June 29, 2023

Alberta Environment and Protected Areas (AEPA)
Monitoring Branch
11th Floor Oxbridge Place
9820-106 Street
Edmonton, Alberta
T5K 2J6

RE: Monthly Ambient Air Monitoring Report
May 2023
Clean Harbors Canada, Inc. Approval 10348-03-01

To whom it may concern:

Clean Harbors Canada, Inc. (Clean Harbors) is presenting this Monthly Ambient Air Monitoring Report, which was prepared by GHD Limited (Consultant), for the reporting period of May 2023, to Alberta Environment and Protected Areas (AEPA). The Clean Harbors Ryley Industrial Waste Management Facility (Facility) is located in SE 09-050-17 W4M near Ryley, Alberta.

This ambient air monitoring program is conducted in accordance with the requirements outlined in the facility's amended Environmental Protection and Enhancement Act (EPEA) Approval, Approval No. 10348-03-01 (Approval). Clean Harbors' original Ambient Air Monitoring Program for Approval No. 10348-03-00 was initially approved on June 24, 2009. As part of the amended Approval requirements, the Facility submitted an Enhanced Ambient Air Quality Monitoring Program to AEPA (formerly AEP) on September 14, 2022 (no formal approval has been provided by AEPA). Operating under the Approval and the submitted program, Clean Harbors operates the following ambient air monitoring stations:

- Wind
  - Facility Meteorological Station – AEPA Station ID 00010348-C-1
  - Facility Site Station – AEPA Station ID 00010348-C-2
  - Ryley School Station – AEPA Station ID 00010348-C-3
- TSP
  - Facility Site Station – AEPA Station ID 00010348-I-2
  - Ryley School Station – AEPA Station ID 00010348-I-3
  - Highway 854 Lift Station – AEPA Station ID 00010348-I-1
- PM_{10}
  - Highway 854 Lift Station – AEPA Station ID 00010348-I-1

Included in this report are the following:

- Summary of the ambient air monitoring program for May 2023
- Summary of AMD Electronic Transfer System submittals
- Results for Total Suspended Particulate Matter (TSP) reported in µg/m^3
- Results for Particulate Matter ≤ 10 microns (PM_{10}) reported in µg/m^3
- Results for metals if the TSP or PM_{10} results were >50 µg/m^3
- Results for Total Non-Methane Organic Compounds (TNMOC) and Volatile Organic Compounds (VOC)
- Wind frequency distribution tables, wind rose and monthly uptime

Should there be any questions and comments regarding this report, please do not hesitate to contact the undersigned.

Yours truly,

CLEAN HARBORS CANADA INC.

Stan Yuha

Facility Manager
Ryley Facility

Alberta Environment and Protected Areas (AEPA)
Monthly Ambient Air Monitoring Report
May 2023
Report Completed on June 29, 2023

Clean Harbors Environmental Services Inc.

Approval Number: 10348-03-01

Ryley Facility, Alberta

CLEAN HARBORS CANADA, INC.
P.O. Box 390, Ryley, Alberta T0B 4A0 Telephone (780) 663-3828

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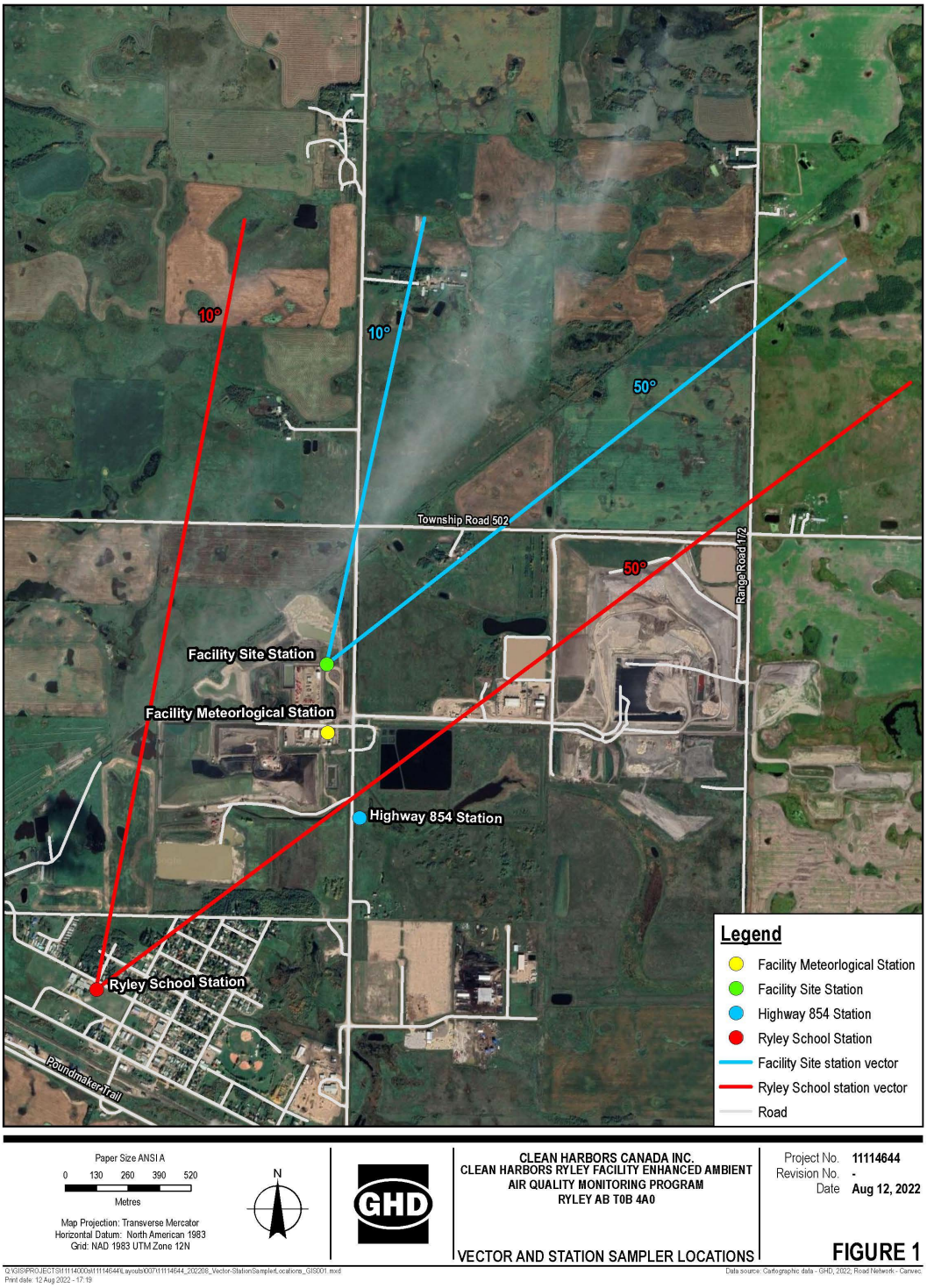
1. Introduction

