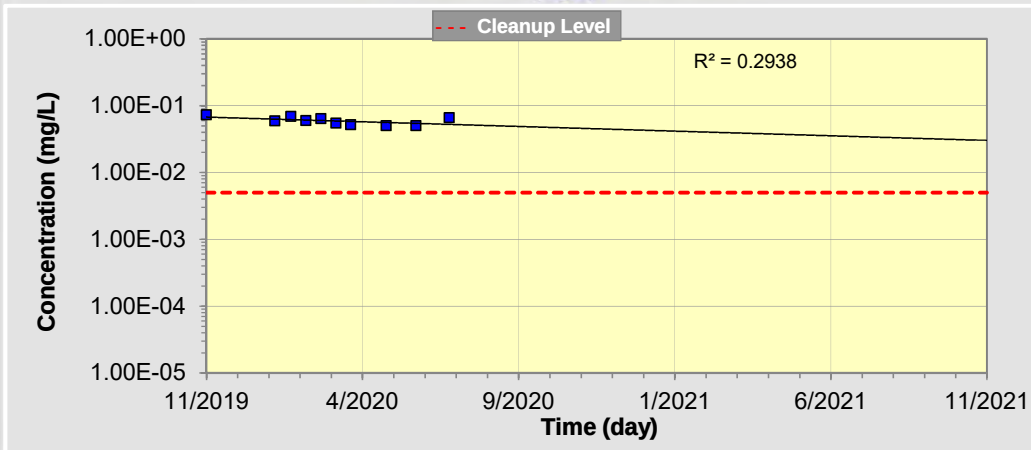
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) 1,2-DCA — 0.005 (mg/L)
- ( ) Constituent B — (mg/L)
- ( ) Constituent C — (mg/L)
- ( ) Constituent D — (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 2 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2026**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2022** (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **4.02E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1939 (before PlumeStop injections)

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A 1,2-DCA | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 8/5/2016 | 0.22 | | | |
| 2 | 9/16/2016 | 0.18 | | | |
| 3 | 10/13/2016 | 0.18 | | | |
| 4 | 11/2/2016 | 0.21 | | | |
| 5 | 12/21/2016 | 0.19 | | | |
| 6 | 1/6/2017 | 0.17 | | | |
| 7 | 3/9/2017 | 0.18 | | | |
| 8 | 4/19/2017 | 0.14 | | | |
| 9 | 5/10/2017 | 0.17 | | | |
| 10 | 3/27/2018 | 0.15 | | | |
| 11 | 10/10/2018 | 0.12 | | | |
| 12 | 5/10/2019 | 0.099 | | | |
| 13 | 12/12/2019 | 0.073 | | | |
| 14 | | | | | |
| 15 | | | | | |

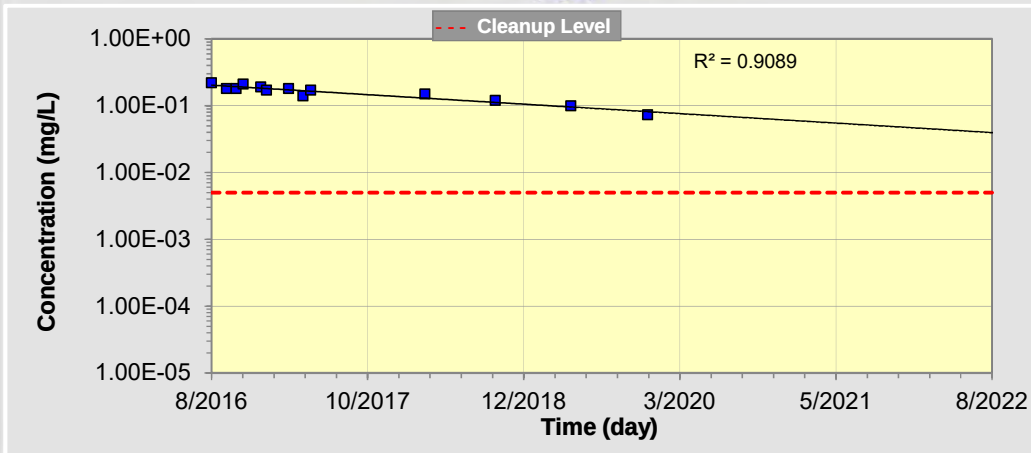
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **1,2-DCA** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2030**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2027** (Lower Limit on Confidence Interval) to **2034** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.73E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1967

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 0.276 | | | |
| 2 | 9/15/2015 | 0.225 | | | |
| 3 | 11/16/2015 | 0.275 | | | |
| 4 | 5/11/2016 | 0.24 | 0.046 | | |
| 5 | 11/4/2016 | 0.21 | 0.04 | | |
| 6 | 5/4/2017 | 0.2 | 0.041 | | |
| 7 | 3/26/2018 | 0.16 | 0.028 | | |
| 8 | 10/18/2018 | 0.13 | 0.028 | | |
| 9 | 5/1/2019 | 0.12 | 0.026 | | |
| 10 | 12/2/2019 | 0.086 | 0.027 | | |
| 11 | 5/27/2020 | 0.073 | 0.023 | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

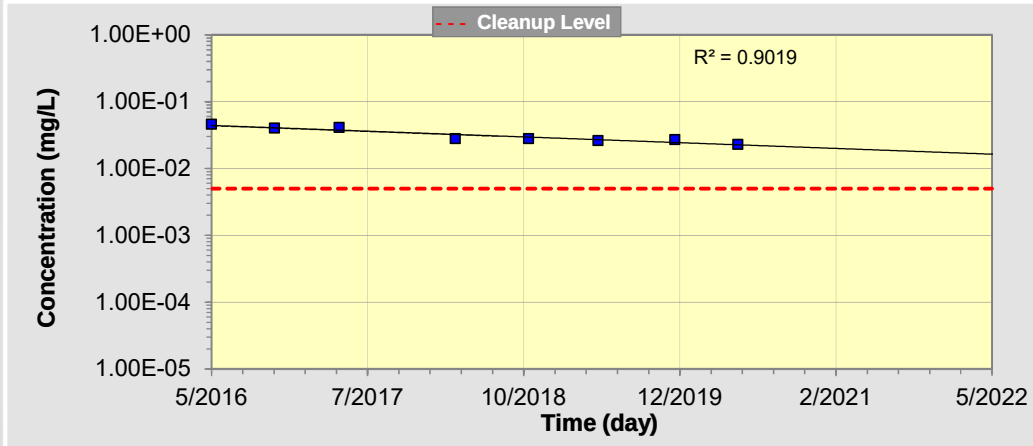
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene 0.005 (mg/L)
- ◉ **1,2 - DCA** 0.005 (mg/L)
- ○ Constituent C (mg/L)
- ○ Constituent D (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED 1,2 - DCA CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2029**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2025** (Lower Limit on Confidence Interval) to **2037** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.65E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1967

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2 - DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | 0.276 | | | |
| 2 | 9/15/2015 | 0.225 | | | |
| 3 | 11/16/2015 | 0.275 | | | |
| 4 | 5/11/2016 | 0.24 | 0.046 | | |
| 5 | 11/4/2016 | 0.21 | 0.04 | | |
| 6 | 5/4/2017 | 0.2 | 0.041 | | |
| 7 | 3/26/2018 | 0.16 | 0.028 | | |
| 8 | 10/18/2018 | 0.13 | 0.028 | | |
| 9 | 5/1/2019 | 0.12 | 0.026 | | |
| 10 | 12/2/2019 | 0.086 | 0.027 | | |
| 11 | 5/27/2020 | 0.073 | 0.023 | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