The Facility operates the following ambient air monitoring stations to assess ambient air quality at and around the Facility as shown in Figure 1.



1. Upwind intermittent ambient air quality monitoring station, known as the Facility Site Station (AEPA Station ID 00010348-I-2), located at 50114 Range Road 173, Ryley, Alberta (53°18'13.11"N and 112°25'5.81"W). At this location, a Tisch TE-5170V VFC High Volume TSP Sampler (TSP Hi-Vol Sampler) is located against the Facility perimeter fence, north of the vehicle staging road.
2. Downwind intermittent ambient air quality monitoring station, known as the Ryley School Station (AEPA Station ID 00010348-I-3), located at 5211 52 Avenue, Ryley, Alberta (53°17'28.99"N and 112°25'55.81"W). At this location, a TSP Hi-Vol Sampler is located on the roof of the Ryley School.

For these two locations, samples are collected and analyzed for the following: total suspended particulate matter (TSP) (typically with diameter less than 35 microns (µm)). Additionally, TSP samples that exceed 50 micrograms per cubic metre (50 µg/m^3) are analyzed for a target list of metals. The samplers are programmed to run for approximately 24-hours. All samples are collected for a total of 24-hours by intermittent sampling when the wind speed is greater than 5 km/hr and wind direction is blowing from the northeast towards the southwest.

3. Intermittent monitoring station, known as the Highway 854 Lift Station (AEPA Station ID 00010348-I-1), located on Secondary Road 854, approximately 350 metres southeast of the Facility (Latitude: 53°17'52.66"N, Longitude: 112°24'57.87"W). At this location, a TSP Hi-Vol Sampler and a Partisol FRM 2000 PM_{10} Sampler (PM_{10} Sampler) will be located on the roof of the lift station. Samples are collected and analyzed for the following: TSP, particulate matter less than or equal to 10 µm in diameter (PM_{10}), volatile organic compounds (VOCs), and total non-methane organic compounds (TNMOC). Additionally, TSP or PM_{10} samples that exceed 50 µg/m^3 are analyzed for a target list of metals. Sampling is conducted once every 6-days for a 24-hour sampling period (midnight to midnight) as required by the Facility's Approval. The 6-day sampling frequency will be in alignment with the Government of Canada, National Air Pollution Surveillance Program (National Air Pollution Surveillance Program – Canada.ca). To correlate PM_{10} data with TSP data, Clean Harbors will continue PM_{10} sampling at the station for a two-year period.

4. Continuous meteorological stations that collect wind speed and wind direction data are also located at the Facility Meteorological Station (AEPA Station ID 00010348-C-1), Upwind Facility Site Station (AEPA Station ID 00010348-C-2), and Downwind Ryley School Station (AEPA Station ID 00010348-C-3). The anemometer equipment used to measure this data includes three R. M. Young 05305-10A Wind Monitor-Aqs.

All sampling and monitoring is conducted in accordance with the Facility's amended Approval (Approval No. 10348-03-01) and the Alberta Air Monitoring Directive, 2016 (AMD).

1.1 Contact Information

As required by AMD Chapter 9, Section 2, contact information is provided for the following Facility personnel and Contractors that assisted with the performance of the Facility's Air Monitoring Program.

Contact Information	
Name	**Mr. Stan Yuha**
Title	Plant Manager
Company	Clean Harbors
Responsibilities	Report Certifier/ETS Submitter
Address	PO Box 390, Ryley, AB T0B 4A0
Phone	780-663-2509
Email	yuha.stan@cleanharbors.com
Name	**Mr. Todd Webb**
Title	Laboratory Chemist
Company	Clean Harbors
Responsibilities	Station Field Operator and Field Sampler
Address	PO Box 390, Ryley, AB T0B 4A0
Phone	780-663-2513
Email	webb.todd@cleanharbors.com
Name	**Mr. Pooya Shariaty**
Title	Senior Air Quality Engineer/Project Manager
Company	GHD Limited
Responsibilities	Senior QA/QC
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Phone	403-538-7479
Email	Pooya.shariaty@ghd.com
Name	**Ms. Stepheney Davey**
Title	Air Quality Engineer in Training
Company	GHD Limited
Responsibilities	Maintenance/Calibration Services/Report Preparer/ETS Submitter
Address	10250 101 Street NW, Suite 640, Edmonton, AB
Phone	780-229-3687
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Responsibilities	Laboratory Analytical Services
Address	PO Bag 4000, Vegreville, Alberta
Phone	780-632-8211
Email	EAS.Results@albertainnovates.ca

2. Summary of Ambient Air Monitoring Activities

The following ambient air monitoring activities were conducted during the month of May 2023.

Activity	*Completed (Y/N)*	*Date(s)*
Wind – Facility Meteorological Station		
Wind Speed/Direction Sensor Calibration	N	March 18, 2022[(1)]
Changes to the Wind Speed/Direction Sensor	N	-
Wind – Facility Site Station		
Wind Speed/Direction Sensor Calibration	N	**Due for calibration Summer 2023[(2)]**
Changes to the Wind Speed/Direction Sensor	N	-
Wind – Ryley School Station		
Wind Speed/Direction Sensor Calibration	N	**Due for calibration Summer 2023[(2)]**
Changes to the Wind Speed/Direction Sensor	N	-
TSP – Facility Site Station		
TSP Hi-Vol Sampler Calibration	N	-
Changes to the TSP Hi-Vol Sampler	N	-
TSP Samples Collected	Y	May 1 – May 26, 2023
TSP Metal Analysis Conducted	Y	May 26, 2023
TSP Sampler Maintenance Activities	Y	May 26, 2023
TSP – Ryley School Station		
TSP Hi-Vol Sampler Calibration	N	-
Changes to the TSP Hi-Vol Sampler	N	-
TSP Samples Collected	Y	May 1 – May 26, 2023
TSP Metal Analysis Conducted	Y	May 26, 2023
TSP Sampler Maintenance Activities	Y	May 26, 2023
TSP, PM_{10}, VOC and TNMOC – Highway 854 Lift Station		
TSP Hi-Vol Sampler Calibration	N	-
PM_{10} Sampler Calibration	N	-
Changes to the TSP Hi-Vol Sampler	N	-
Changes to the PM_{10} Sampling Station	N	-
TSP Samples Collected	Y	May 6, 2023 May 12, 2023 May 18, 2023 May 24, 2023 May 30, 2023
PM_{10} Samples Collected	Y	May 6, 2023 May 12, 2023

Activity	*Completed (Y/N)*	*Date(s)*
		May 18, 2023 May 24, 2023 May 30, 2023
VOC and TNMOC Samples Collected	Y	May 6, 2023 May 12, 2023 May 18, 2023 May 24, 2023 May 30, 2023
TSP Metal Analysis Conducted	Y	May 18, 2023 May 24, 2023 April 18, 2023 (delayed analysis from previous month)
PM_{10} Metal Analysis Conducted	Y	May 18, 2023 May 24, 2023 April 18, 2023 (delayed analysis from previous month)
TSP Sampler Maintenance Activities	Y	May 6, 2023 May 12, 2023 May 18, 2023 May 24, 2023 May 30, 2023
PM_{10} Sampler Maintenance Activities	Y	May 6, 2023 May 12, 2023 May 18, 2023 May 24, 2023 May 30, 2023
Other		
Dust Suppression Activities	N	-

Note: (1) The wind speed/direction sensor on the Facility Site Meteorological Station was checked for calibration on March 18, 2022 and was shown to be within the allowable tolerances and was then re-installed after calibration.
(2) Instrument was calibrated prior to install in the Fall of 2014 for voluntary reporting.

3. Summary of Electronic Transfer System (ETS) Submittals

In addition to the May 2023 monthly report, the following summarized items were submitted to the ETS:

3.1 AMD Approval Contravention Form

An AMD Approval contravention form (AMD1), for AEPA Reference No. 409379, was submitted to the AEPA via the ETS portal. The contravention form was completed due to the Ryley School

Station experiencing an anemometer instrument failure between May 1, 2023 and May 26, 2023, resulting in an uptime less than the 90% required under Chapter 6, Section 4.1.3 of the AMD.

3.2 AMD XML Schema

An XML formatted Schema file was submitted to the AEPA via the ETS portal. The XML Schema file contains the results from:

- Wind
  - Facility Meteorological Station – AEPA Station ID 00010348-C-1.
  - Facility Site Station – AEPA Station ID 00010348-C-2.
  - Ryley School Station – AEPA Station ID 00010348-C-3.
- TSP
  - Facility Site Station – AEPA Station ID 00010348-I-2.
  - Ryley School Station – AEPA Station ID 00010348-I-3.
  - Highway 854 Lift Station – AEPA Station ID 00010348-I-1.
- PM_{10}
  - Highway 854 Lift Station – AEPA Station ID 00010348-I-1.

3.3 Ambient Air Monitoring Program Laboratory Reports

One laboratory report in PDF file format was submitted to the AEPA via the ETS portal. The PDF file contains the results from AEPA Station ID 00010348-I-1, AEPA Station ID 00010348-I-2, and AEPA Station ID 00010348-I-3.

3.4 Ambient Air Monitoring Program Calibration Reports

One calibration report in PDF file format was submitted to the AEPA via the ETS portal. The PDF file contains the results from AEPA Station ID 00010348-C-1.

4. Calibration and Operation & Maintenance (O&M) Activities

4.1 Facility Meteorological Station for Wind Speed and Direction (AEPA Station ID 00010348-C-1)

The Facility Meteorological Station was taken down and calibrated on March 18, 2022. The station was shown to be within all allowable tolerances, as required by the manufacturer. Provided in Appendix A is the calibration report and record of installation.

There were no changes to the meteorological station during May 2023.

4.2 Facility Site Station for Wind Speed and Direction (AEPA Station ID 00010348-C-2)

The Facility Site Station was last calibrated upon installation. When installed, the station was shown to be within all allowable tolerances, as required by the manufacturer.

During May 2023, Clean Harbors chose to swap the Ryley School Station (AEPA Station ID 00010348-C-3) anemometer with the Facility Site Station (AEPA Station ID 00010348-C-2) anemometer due to AEPA Station ID 00010348-C-3 anemometer program corruption. Per Approval No. 10348-03-01, Clean Harbors is only required to report "a minimum of one (1) meteorological station in each of the Ryley School and Facility Site intermittent ambient air quality monitoring stations" thus, reporting from Station ID 00010348-C-2 is not required as Clean Harbors reports from the Facility Meteorological Station (Station ID 00010348-C-1).

4.3 Ryley School Station for Wind Speed and Direction (AEPA Station ID 00010348-C-3)

The Ryley School Station was last calibrated upon installation. When installed, the station was shown to be within all allowable tolerances, as required by the manufacturer.

As noted above, Clean Harbors chose to swap the AEPA Station ID 00010348-C-3 anemometer with the AEPA Station ID 00010348-C-2 anemometer due to AEPA Station ID 00010348-C-3 anemometer program corruption. Once swapped on May 24th, the wind data was retrieved successfully from AEPA Station ID 00010348-C-3 apart from a brief time period on May 26th.

4.4 Facility Site Station TSP Hi-Vol Sampler (AEPA Station ID 00010348-I-2)

The sampling activities for the Tisch TE-5170V VFC High Volume TSP Sampler (TSP Hi-Vol Sampler) are recorded in the field sampling sheets provided in Appendix B.