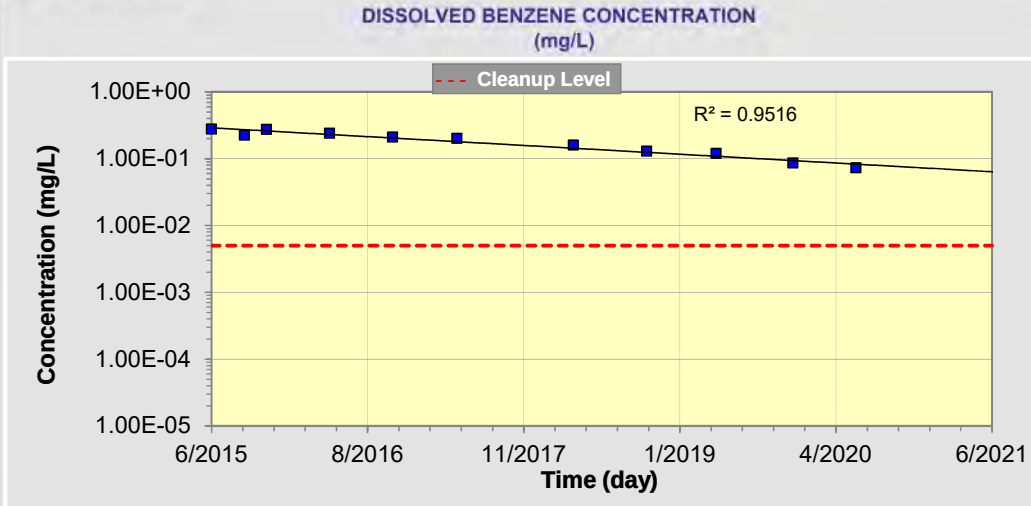
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2 - DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2031**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2028** (Lower Limit on Confidence Interval) to **2035** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.53E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1971

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 11/16/2015 | 0.108 | | | |
| 2 | 5/11/2016 | 0.042 | | | |
| 3 | 11/4/2016 | 0.05 | | | |
| 4 | 5/4/2017 | 0.034 | | | |
| 5 | 3/26/2018 | 0.031 | | | |
| 6 | 10/18/2018 | 0.027 | | | |
| 7 | 5/1/2019 | 0.021 | | | |
| 8 | 12/2/2019 | 0.02 | | | |
| 9 | 5/27/2020 | 0.0099 | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

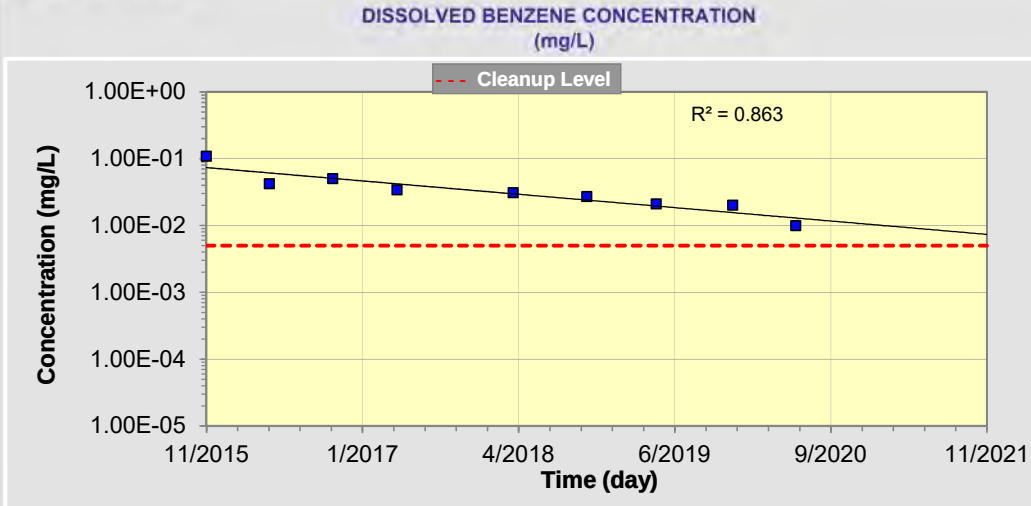
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2022**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2020** (Lower Limit on Confidence Interval) to **2028** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **3.84E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** BH1974

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A 1,2-DCA | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 11/16/2015 | 0.083 | | | |
| 2 | 5/11/2016 | 0.051 | | | |
| 3 | 11/4/2016 | 0.098 | | | |
| 4 | 5/4/2017 | 0.032 | | | |
| 5 | 3/26/2018 | 0.058 | | | |
| 6 | 10/18/2018 | 0.023 | | | |
| 7 | 5/1/2019 | 0.039 | | | |
| 8 | 12/2/2019 | 0.04 | | | |
| 9 | 5/27/2020 | 0.024 | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

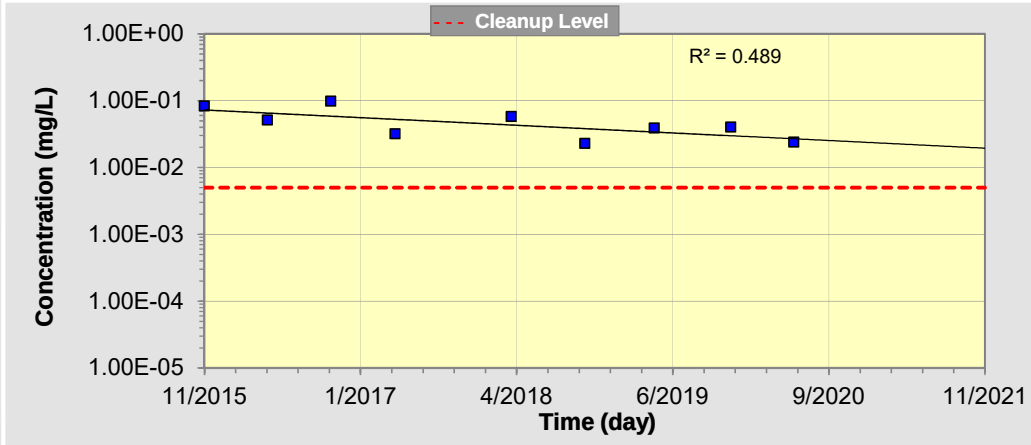
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) 1,2-DCA 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED 1,2-DCA CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2028**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

- ( ) 90 % Confidence Interval
- (●) 95 % Confidence Interval

**2020** (Lower Limit on Confidence Interval) to **2185** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.20E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX2

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| | | Benzene | | | |
| 1 | 6/15/2015 | 2.01 | | | |
| 2 | 9/15/2015 | 1.95 | | | |
| 3 | 11/16/2015 | 1.75 | | | |
| 4 | 5/11/2016 | 1.1 | | | |
| 5 | 11/4/2016 | 0.97 | | | |
| 6 | 5/4/2017 | 0.19 | | | |
| 7 | 3/26/2018 | 0.47 | | | |
| 8 | 10/18/2018 | 0.41 | | | |
| 9 | 5/1/2019 | 0.2 | | | |
| 10 | 12/2/2019 | 0.11 | | | |
| 11 | 5/27/2020 | 0.17 | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

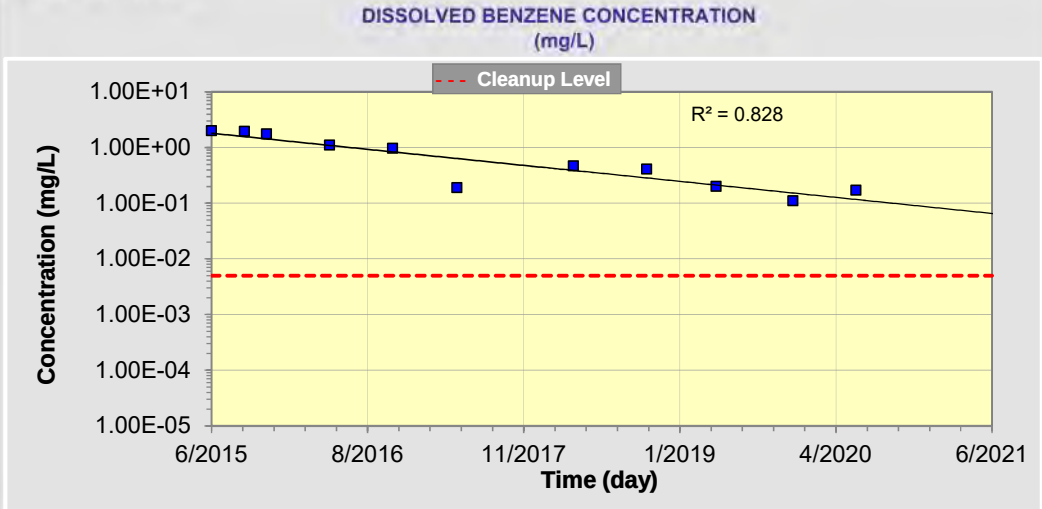
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2026**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2022** (Lower Limit on Confidence Interval) to **2033** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **5.54E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX4

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2-DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 5/11/2016 | 2.5 | 0.038 | | |
| 2 | 11/4/2016 | 1.3 | 0.024 | | |
| 3 | 5/4/2017 | 0.7 | 0.031 | | |
| 4 | 3/26/2018 | 0.47 | 0.015 | | |
| 5 | 10/18/2018 | 0.26 | 0.014 | | |
| 6 | 5/1/2019 | 0.49 | 0.012 | | |
| 7 | 12/2/2019 | 0.22 | 0.0094 | | |
| 8 | 5/27/2020 | 0.29 | 0.014 | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Print Historical Data

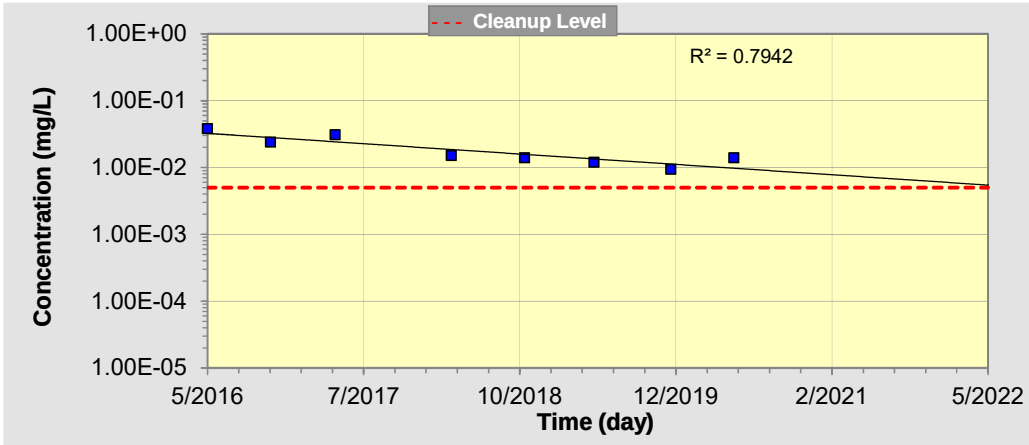
## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene — 0.005 (mg/L)
- ◉ **1,2-DCA** — 0.005 (mg/L)
- ○ Constituent C — (mg/L)
- ○ Constituent D — (mg/L)

## 3. OUTPUT GRAPH

DISSOLVED 1,2-DCA CONCENTRATION (mg/L)




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2022**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2019** (Lower Limit on Confidence Interval) to **2031** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.97E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX4

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2-DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 5/11/2016 | 2.5 | 0.038 | | |
| 2 | 11/4/2016 | 1.3 | 0.024 | | |
| 3 | 5/4/2017 | 0.7 | 0.031 | | |
| 4 | 3/26/2018 | 0.47 | 0.015 | | |
| 5 | 10/18/2018 | 0.26 | 0.014 | | |
| 6 | 5/1/2019 | 0.49 | 0.012 | | |
| 7 | 12/2/2019 | 0.22 | 0.0094 | | |
| 8 | 5/27/2020 | 0.29 | 0.014 | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

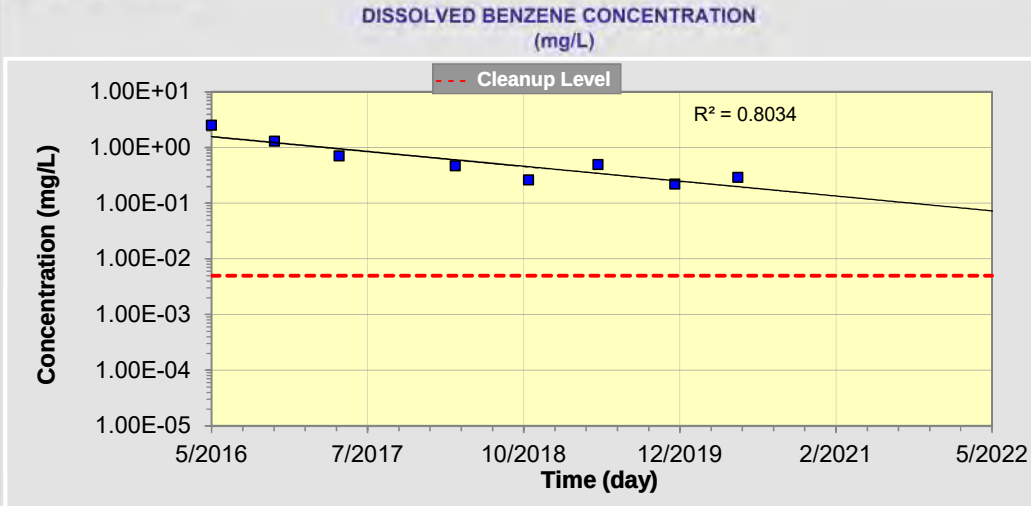
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2-DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2027**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2023** (Lower Limit on Confidence Interval) to **2040** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **5.13E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX5

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2-DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 5/11/2016 | 7.4 | 0.25 | | |
| 2 | 11/4/2016 | 2.6 | 0.1 | | |
| 3 | 5/4/2017 | 3.7 | 0.11 | | |
| 4 | 3/26/2018 | 2.7 | 0.086 | | |
| 5 | 10/18/2018 | 2.3 | 0.054 | | |
| 6 | 5/1/2019 | 1.8 | | | |
| 7 | 12/2/2019 | 2.2 | 0.068 | | |
| 8 | 5/27/2020 | 2.5 | 0.068 | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

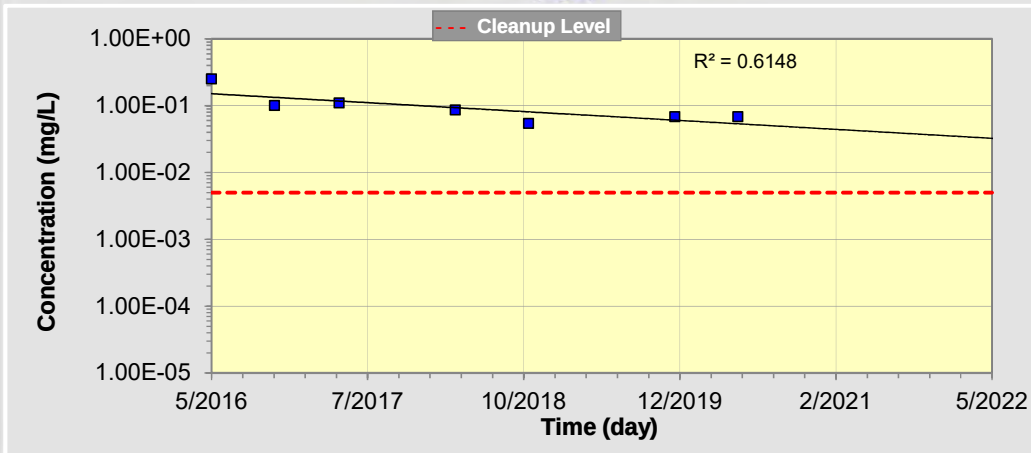
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene 0.005 (mg/L)
- ◉ **1,2-DCA** 0.005 (mg/L)
- ○ Constituent C (mg/L)
- ○ Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2029**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2022** (Lower Limit on Confidence Interval) to **2188** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.57E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX5