On a quarterly basis, performance audits are completed on the TSP Hi-Vol Sampler. A quarterly audit was performed on March 10, 2023.

4.5 Ryley School Station TSP Hi-Vol Sampler (AEPA Station ID 00010348-I-3)

The sampling activities for the TSP Hi-Vol Sampler are recorded in the field sampling sheets provided in Appendix B.

On a quarterly basis, performance audits are completed on the TSP Hi-Vol Sampler. A quarterly audit was performed on March 10, 2023.

4.6 Highway 854 Lift Station TSP Hi-Vol Sampler (AEPA Station ID 00010348-I-1)

The sampling activities for the TSP Hi-Vol Sampler are recorded in the field sampling sheets provided in Appendix B.

On a quarterly basis, performance audits are completed on the TSP Hi-Vol Sampler. A quarterly audit was performed on March 10, 2023.

4.7 Highway 854 Lift Station PM_{10} Sampler (AEPA Station ID 00010348-I-1)

Maintenance activities for the Thermo Scientific™ Partisol 2000i-Federal Reference Method (FRM) PM_{10} Sampler included inlet cleaning and leak checks that were conducted before each sampling event in May 2023. The pre-sampling maintenance activities are recorded in the field sampling sheets provided in Appendix B.

On a quarterly basis, performance audits are completed on the TSP Hi-Vol Sampler. A quarterly audit was performed on March 10, 2023.

5. Ambient Air Monitoring Results

The following section presents the results from the ambient air monitoring program for the Facility Meteorological Station (AEPA Station ID 00010348-C-1), Facility Site Station (AEPA Station ID 00010348-C-2), Ryley School Station (AEPA Station ID 00010348-C-3), Highway 854 Lift Station (AEPA Station ID 00010348-I-1), Facility Site Station (AEPA Station ID 00010348-I-2), and Ryley School Station (AEPA Station ID 00010348-I-3) conducted in May 2023. Where applicable, comparisons were made to Alberta Ambient Air Quality Objectives (AAAQO) for parameters that had 24-hour average objectives. These parameters are TSP and some of the VOCs including o,m,p-xylene, hexane, and toluene. For the parameter objectives with averaging periods other than 24-hours, Section 7.1.2 of the Air Quality Model Guideline was used to covert the measured values to the corresponding AAAQO averaging periods prior to comparison. For all other parameters, AAAQO have not been established.

5.1 Meteorological Data for Wind Speed and Direction

In accordance with the Approval and the AMD, the Facility is required to collect wind speed and directional data continuously for the Facility Meteorological Station, Facility Site Station, and Ryley School Station. Tables 1 - 3 present the hourly and 24-hour average wind speeds, Tables 4 - 6 present the hourly and 24-hour most frequent wind direction data (degrees from north), and Tables 7 - 9 present the Wind Class Frequency Distribution for May 2023 from the Facility Meteorological Station, Facility Site Station, and Ryley School Station, respectively. Appendix C provides graphical representations of the Wind Class Frequency Distribution and the Wind Roses based on Tables 1 – 9.

5.1.1 Facility Meteorological Station Data Verification and Validation and Uptime (AEPA Station ID 00010348-C-1)

Based on the verification and validation process conducted for the meteorological data that was collected in May 2023, it was determined that 100 percent of the data is valid, which represents 100 percent uptime of the meteorological station. This is above the 90 percent uptime limit required for compliance, as per the Approval.

5.1.2 Facility Site Station Data Verification and Validation and Uptime (AEPA Station ID 00010348-C-2)

As noted above, Clean Harbors chose to swap the Ryley School Station (AEPA Station ID 00010348-C-3) anemometer with the Facility Site Station (AEPA Station ID 00010348-C-2) anemometer due to AEPA Station ID 00010348-C-3 anemometer program corruption. Per Approval No. 10348-03-01, Clean Harbors is only required to report "a minimum of one (1) meteorological station in each of the Ryley School and Facility Site intermittent ambient air quality monitoring stations" thus, reporting from Station ID 00010348-C-2 is not required as Clean Harbors reports from the Facility Meteorological Station (Station ID 00010348-C-1).

5.1.3 Ryley School Station Data Verification and Validation and Uptime (AEPA Station ID 00010348-C-3)

Based on the verification and validation process conducted for the meteorological data that was collected in May 2023, it was determined that 24.2 percent of the data is valid, which represents 24.2 percent uptime of the meteorological station. This is below the 90 percent uptime limit required for compliance, as per the Approval. The missing wind data was due to an instrument malfunction regarding the anemometer at the Ryley School Station. The anemometer program had been corrupted and the instrument was recording zeros from May 1st until May 24th (ongoing issue which was initially reported in January 2023) until the anemometer was replaced. The Facility confirmed that several unsuccessful attempts were made to reprogram the instrument prior to swapping the instrument with the Facility Site Station. Clean Harbors submitted a 7-day reference letter to the AEPA on February 10, 2023 (reference number # 409379) upon learning about the contravention. Per guidance from AEPA, “the incident will remain open pending confirmation that the station is fully operational.”

5.2 TSP Concentrations

AAAQO are specified for TSP at 100 µg/m^3 (24-hour averaging period). In accordance with the Facility’s Approval, TSP samples that exceed 50 µg/m^3 are analyzed for a target list of metals. Appendix B provides the field sheets completed for each sampling event. Appendix D provides the chain of custody forms and laboratory analytical reports.

5.2.1 Facility Site Station (AEPA Station ID 00010348-I-2)

Table 10 presents the results of the sampling conducted for TSP from the Facility Site Station. The TSP sample collected in May 2023 was shown to have an elevated TSP concentration of 110.465 µg/m^3 which is above the 100 µg/m^3 AAAQO threshold. It should be noted that Alberta experienced an unprecedented number of wildfires during this time which led to numerous regional air quality advisories resulting from wildfire smoke. The TSP exceedance for May 2023 is likely a result of the background air quality and not related to the Facility. As such, no contravention form was submitted due to this exceedance.