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2-DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 5/11/2016 | 7.4 | 0.25 | | |
| 2 | 11/4/2016 | 2.6 | 0.1 | | |
| 3 | 5/4/2017 | 3.7 | 0.11 | | |
| 4 | 3/26/2018 | 2.7 | 0.086 | | |
| 5 | 10/18/2018 | 2.3 | 0.054 | | |
| 6 | 5/1/2019 | 1.8 | | | |
| 7 | 12/2/2019 | 2.2 | 0.068 | | |
| 8 | 5/27/2020 | 2.5 | 0.068 | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

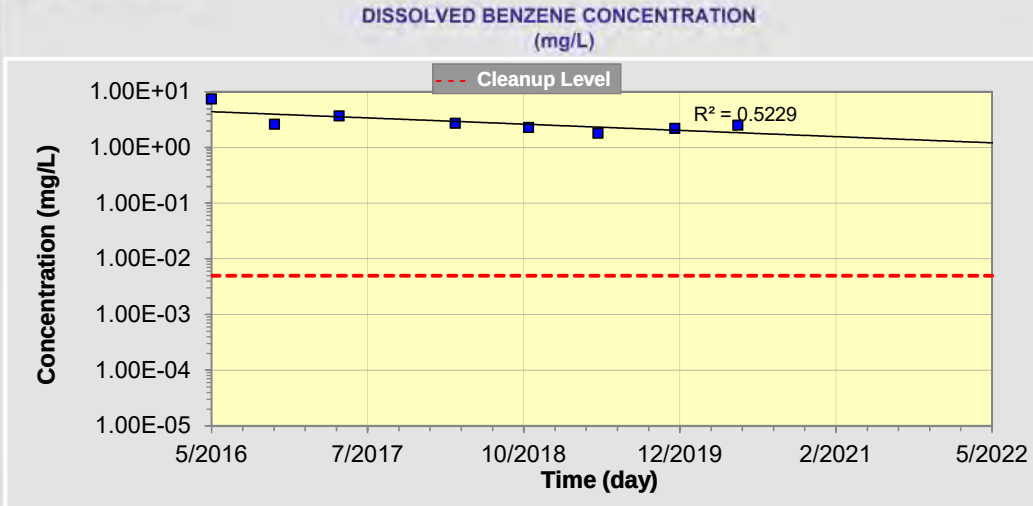
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2-DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2047**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2031** (Lower Limit on Confidence Interval) to **> 500 years** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **2.15E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX6

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2-DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | | 0.056 | | |
| 2 | 9/15/2015 | 0.497 | 0.047 | | |
| 3 | 11/16/2015 | 0.414 | 0.04 | | |
| 4 | 5/11/2016 | 0.42 | 0.056 | | |
| 5 | 11/4/2016 | 0.35 | 0.054 | | |
| 6 | 5/4/2017 | 0.32 | 0.051 | | |
| 7 | 3/26/2018 | 0.13 | 0.021 | | |
| 8 | 10/18/2018 | 0.29 | 0.031 | | |
| 9 | 5/1/2019 | 2.2 | 0.025 | | |
| 10 | 12/2/2019 | 0.25 | 0.025 | | |
| 11 | 5/27/2020 | 0.22 | 0.021 | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

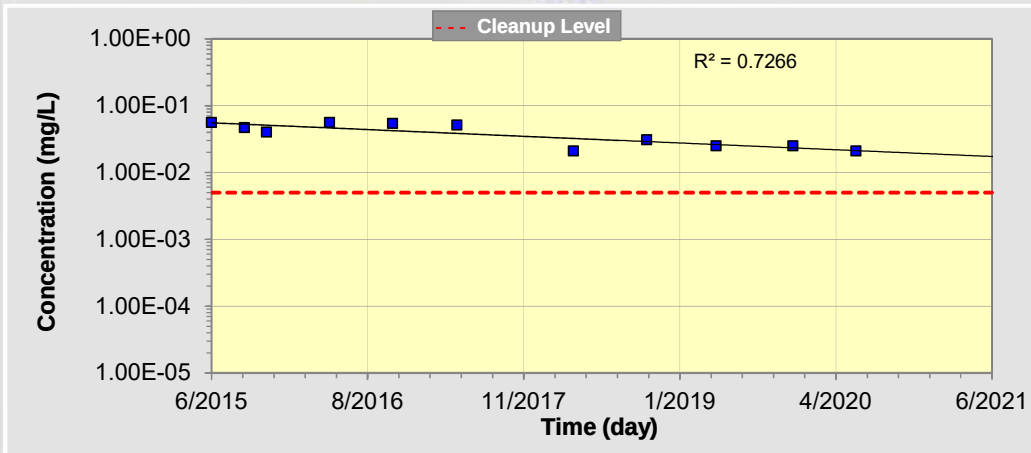
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- ○ Benzene 0.005 (mg/L)
- ◉ **1,2-DCA** 0.005 (mg/L)
- ○ Constituent C (mg/L)
- ○ Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2027**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

○ 90 % Confidence Interval
◉ 95 % Confidence Interval

**2023** (Lower Limit on Confidence Interval) to **2040** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.94E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX6

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A Benzene | Constituent B 1,2-DCA | Constituent C | Constituent D |
|---|---|---|---|---|---|
| 1 | 6/15/2015 | | 0.056 | | |
| 2 | 9/15/2015 | 0.497 | 0.047 | | |
| 3 | 11/16/2015 | 0.414 | 0.04 | | |
| 4 | 5/11/2016 | 0.42 | 0.056 | | |
| 5 | 11/4/2016 | 0.35 | 0.054 | | |
| 6 | 5/4/2017 | 0.32 | 0.051 | | |
| 7 | 3/26/2018 | 0.13 | 0.021 | | |
| 8 | 10/18/2018 | 0.29 | 0.031 | | |
| 9 | 5/1/2019 | 2.2 | 0.025 | | |
| 10 | 12/2/2019 | 0.25 | 0.025 | | |
| 11 | 5/27/2020 | 0.22 | 0.021 | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

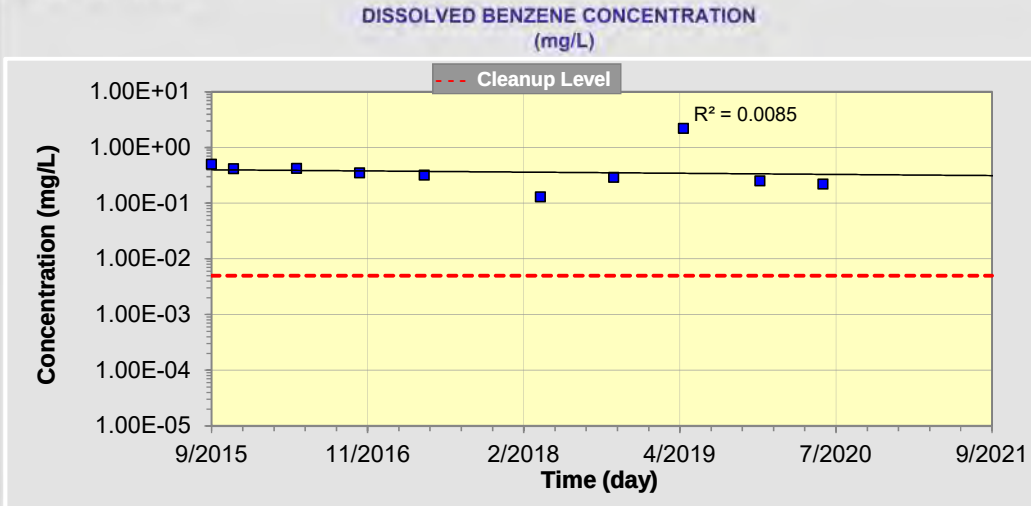
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) 1,2-DCA 0.005 (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2125**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