5.2.2 Ryley School Station (AEPA Station ID 00010348-I-3)

Table 11 presents the results of the sampling conducted for TSP from the Ryley School Station. The TSP sample collected in May 2023 was shown to have an elevated TSP concentration of 119.868 µg/m^3, which is above the 100 µg/m^3 AAAQO threshold. It should be noted that Alberta

experienced an unprecedented number of wildfires during this time which led to numerous regional air quality advisories resulting from wildfire smoke. The TSP exceedance for May 2023 is likely a result of the background air quality and not related to the Facility. As such, no contravention form was submitted due to this exceedance.

5.2.3 Highway 854 Lift Station (AEPA Station ID 00010348-I-1)

Table 12 presents the results of the sampling conducted for TSP from the Highway 854 Lift Station.

5.3 PM_{10} Concentrations

AAAQO are specified for TSP at 100 µg/m^3 and Particulate Matter $\leq$ 2.5 microns ($PM_{2.5}$) at 29 µg/m^3 (24-hour averaging period). There is currently no AAAQO specified for PM_{10} for a 24-hour averaging period in Alberta. To correlate PM_{10} data with TSP data, Clean Harbors will continue PM_{10} sampling at the station for a two-year period. In accordance with the Facility's Approval, PM_{10} samples that exceed 50 µg/m^3 are analyzed for a target list of metals. Appendix B provides the field sheets completed for each sampling event. Appendix D provides the chain of custody forms and laboratory analytical reports.

5.3.1 Highway 854 Lift Station (AEPA Station ID 00010348-I-1)

Table 13 presents the results of the sampling conducted for PM_{10}.

5.4 VOC and TNMOC Concentrations

There are three VOC parameters that have corresponding AAAQO with 24-hour averaging periods including o,p,m-xylene, hexane and toluene. Appendix B provides the field sheets completed for each sampling event. Appendix D provides the chain of custody forms and laboratory analytical reports.

5.4.1 Highway 854 Lift Station (AEPA Station ID 00010348-I-1)

Table 14 presents the VOC and TNMOC concentrations measured in May 2023. There were no exceedances for the parameters with AAAQO in May 2023.

5.5 Metal Concentrations

In accordance with the Facility's Approval, if collected TSP or PM_{10} samples show exceedances over 50 µg/m^3 after gravimetric analysis, a subsequent filter particulate analysis is done using inductively coupled plasma mass spectroscopy (ICP-MS) for 21 trace elements. There are four parameters that have corresponding AAAQO with 1 hour averaging periods including arsenic, chromium, lead, and nickel. The sample results were converted to a 1-hour averaging period for comparison with the sample AAAQO. If metal analysis was conducted, Appendix B provides the field sheets completed for each sampling event. Appendix D provides the chain of custody forms and laboratory analytical reports.

5.5.1 Facility Site Station (AEPA Station ID 00010348-I-2)

The TSP sample collected in May 2023 was above 50 µg/m^3 and as such, analysis for metals was conducted on the sample. Facility Test #102 (HV-22-12-13) was shown to have an elevated TSP

concentration of 110.465 µg/m^3, which is over the 50 µg/m^3 threshold. This sample was sent for additional analysis and the results for this test can be found in Table 15 of this report. There were no exceedances for the parameters with AAAQO in May 2023.

5.5.2 Ryley School Station (AEPA Station ID 00010348-I-3)

The TSP sample collected in May 2023 was above 50 µg/m^3 and as such, analysis for metals was conducted on the sample. School Test #102 (HV-22-12-14) was shown to have an elevated TSP concentration of 119.868 µg/m^3, which is over the 50 µg/m^3 threshold. This sample was sent for additional analysis and the results for this test can be found in Table 16 of this report. There were no exceedances for the parameters with AAAQO in May 2023.

5.5.3 Highway 854 Lift Station (AEPA Station ID 00010348-I-1)

TSP

Two of the TSP samples collected in May 2023 were above 50 µg/m^3 and as such, analysis for metals was conducted on the samples. Facility Test #842 (HVF-23-03-09) and Facility Test #843 (HVF-23-03-10) were shown to have elevated TSP concentrations of 88.055 µg/m^3 and 84.329 µg/m^3, which are over the 50 µg/m^3 threshold. These samples were sent for additional analysis and the results for Test #842 and Test #843 can be found in Table 17 of this report. Test #837 was sent for additional analysis in April though, due to laboratory delays, the results were not yet received when the April report was submitted. As such, the metal analysis results for Test #837 are included in the May 2023 monthly report submission (found in Table 17). There were no exceedances for the parameters with AAAQO in May 2023.

PM_{10}

None of the PM_{10} samples collected in May 2023 was above 50 µg/m^3. The PM_{10} concentrations measured for Facility Test #842 (C9700051) and Facility Test #843 (C1169901) were less than the 50 µg/m^3 threshold, 38.675 µg/m^3 and 28.210 µg/m^3, respectively; however, as the TSP concentrations for these samples were above the 50 µg/m^3 threshold (as noted above), the corresponding PM_{10} samples were sent for additional analysis. The results for Test #842 and Test #843 can be found in Table 18 of this report. Test #837 was sent for additional analysis in April though, due to laboratory delays, the results were not yet received when the April report was submitted. As such, the metal analysis results for Test #837 are included in the May 2023 monthly report submission (found in Table 18). There were no exceedances for the parameters with AAAQO in May 2023.

The remainder of the TSP and PM_{10} samples collected in May 2023 were below 50 µg/m^3 and as such analysis for metals was not conducted on those samples.

5.6 Dust Suppression

There were no dust suppression activities, which include using leachate spread on the surface of the active landfill, conducted during May 2023.

6. Conclusions

The following summarizes the Ambient Air Monitoring Program that was conducted in May 2023.

1 During May 2023, the Facility Meteorological Station (AEPA Station ID 00010348-C-1) operated at 100 percent uptime. Based on the data verification and validation procedure conducted, this is in compliance with the minimum 90 percent uptime required by the AMD.

2 During May 2023, the continuous Facility Site wind Station was not operational. Per the approval, reporting from Station ID 00010348-C-2 is not required as Clean Harbors reports from the Facility Meteorological Station.

3 During May 2023, the continuous Ryley School wind Station operated at 24.2 percent uptime. Based on the data verification and validation procedure conducted, this is not in compliance with the minimum 90 percent uptime required by the AMD.

4 The TSP concentration measured at the intermittent Facility Site Station from May 1, 2023 to May 26, 2023 was 110.465 µg/m^3. The AAAQO exceedance for this month is likely a result of the background air quality due to wildfire smoke and not related to the Facility.

5 The TSP concentration measured at the intermittent Ryley School Station from May 1, 2023 to May 26, 2023 was 119.868 µg/m^3. The AAAQO exceedance for this month is likely a result of the background air quality due to wildfire smoke and not related to the Facility.

6 The TSP concentrations measured at the intermittent Highway 854 Lift Station (AEPA Station ID 00010348-I-1) on May 6, May 12, May 18, May 24, and May 30 were 40.038 µg/m^3, 34.729 µg/m^3, 88.055 µg/m^3, 84.329 µg/m^3, and 48.263 µg/m^3, respectively.

7 The PM_{10} concentrations measured at the intermittent Highway 854 Lift Station (AEPA Station ID 00010348-I-1) on May 6, May 12, May 18, May 24, and May 30 were 17.273 µg/m^3, 11.826 µg/m^3, 38.675 µg/m^3, 28.210 µg/m^3, and 17.156 µg/m^3, respectively.

8 Based on the VOC and TMNOC results measured at the intermittent Highway 854 Lift Station (AEPA Station ID 00010348-I-1), no exceedances were detected for parameters with applicable AAAQO, which included o,m,p-xylene, hexane and toluene. There are no applicable AAAQO for other parameters that were monitored in May 2023.

9 The TSP concentration measured for Facility Test #102 (HV-22-12-13), conducted from May 1, 2023 to May 26, 2023, was above the 50 µg/m^3 threshold outlined in the Facility's approval. Because of the elevated TSP concentration, this sample was sent for additional analysis of metals. The results of this test showed that all parameters were below any applicable AAAQO (arsenic, chromium, lead, and nickel).

10 The TSP concentration measured for School Test #102 (HV-22-12-14), conducted from May 1, 2023 to May 26, 2023, was above the 50 µg/m^3 threshold outlined in the Facility's approval. Because of the elevated TSP concentration, this sample was sent for additional analysis of metals. The results of this test showed that all parameters were below any applicable AAAQO (arsenic, chromium, lead, and nickel).

11 The TSP concentrations measured for Facility Test #842 (HVF-23-03-09) and Facility Test #843 (HVF-23-03-10) were over the 50 µg/m^3 threshold outlined in the Facility's approval. Because of the elevated TSP concentration, these samples were sent for additional analysis of metals. The results for Test #837 were not received when the April reported was submitted. As such, the

metal analysis results for Test #837 are included in the May 2023 monthly report submission. The results of these tests showed that all parameters for Test #842, Test #843, and Test #837 were below any applicable AAAQO (arsenic, chromium, lead, and nickel).

12 None of the PM_{10} concentrations measured were over the 50 µg/m^3 threshold outlined in the Facility's approval. The PM_{10} concentrations measured for Facility Test #842 (C9700051) and Facility Test #843 (C1169901) were less than the 50 µg/m^3 threshold; however, as the TSP concentrations for these samples were above the 50 µg/m^3 threshold, the corresponding PM_{10} samples were sent for additional analysis. The results for Test #837 were not received when the April reported was submitted. As such, the metal analysis results for Test #837 are included in the May 2023 monthly report submission. The results of these tests showed that all parameters for Test #842, Test #843, and Test #837 were below any applicable AAAQO (arsenic, chromium, lead, and nickel).

Clean Harbors will continue perform their Facility's Ambient Air Monitoring Program in accordance with their Approval and the AMD and evaluate the data to determine impacts on the ambient air quality.

7. Certification

Per the requirements of AMD, Chapter 9, Section 2.3, the following certification is provided for the May 2023 Ambient Air Monitoring Report.

"I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements."