( ) 90 % Confidence Interval
(●) 95 % Confidence Interval

**2024** (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **4.00E-02**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# SourceDK TIER 1 Empirical Data

**Remediation Timeframe Decision Support System**

*Air Force Center for Engineering and Environment* *Version 2.0*

**Site Location and I.D.:** EX7

**Constituent of Interest:**

***Data Input Instructions:***

10.80 → *Enter value directly.*

10.80 → *Value calculated by model. (Don't enter any data).*

## 1. ENTER CONSTITUENT NAME AND HISTORICAL DATA

Concentration mg/L

| | Date (mm/dd/yy) | Constituent A | Constituent B | Constituent C | Constituent D |
|---|---|---|---|---|---|
| | | Benzene | | | |
| 1 | 11/16/2015 | 3.86 | | | |
| 2 | 5/11/2016 | 2.6 | | | |
| 3 | 11/4/2016 | 2.8 | | | |
| 4 | 5/4/2017 | 2.5 | | | |
| 5 | 3/26/2018 | 2.8 | | | |
| 6 | 10/18/2018 | 1.9 | | | |
| 7 | 5/1/2019 | 1.3 | | | |
| 8 | 12/2/2019 | 3.6 | | | |
| 9 | 5/27/2020 | 1 | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

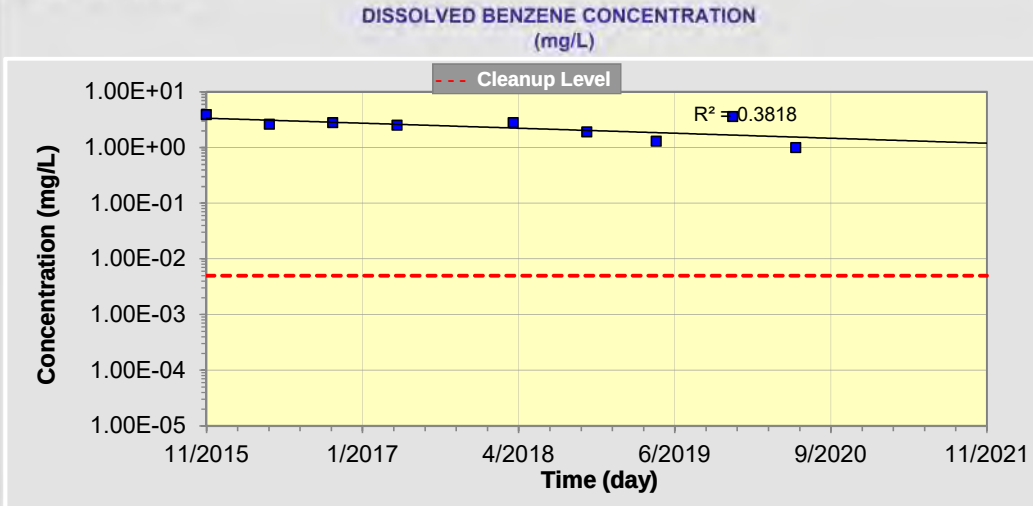
Print Historical Data

## 2. WHICH CONSTITUENT TO PLOT?

*What is the cleanup level?*

- (●) **Benzene** 0.005 (mg/L)
- ( ) Constituent B (mg/L)
- ( ) Constituent C (mg/L)
- ( ) Constituent D (mg/L)

## 3. OUTPUT GRAPH




Number of Years Over Which to Plot Graph 6 (yr) Update Graph

## 4. RESULTS

Predicted Date to Achieve Cleanup: **2053**

Confidence Interval on Predicted Cleanup Date:
(at least 3 data points needed to calculate confidence intervals)

- ( ) 90 % Confidence Interval
- (●) 95 % Confidence Interval

**2032** (Lower Limit on Confidence Interval) to **Can't Calc (+ve Trend)** (Upper Limit on Confidence Interval)

Source Decay Rate Constant (1/year): **1.73E-01**
(positive numbers represent shrinking plumes while negative numbers represent expanding plumes)

Return To Main Screen | New Site/Clear Screen | Paste Example Data Set | HELP

# Appendix E
## Record of Site Condition Form

Clifton

# Record of Site Condition

## 1 REPORT AND FORM INFORMATION

| | | | |
|---|---|---|---|
| Title of report | 2020 May and June Groundwater Monitoring and Sampling Report | | |
| Report date (*dd-mon-yyyy*) | 18 November-2020 | Record of Site Condition (RSC) ID No.Ψ | |

## 2 SITE IDENTIFICATION AND PHYSICAL LOCATION

| | | | |
|---|---|---|---|
| **2.1 Site name** | North Hill Mall and Hounsfield Heights | | |
| **2.2 Address of site** | | | |
| | **Municipality** | Calgary | **Alberta** |

**2.3 Legal land description of site** *(if multiple, list all.)*

| Plan, Block, Lot (PBL) | | | Alberta Township System (ATS) | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plan | Block | Lot | LSD | Quarter | Section | Township | Range | Meridian |
| | | | | NE | 20 | 24 | 01 | W5M |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

## 3 STAKEHOLDERS

**3.1 Operator**

| | | | |
|---|---|---|---|
| Company | BentallGreenOak, City of Calgary, Concord North Hill GP Ltd. | Contact person | BGO - David Mclean; CoC - Tyson Allan; Concord - Calvin Chan |
| Mailing address | BGO - Suite 1300, 112 4th Ave SW, T2P 0H3<br>CoC - PO Box 2100, Station M, T2P 2M5 | Position held | BOG - VP Asset Mgmt; CoC - Environmental Specialist; concord - Project Manager |
| | | Business phone No. | BGO-403 542-4739; CoC - 403-268-1933 |
| | | Business fax No. | |
| | | Business e-mail | david.mclean@bentallgreenoak.com; tyson.allan@calgary.ca ; calvin.chan@concordpacific.com |

**3.2 Consultant** ☐ Not applicable

| | | | |
|---|---|---|---|
| Company | Clifton Engineering Group Inc. | Contact person | Stephen d'Abadie |
| Mailing address | **2222-30th Avenue NE, Calgary, AB T2E 7K9** | Position held | Project Manager |
| | | Business phone No. | 403-263-2556 |
| | | Business fax No. | 403-234-9033 |
| | | Business e-mail | stephen_dabadie@clifton.ca |

**3.3 Landowner(s)**

| | | | | |
|---|---|---|---|---|
| Land type | ☒ Private | ☐ Special Areas | ☐ Parks and protected area | ☒ Public |

| | |
|---|---|
| | (*if not private, provide Disposition No.: _____*) |
| Landowner(s) | ☒ Same as operator ☐ Other |

Ψ: Do not fill in. Reserved for internal administrative purposes only.

| 3.4 Occupant(s) | | | |
|---|---|---|---|
| **Are there occupants at the site?** | ☒ Yes | ☐ No | ☐ To be determined (TBD) |
| **Occupant(s)** | ☐ Same as operator | ☒ Same as landowner | ☒ Other |
| **What is the type of occupancy?** | ☐ Apartment building | ☐ Town house | ☒ Single detached house |
| | ☐ Agricultural | ☐ Industrial | ☒ Commercial |
| | ☐ Other (*specify*) _____ | | |

## 4 OPERATING STATUS

☐ Operating ☐ Suspended ☐ Abandoned ☐ Decommissioning in progress ☐ Closed
☐ Reclaimed (*provide Reclamation Certificate No.(s): _____*) ☒ Not applicable

## 5 TYPE OF ACTIVITY AND SITE

**5.1 Petroleum Storage Tank Site** ☐ Yes

| | | | |
|---|---|---|---|
| **5.1.1 ESRD file No.(s)** | | PTMAA site No. | |

**5.1.2 Types of activity**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ | Retail gas station | ☐ | Aviation fuelling station | ☐ | Bulk fuel | ☐ | Other (*specify*): _____ |

**5.2 Upstream Oil and Gas Facility** ☐ Yes

| | | | |
|---|---|---|---|
| **5.2.1 ESRD file No.(s)** | | **AER approval No.(s)** | |

**5.2.2 AER authorization type** ☐ Approval ☐ License ☐ Permit ☐ Order ☐ Other (*specify*)_____

**5.2.3 Types of activity**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ | Wellsite and associated facility | ☐ | Satellite | ☐ | Battery | ☐ | Pipeline |
| ☐ | Compressor and pumping station | ☐ | Other (*specify*): _____ | | | | |

**5.3 Approved Facility Under Environmental Protection and Enhancement Act (EPEA)** ☐ Yes

| | | | |
|---|---|---|---|
| **5.3.1 ESRD approval No.(s)** | | **AER approval No.(s)** | |

**5.3.2 Types of approved activity**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ | Chemical manufacturing plant | ☐ | Enhanced recovery in-situ oil sands or heavy oil processing plant | ☐ | Fertilizer manufacturing plant | ☐ | Landfill |
| ☐ | Metal manufacturing plant | ☐ | Oil refinery | ☐ | Oilsands processing plant | ☐ | Oil production site |
| ☐ | Pesticide manufacturing plant | ☐ | Petrochemical manufacturing plant | ☐ | Pipeline | ☐ | Power plant |
| ☐ | Pulp and paper processing plant | ☐ | Sour gas processing plant | ☐ | Sulphur manufacturing or processing plant | ☐ | Waste management facility |

| | | | |
|---|---|---|---|
| ☐ | Wood treatment plant | ☐ | Other *(specify)*: _____ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **5.4 Facility Under EPEA Code of Practice** | | | | ☐ Yes | | | |
| **5.4.1 ESRD registration No.(s)** | | | | **AER registration No.(s)** | | | |
| **5.4.2 Type of Code of Practice** | | | | | | | |
| ☐ | Asphalt paving plant | ☐ | Compressor and pumping station | ☐ | Concrete producing plant | ☐ | Landfill |
| ☐ | Pesticides | ☐ | Pipeline | ☐ | Land treatment of soils containing hydrocarbons | ☐ | Sand and gravel pit |
| ☐ | Small incinerator | ☐ | Sweet gas processing plant | ☐ | Other *(specify)*: _____ | | |

| | | | | | |
|---|---|---|---|---|---|
| **5.5 Other Activity** | | ☐ Yes | | | |
| **5.5.1 ESRD file No.(s)** | 00141934 | Other site ID No.(s) | | Authorized by | |
| **5.5.2 Types of activity** | | | | | |
| ☐ | Dry cleaning operation | ☐ | Highway maintenance yard | ☐ | Transportation |
| ☐ | Other *(specify)*: Shopping center, public park, residential community | | | | |

## 6 SITE CHARACTERIZATION

### 6.1 What Environmental Site Assessments (ESA) Have Been Conducted and Completed to Date?

☐ Phase I ESA

☒ Phase II ESA (*check all that apply.*)

☒ Initial intrusive sampling ☒ delineation completed ☒ post-remediation monitoring ☐ final confirmatory sampling

### 6.2 Contaminants of Potential Concern (COPC)

**6.2.1 Does the site have any of the conditions that require the mandatory use of *Alberta Tier 2 Soil and Groundwater Remediation Guidelines* (ESRD, 2007 and updates)?** *(check all that apply in Section 6.2.1.1.)*

☐ Yes ☒ No *(➔proceed to Section 6.2.2.)*

**6.2.1.1 Identify any conditions that require the approaches of the Alberta Tier 2 guidelines.** *(see Alberta Tier I Soil and Groundwater Remediation Guidelines (ESRD, 2007 and updates), for details.)*

| | | | | | |
|---|---|---|---|---|---|
| ☐ | Contamination within 30 cm of building foundation | ☐ | Unusual building feature (*eg. earthen floor*) | ☐ | Contamination within 10 m distance of surface water body |
| ☐ | Fractured bedrock | ☐ | Potentially high hydraulic conductivity *(> $10^{-5}$ m/sec.)* | ☐ | Other (*see Alberta Tier 1 guidelines and specify)*: _____ |

**6.2.1.2 Did the Alberta Tier 2 approach lead to a soil or groundwater guideline that was lower than the corresponding Tier 1 guideline for the same contaminant(s)?**

☐ Yes ☐ TBD ☒ No *(➔proceed to Section 6.2.2.)*

**6.2.1.3 If you answered 'yes' or 'TBD' to Section 6.2.1.2, identify the group of contaminants for each COPC with a mandatory Tier 2 guideline that is lower than the corresponding Tier 1 guideline** (*check all that apply, see Alberta Tier 1 guidelines, Tables 1-4 for detailed listing).*

| | | | |
|---|---|---|---|
| ☐ | General and inorganic parameters | ☐ | Metals |
| ☐ | Hydrocarbons | ☐ | Halogenated aliphatics |
| ☐ | Chlorinated aromatics | ☐ | Pesticides |

| | | | |
|---|---|---|---|
| ☐ | Other organics | ☐ | Radionuclides |
| ☐ | Salt | ☐ | Other (*specify*): _____ |

**6.2.1.4 Did any past or current ESA relevant to this investigation identify an exceedance of the mandatory Tier 2 guidelines referred to in Section 6.2.1.3 (e.g. Tier 2 guidelines that are lower than the corresponding Tier 1 guidelines)?** ☐ Yes ☐ No ☐ TBD

**6.2.1.5 If you answered 'yes' in Section 6.2.1.4, have all relevant COPC been remediated to meet the mandatory Tier 2 guidelines?** ☐ Yes ☐ No

**6.2.2. Did any past or current ESA relevant to this investigation identify a drilling waste disposal area?**

☐ Yes ☒ No (*➔proceed to Section 6.2.3.*)

**6.2.2.1 If a drilling waste disposal area was identified, did any past or current ESA identify non-compliance with the compliance options outlined in *Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification* (AER, 2014), as amended?**

☐ Yes ☐ No

**6.2.2.2 If you answered 'yes' in Section 6.2.2.1, have all COPC been remediated to meet the compliance options outlined in *Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification* (AER, 2014), as amended?**

☐ Yes ☐ No

**6.2.2.3 For any COPC that did not meet the compliance options in Assessing Drilling Waste Disposal Areas, identify the group of contaminants** (*check of all that apply, see the Alberta Tier 1 guidelines, Tables 1-4 for detailed listing).*

| | | | |
|---|---|---|---|
| ☐ | General and inorganic parameters | ☐ | Metals |
| ☐ | Hydrocarbons | ☐ | Halogenated aliphatics |
| ☐ | Chlorinated aromatics | ☐ | Pesticides |
| ☐ | Other organics | ☐ | Radionuclides |
| ☐ | Salt | ☐ | Other (*specify*): _____ |

**6.2.3 For all areas and COPCs not assessed under Sections 6.2.1 or 6.2.2, did any ESA relevant to this investigation identify an exceedance over the Alberta Tier 1 guidelines?**