Stan Yuha

Plant Manager/Report Certifier

END OF REPORT

Tables

TABLE 1

Average Wind Speed (metres/second)
AEPA Station ID 00010348-C-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Ryley Wind Speed Data (m/s) - Month of May 2023																							
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	7.4	7.3	7.8	7.2	6.4	6.4	6.0	5.8	7.7	7.8	9.2	10.3	10.4	10.5	9.6	8.8	8.2	7.7	7.2	5.7	4.8	5.3	6.0	5.8
2	5.5	4.9	3.6	2.5	2.7	3.5	3.4	2.7	3.7	6.2	8.9	9.4	8.4	8.5	7.2	6.2	5.6	3.9	2.3	4.3	3.3	3.2	3.6	3.4
3	2.6	2.9	3.2	3.9	3.6	4.3	3.8	4.5	6.8	8.7	9.2	9.0	7.8	7.3	7.4	7.4	7.3	6.7	5.3	4.0	3.6	3.3	3.6	4.1
4	4.7	4.8	3.5	3.3	1.9	0.7	1.6	1.9	3.4	3.6	3.7	3.1	5.3	6.0	5.6	5.8	6.0	6.0	6.7	5.8	4.6	4.2	4.2	4.0
5	3.8	3.8	4.4	4.1	3.9	3.9	5.0	5.7	6.9	6.7	8.3	8.7	9.4	9.9	9.7	10.1	9.8	9.5	9.8	9.3	7.3	5.8	6.1	6.5
6	6.8	5.9	5.2	5.6	6.3	5.5	5.5	5.9	6.3	8.6	9.1	9.5	9.3	8.7	9.6	8.6	8.4	8.6	7.8	7.5	7.4	5.6	4.6	7.3
7	7.8	7.0	6.2	4.9	3.6	4.1	6.1	9.3	8.1	9.6	10.2	8.9	8.1	8.7	8.7	9.9	9.1	8.1	8.2	6.4	4.8	3.8	6.3	5.5
8	4.1	3.6	3.8	2.7	2.6	3.2	3.5	3.1	4.7	3.7	2.9	3.8	3.8	4.1	7.4	7.5	6.2	6.6	7.0	4.5	2.5	3.0	2.0	1.3
9	1.3	2.0	2.0	1.3	0.8	2.1	1.3	0.9	1.6	1.7	2.1	1.8	2.1	4.5	4.0	4.5	2.0	1.2	5.4	4.6	2.1	1.5	2.4	1.6
10	2.0	2.6	3.4	2.4	2.3	2.0	2.0	2.2	2.3	0.9	0.7	1.1	1.3	1.1	1.8	2.8	1.9	3.7	3.0	4.4	3.3	1.6	1.5	2.7
11	2.2	3.2	1.6	1.4	0.6	1.0	1.6	0.6	0.7	1.2	1.5	1.7	2.3	2.2	2.8	4.8	3.9	3.1	3.4	4.6	6.2	3.1	2.6	1.8
12	1.9	2.6	3.1	3.7	2.6	1.8	1.5	0.9	0.8	0.9	1.2	1.7	2.1	2.9	2.2	2.4	2.1	2.5	2.1	3.0	2.9	2.5	2.0	2.2
13	2.6	2.5	2.6	2.9	2.7	2.2	2.3	2.7	3.1	3.8	5.0	6.3	6.3	6.0	5.7	5.4	5.7	5.8	5.7	4.9	4.1	4.4	5.0	5.3
14	5.1	5.6	5.5	4.5	4.9	3.7	3.0	3.7	4.4	4.8	7.3	7.8	7.2	7.5	7.4	6.8	6.7	6.4	5.9	5.6	4.0	3.1	2.7	3.8
15	4.0	4.5	3.2	3.9	3.8	2.9	3.5	4.1	5.0	5.8	7.2	8.1	8.5	8.0	8.2	7.5	7.0	7.1	7.0	6.1	4.1	3.1	2.6	3.4
16	3.7	3.7	3.5	2.0	2.2	1.2	2.9	7.8	8.5	8.6	9.9	10.1	9.5	9.0	9.1	9.6	8.5	8.2	7.4	4.5	4.2	4.2	3.2	1.0
17	2.1	3.6	4.2	4.4	4.2	4.2	2.3	3.2	5.1	5.9	6.0	7.9	8.5	9.3	9.3	9.0	8.0	8.1	8.3	6.5	5.5	4.2	3.0	4.5
18	2.8	1.2	1.7	1.3	0.3	0.5	1.8	3.7	4.7	3.2	2.3	2.1	2.8	2.5	3.3	3.5	3.9	4.6	5.2	5.8	5.2	4.6	4.7	5.2
19	5.6	5.1	4.7	4.5	4.8	5.1	4.5	4.8	5.0	5.2	4.8	4.0	3.1	3.4	3.6	5.5	7.9	4.0	4.4	3.9	4.6	4.6	4.3	3.4
20	3.3	3.3	2.8	3.1	2.6	2.4	2.0	1.7	1.2	1.4	0.8	0.9	1.3	1.4	2.2	2.9	2.6	4.0	4.8	4.1	3.0	2.7	2.7	2.9
21	3.1	2.7	4.6	3.6	2.8	4.0	3.0	3.5	4.7	3.7	3.2	4.7	4.4	5.3	5.1	6.1	6.6	7.8	7.5	6.4	5.6	4.4	4.3	4.5
22	4.2	3.5	1.7	1.8	2.5	3.6	3.5	3.6	3.3	2.8	2.5	3.9	3.2	2.5	1.5	2.2	3.9	4.0	4.7	4.3	3.1	3.4	2.8	6.4
23	7.5	8.3	8.6	6.7	5.0	5.3	6.2	7.0	7.0	7.7	7.6	9.0	8.7	8.3	7.8	7.5	5.7	4.2	3.2	3.3	8.2	5.8	6.1	5.0
24	5.7	4.6	4.9	4.2	3.5	4.0	3.8	4.4	4.5	4.3	3.2	3.5	4.3	3.9	2.8	3.9	4.2	3.4	2.6	4.4	4.8	3.3	2.3	2.8
25	3.8	2.9	2.8	2.7	2.5	2.9	2.8	3.6	4.5	5.0	6.1	5.3	4.8	4.5	3.3	4.5	4.1	4.0	4.2	2.6	2.3	1.7	1.4	1.1
26	0.5	0.5	1.2	0.6	0.5	1.3	1.4	0.7	0.9	1.3	1.3	1.9	2.5	2.5	2.9	2.8	2.4	2.6	2.9	3.0	2.6	2.3	1.9	2.4
27	2.9	2.8	3.0	2.4	2.3	2.3	2.7	2.4	2.8	2.7	3.8	4.4	3.9	4.1	4.0	4.7	4.2	4.5	6.6	5.9	6.7	5.8	5.0	5.4
28	5.2	5.0	4.4	4.5	4.2	3.5	4.6	4.0	4.4	4.4	3.8	4.2	4.1	3.7	3.9	4.7	4.8	5.3	12.9	6.6	2.2	1.1	1.3	1.3
29	0.5	1.5	0.8	1.5	1.0	0.2	2.9	3.0	2.1	3.8	5.1	5.0	5.1	6.1	6.2	6.2	6.2	5.5	4.2	4.5	3.7	2.6	2.1	2.1
30	2.6	5.1	3.8	5.2	7.1	4.6	2.2	2.7	2.8	4.2	5.3	4.6	5.0	5.3	4.2	7.4	6.0	6.1	6.3	6.6	9.5	6.8	4.6	4.3
31	3.0	2.0	2.9	4.0	3.2	2.5	2.7	3.0	3.1	3.7	4.0	4.9	5.9	6.0	7.0	8.0	7.8	7.5	8.0	6.3	7.2	10.6	10.2	9.3

TABLE 2

Average Wind Speed (metres/second)
AEPA Station ID 00010348-C-2
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Ryley Wind Speed Data (m/s) - Month of May 2023																								
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
2	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
3	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
4	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
5	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
6	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
7	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
8	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
9	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
10	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
11	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
12	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
13	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
14	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
15	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
16	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
17	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
18	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
19	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
20	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
21	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
22	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
23	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
24	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
25	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
26	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
27	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
28	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
29	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
30	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
31	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)