☒ Yes ☐ No (*➔proceed to Section 6.3.*)

**6.2.3.1 If you answered 'yes' in Section 6.2.3, have all COPC been remediated to meet the Alberta Tier 1 guidelines?**

☐ Yes ☒ No ☐ TBD

**6.2.3.2 For any COPC that exceeded Alberta Tier 1 guidelines in Section 6.2.3.1, identify the group of contaminants.** (*check all that apply, see the Alberta Tier 1 guidelines, Tables 1-4 for detailed listing.)*

| | | | |
|---|---|---|---|
| ☐ | General and inorganic parameters | ☐ | Metals |
| ☒ | Hydrocarbons | ☐ | Halogenated aliphatics |
| ☐ | Chlorinated aromatics | ☐ | Pesticides |
| ☐ | Other organics | ☐ | Radionuclides |
| ☐ | Salt | ☐ | Other (*specify*): _____ |

## 6.3 Status of Investigation

**6.3.1 Identify soil and groundwater guidelines used to assess the COPCs that are the subject of this investigation** *(check all that apply).*

☒ *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* – 2007 and updates,
☐ Coarse grained ☒ Fine grained

☒ *Alberta Tier 2 Soil and Groundwater Remediation Guidelines* – 2007 and updates,
☒ Pathway exclusion ☒ Guideline adjustment ☐ Site specific remediation objectives

☐ *Assessing Drilling Waste Disposal Areas: Compliance Options for Reclamation Certification* (AER, 2014), as amended

☐ Other (*specify*): _____

**6.3.2 What land use classification(s) is used?**

☐ Natural ☐ Agricultural ☒ Residential ☒ Commercial ☐ Industrial ☐ Other (*specify:*_____)

**6.3.3 What is the outcome of the investigation?** *(check one only.)*

☐ For all COPCs on-site and off-site, no exceedance has been found above any applicable soil and groundwater guidelines in any prior and current assessments.

☐ All contamination on-site and off-site has been completely remediated and meets the applicable soil and groundwater guidelines.

☒ One or more COPC still exceeds the applicable soil or groundwater guidelines.

**6.3.4 How many contaminated areas are there currently at the site?**

one ☐ None ☐ TBD

**6.3.5 Are all contaminated areas and potential contaminated areas assessed during this investigation?**

☒ Yes ☐ No

**6.3.6 For all areas of potential environmental concern, list the dates when the contamination was discovered** *(specify dd-mon-yyyy)*: **1995**; _____

**6.3.7 For all areas that have been identified in Section 6.3.4, have all substance releases been reported to ESRD?**

☒ Yes ☐ No ☐ Not applicable

**6.3.8 If the answer to Section 6.3.7 is 'yes', list all Incident No.(s)** (*attach separate sheet if necessary*):

_____; _____ ☐ Not assigned

**6.3.9 What is the approximate, cumulative amount of land area remaining exceeding applicable remediation guidelines?** 45000 ($m^2$) ☐ None ☐ TBD

**6.3.10 Is there non-aqueous phase liquid (NAPL) product remaining on site?** ☐ Yes ☒ No ☐ TBD

**6.3.11 Is there non-aqueous phase liquid (NAPL) product remaining off site?** ☐ Yes ☐ No ☒ TBD

**6.3.12 What is the remediation status of the contaminated areas at site?**

| | | | |
|---|---|---|---|
| ☐ | No remediation required | ☐ | Site has exceedance but no remediation plan |
| ☒ | Remediation plan developed | ☒ | Active remediation |
| ☐ | Remediation completed | ☐ | Post remediation assessment completed |
| ☒ | Ongoing risk management plan – on-site | ☒ | Ongoing risk management plan – off-site |
| ☐ | Remediation Certificate issued for some area(s) *(provide Remediation Certificate No.(s):_____)* | | |
| ☐ | Remediation Certificate cancelled for some area(s) *(provide Remediation Certificate No.(s):_____)* | | |

## Direction for Completing the Remainder of the Form

Attach the analytical summary tables of the COPCs that are the subject of this investigation and still present at this site. A detailed listing of COPCs can be found with Tables 1-4 in *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* (ESRD, 2007 and updates), as amended. Refer to the *RSC User's Guide* for detailed information on format and other requirements regarding the summary table.

For the remainder of the form, follow the directions below:

- If the COPCs on-site and off-site have never exceeded any applicable soil and groundwater guidelines in any prior and current assessments, ➔proceed to Section 8, or
- If the COPCs on-site and off-site have been completely remediated and meet the applicable soil and groundwater guidelines, ➔proceed to Section 8, or
- For all other circumstances, continue with Section 6.4.

## 6.4 Key Transport Factors for Existing COPCs

**6.4.1 What is the horizontal distance to the nearest water well from the edge of the nearest contaminated area?**

☐ 0-50 m ☐ 50-100 m ☐ 100-300 m ☐ 300-1000 m ☒ > 1000 m

**6.4.2 What is the horizontal distance to the nearest surface water body from the edge of the contaminated area?**

☐ ≤10 m ☐ 10-50 m ☐ 50-100 m ☐ 100-300 m ☐ 300-1000 m ☒ > 1000 m

**6.4.3 Does delineation achieve closure above the groundwater water table that is nearest to the ground surface?**

☐ Yes (➔ *go to Section 6.5.)* ☒ No ☐ TBD

**6.4.4 Is the groundwater that is nearest the ground surface a domestic use aquifer (DUA) as defined in Alberta Tier 2 guidelines?**

☒ Yes ☐ No ☐ TBD ☐ Not required (NR)

**6.4.5 Is there a hydraulic barrier, as defined in Alberta Tier 2 guidelines, between the base of the contaminated area and the DUA?**

☐ Yes ☒ No ☐ TBD ☐ NR

**6.4.6 If you answered 'yes' to Section 6.4.5, provide the measured largest value of the hydraulic conductivity (as value $\times 10^{-7}$ m/sec.) for the 5.0 m vertical layer from the bottom of the contaminated zone.**

_____($\times 10^{-7}$ m/sec.) ☐ TBD ☐ NR

## 6.5 On-site Characterization

**6.5.1 What is the dominant soil texture that governs substance transport at the site?**

☐ Coarse grained ☒ Fine grained ☐ TBD ☐ Not applicable (*must identify reason in Section 6.2.1.1.)*

**6.5.2 What are the shallowest and deepest measured depths (meters below ground surface) of the water table at site?**

Shallowest: **0.88** (m) Deepest: 15.02(m) ☐ TBD ☐ NR (*specify max. depth assessed*: _____(m))

**6.5.3 What is the dominant horizontal direction of groundwater flow for the near surface water table?**

(*N, NW, etc.:* South) ☐ TBD ☐ NR

**6.5.4 What is the existing land use classification?**

☐ Natural ☐ Agricultural ☒ Residential ☒ Commercial ☐ Industrial ☐ Other (*specify*) _____

**6.5.5 What is the end land use classification?**

☐ Natural ☐ Agricultural ☒ Residential ☒ Commercial ☐ Industrial ☐ Other (*specify*) _____

| 6.5.6 Identify exposure pathways for which the applicable guidelines are exceeded on-site *(check all that apply).* | | | |
|---|---|---|---|
| ☐ | Vapour inhalation | ☐ | Soil ingestion |
| ☒ | Ingestion of potable water | ☐ | Soil dermal (skin) contact |
| ☐ | Fresh water aquatic life | ☐ | Soil contact for plants and invertebrates |
| ☐ | TBD | ☐ | Other *(specify)*: _____ |

## 6.6 Off-site Characterization

**6.6.1 Are there COPCs off-site exceeding applicable soil or groundwater guidelines?**

☐ No (➔ *if on-site contamination was reported, proceed to Section 7, otherwise, proceed to Section 8.)*
☒ Yes ☐ TBD

**6.6.2 What is the current land use classification for any off-site area(s) identified in Section 6.6.1?**

☐ Natural ☐ Agricultural ☒ Residential ☐ Commercial ☐ Industrial ☐ Other (*specify*) _____

**6.6.3 What is the end land use classification for any off-site area(s) identified in Section 6.6.1?**

☐ Natural ☐ Agricultural ☒ Residential ☐ Commercial ☐ Industrial ☐ Other (*specify*) _____

**6.6.4 Is there any substance concentration under a road allowance exceeding the applicable soil or groundwater guidelines?**

☒ Yes ☐ No (➔ *proceed to Section 6.6.6.)* ☐ TBD

**6.6.5 What is the most sensitive land use classification adjacent to the road allowance?**

☐ Natural ☐ Agricultural ☒ Residential ☐ Commercial ☐ Industrial ☐ Other (*specify*) _____

| 6.6.6 Identify exposure pathways for which the applicable guidelines are exceeded off-site *(check all that apply).* | | | |
|---|---|---|---|
| ☒ | Vapour inhalation | ☐ | Soil ingestion |
| ☒ | Ingestion of potable water | ☐ | Soil dermal (skin) contact |
| ☐ | Fresh water aquatic life | ☐ | Soil contact for plants and invertebrates |
| ☐ | TBD | ☐ | Other *(specify)*: _____ |

## 7 RISK MANAGEMENT PLAN (RMP)

### 7.1 What is the Plan for Contaminated Areas Still Remaining on and off the Site? *(check one only.)*

- ☐ Complete remediation (➔*proceed to Section 8).*
- ☒ Partial remediation with risk management for some residual contamination.
- ☐ Risk management for all remaining contamination.

### 7.2 Key Progress of RMP

**7.2.1 If the site needs an on-going RMP, answer all the following questions that apply to the RMP.**

| | | |
|---|---|---|
| ☒ Yes | ☐ No | Are contaminated areas completely delineated horizontally and vertically in soil? |
| ☒ Yes | ☐ No | Are contaminated areas completely delineated horizontally and vertically in groundwater? |
| ☒ Yes | ☐ No | Is source identified and completely delineated? |
| ☒ Yes | ☐ No | Is source migrating or has migrated off-site? |
| ☐ Yes | ☒ No | Is source left as is? |
| ☒ Yes | ☐ No | Is source partially removed and residual source being managed? |
| ☒ Yes | ☐ No | Is source controlled with physical or administrative methods? |
| ☒ Yes | ☐ No | Are all pathways of concern identified? |
| ☒ Yes | ☐ No | Have all relevant receptors been identified and protected? |
| ☒ Yes | ☐ No | Is there a monitoring program in place to verify RMP success? |
| ☒ Yes | ☐ No | Are there third parties related to this RMP? (*if the answer is 'no', skip the next question.*) |
| ☐ Yes | ☒ No | If there are third parties, have all of them accepted the RMP? |
| ☒ Yes | ☐ No | Is there a commitment from person(s) responsible to implement and monitor the RMP until final remediation guidelines are achieved? |
| ☒ Yes | ☐ No | Is there a contingency plan in place should the RMP fail? |
| ☒ Yes | ☐ No | Is the RMP implemented for the site? |

### Public Disclosure and Privacy Notification

The *Record of Site Condition* form is a public record that is disclosed in accordance with section 35 of the *Environmental Protection and Enhancement Act, Disclosure of Information Regulation*, and *Ministerial Order 23/2004*. Reasonable efforts have been made to minimize collection of personal information where possible. Personal information on the form is collected under the authority of section 12(c) and other provisions of the *Environmental Protection and Enhancement Act* and is in compliance with section 33(a) and 33(c) of the *Freedom of Information and Protection of Privacy Act* (FOIP). Personal information collected on this form will be used by Alberta Environment and Sustainable Resource Development (ESRD) or the Alberta Energy Regulator (AER), as the case may be, for the purposes of administering its programs.

### Accuracy of Information

The information in this document has been submitted by persons other than ESRD or the AER. The Department, the Government of Alberta, and the AER cannot and do not warrant that the information in this document is current, accurate, complete, or free of errors. Persons accessing the information provided should not rely on it, and any reliance on the information provided is taken at the sole risk of the user. Users of this information are advised to conduct their own due diligence to satisfy themselves of the environmental condition of the property of interest.

## 8 DECLARATION

This *Record of Site Condition* form was prepared for the purpose of reporting on the state of environmental site conditions and, where applicable, for the purpose of remediation or reclamation, for:

North Hill Mall and Hounsfield Heights - 1620 14 Avenue NW and Adjacent Properties

_ (site name) (the "Site").

I, as the licensed operator or authorized representative, have reviewed all information that was used in preparation of this form and I am satisfied that it was prepared in a manner consistent with the Applicable Standard[‡] together with any relevant additional guidance that is available from Alberta Environment and Sustainable Resource Development as of this date for conducting environmental site assessments.

Having conducted reasonable inquiries to obtain all relevant information, to my knowledge, the statements made in this form are true as of this date. I have disclosed all pertinent information of which I am aware concerning the historical and current environmental condition of the Site to the Director.

Any use which a third party, other than the Crown in right of Alberta or the AER, makes of this form, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. The undersigned accepts no responsibility for damages, if any, suffered by any third party, other than the Crown in right of Alberta and the AER, as a result of decisions made or actions based on this form. Any exclusions or disclaimers to the contrary contained in any attachment to this form are of no force or effect as against the Crown in right of Alberta and the AER.

Footnote ‡:

"Applicable Standard" means

a) for the purposes of upstream oil and gas sites,

i) *2010 Reclamation Criteria for Wellsites and Associated Facilities Application Guidelines* (ESRD 2011),

ii) CSA Standard Z769, *Phase II Environmental Site Assessment,* as amended, for any Phase II site assessment information used in preparation of this form on all upstream oil and gas sites not included in a) i);

b) for the purposes of all other sites, CSA Standard Z768, *Phase I Environmental Site Assessment,* as amended, for any Phase I site assessment information and with CSA Standard Z769, *Phase II Environmental Site Assessment,* as amended, for any Phase II site assessment information used in preparation of this form.

By signing below, I as the licensed operator or authorized representative, confirm the information provided herein is correct and complete, to the best of my knowledge and belief.

| | | | | |
|---|---|---|---|---|
| Clifton Engineering Group Inc.. | David G. Pritchard | Principal Environmental Geoscientist | | 18 November 2020 |
| Name of operator | Name of authorized representative | Title of authorized representative *(e.g. officer, director)* | Signature | Date *(dd-mon-yyyy)* |

Clifton


**Vancouver Office**

#230, 171 West Esplanade
North Vancouver, BC
V7M 3J9

T (604) 283-9822

**Calgary Office**

2222 – 30th Avenue NE
Calgary, AB T2E 7K9

T (403) 263-2556
F (403) 234-9033

**Edmonton Office**

#101, 9636 – 51st Avenue NW
Edmonton, AB T6E 6A5

T (780) 432-6441
F (780) 432-6271

**Lloydminster Office**

#10, 6309 – 43rd Street W
Lloydminster, AB T9V 2W9

T (780) 872-5980
F (780) 872-5983

**Regina Office**

340 Maxwell Crescent
Regina, SK S4N 5Y5

T (306) 721-7611
F (306) 721-8128

**Saskatoon Office**

#4, 1925 – 1st Avenue N
Saskatoon, SK S7K 6W1

T (306) 975-0401
F (306) 975-1076

**North Battleford Office**

#2, 9802 – 27th Avenue
North Battleford, SK S9A 1K5

T (306) 445-1621
F (306) 937-3731

**www.clifton.ca**