Notes:
- (X) - Equipment Malfunction

TABLE 3

Average Wind Speed (metres/second)
AEPA Station ID 00010348-C-3
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Ryley Wind Speed Data (m/s) - Month of May 2023																							
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
2	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
3	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
4	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
5	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
6	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
7	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
8	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
9	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
10	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
11	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
12	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
13	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
14	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
15	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
16	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
17	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
18	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
19	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
20	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
21	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
22	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
23	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
24	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	4.3	3.4	2.4	4.0	3.8	2.5	2.4	4.0	4.3	2.4	1.5	2.2
25	2.7	2.1	2.0	2.2	1.8	2.7	2.4	3.4	4.2	4.8	5.6	4.7	4.7	3.9	3.6	4.3	3.7	3.8	3.6	2.2	1.8	1.3	0.8	0.4
26	0.8	0.5	1.2	0.6	0.3	1.3	0.5	0.7	1.0	1.3	1.5	(X)	1.8	2.3	2.0	2.3	2.2	2.3	2.7	2.3	1.8	1.5	1.2	1.5
27	2.3	2.1	2.2	1.5	1.2	1.4	2.4	2.0	2.7	2.6	3.6	4.2	4.0	3.3	3.7	3.9	3.4	4.0	5.5	4.6	6.1	4.7	4.0	4.6
28	4.6	4.0	3.3	3.2	3.2	3.5	3.6	2.2	1.2	1.4	2.0	2.1	2.0	1.8	1.7	1.7	1.4	3.2	7.7	2.6	1.3	0.4	0.2	0.2
29	0.2	0.3	0.1	0.5	0.1	0.2	0.5	0.6	1.9	3.3	4.4	4.3	4.7	5.0	4.8	5.1	3.7	2.0	1.8	2.0	1.6	1.2	0.9	1.1
30	1.7	2.6	1.9	2.8	3.8	2.2	1.2	1.0	1.8	3.3	4.1	3.5	3.5	3.1	3.3	6.3	4.3	4.5	5.3	5.1	3.8	3.1	1.9	1.8
31	1.8	1.0	1.3	1.5	0.9	1.0	1.4	1.6	1.9	2.0	2.2	2.7	2.6	3.2	3.6	4.1	4.0	3.3	3.6	2.4	4.7	4.3	3.9	3.6

Notes:
- (X) - Equipment Malfunction

TABLE 4

Average Wind Direction (degrees from North)
AEPA Station ID 00010348-C-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Ryley Wind Direction Data (degrees, blowing from) - Month of May 2023																							
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	128	132	128	129	129	127	130	142	151	150	152	151	154	163	170	171	175	171	174	173	161	164	166	173
2	177	179	202	218	177	182	210	227	270	24	35	39	34	33	33	47	40	41	52	84	28	48	63	104
3	135	139	141	142	141	133	134	140	144	146	145	151	155	160	163	169	165	178	166	159	151	150	147	145
4	149	152	148	152	159	151	109	113	150	152	143	143	145	149	152	136	132	127	131	131	127	144	147	131
5	128	132	146	147	127	113	125	131	122	130	123	121	118	119	111	107	108	109	107	112	114	110	113	114
6	114	114	104	98	110	111	113	112	120	125	121	116	111	110	111	120	116	127	114	118	119	113	114	110
7	93	89	99	101	102	93	79	55	65	81	89	104	118	121	123	125	124	129	132	157	157	130	127	126
8	128	123	120	117	116	119	124	132	136	130	126	132	146	102	121	130	116	180	265	284	295	50	104	125
9	120	238	254	190	173	290	172	179	286	238	125	67	118	211	70	122	66	188	250	261	242	216	165	243
10	280	211	257	292	298	292	312	333	155	215	179	245	158	168	140	182	233	160	84	216	245	149	301	178
11	192	211	227	212	186	197	237	133	131	100	134	185	125	135	127	117	90	99	276	219	140	172	225	235
12	177	172	206	236	181	126	171	201	199	215	226	201	180	156	144	176	170	180	172	169	145	150	158	153
13	167	161	166	187	159	177	175	182	178	188	198	177	176	187	193	193	187	186	182	176	172	175	183	185
14	189	194	196	192	193	190	166	171	196	201	201	195	199	188	192	192	189	189	185	180	179	176	162	180
15	187	188	180	173	173	161	153	156	158	175	175	174	177	184	180	186	190	186	179	177	169	159	155	165
16	164	167	166	173	198	196	268	334	345	350	334	341	332	330	342	334	334	331	322	325	184	17	36	202
17	285	285	278	271	274	278	297	311	329	326	333	315	299	281	229	258	280	131	24	43	59	81	98	92
18	113	136	132	212	197	172	127	137	127	123	135	138	134	136	135	151	148	158	148	143	139	140	149	154
19	159	165	163	169	164	166	166	180	185	196	199	199	213	270	279	292	280	264	251	243	245	261	282	302
20	302	312	308	297	301	307	312	235	130	53	54	97	135	141	147	136	132	123	134	141	137	149	152	143
21	142	165	175	198	135	116	107	104	123	136	140	140	124	117	121	124	128	127	124	118	118	108	104	110
22	118	124	189	234	54	42	47	57	49	44	133	179	111	116	135	186	283	290	295	303	289	288	283	86
23	100	105	118	130	148	138	145	157	156	155	149	142	155	166	176	189	201	215	218	276	325	345	345	330
24	326	322	317	318	312	316	309	325	322	318	168	251	244	252	282	288	313	235	225	305	335	332	325	305
25	307	299	297	313	328	322	163	18	28	121	286	139	174	111	64	49	57	48	53	52	60	62	46	52
26	226	300	292	258	240	253	225	228	172	159	147	98	108	93	117	112	117	104	109	124	121	128	152	152
27	146	149	151	157	143	141	150	156	146	157	155	170	168	167	177	158	168	164	149	144	173	178	177	174
28	169	170	168	174	181	164	180	213	243	248	236	239	243	252	257	248	276	286	319	295	206	188	291	254
29	230	274	295	289	259	170	252	242	190	148	177	187	178	172	181	182	278	132	62	78	63	45	177	262
30	183	302	26	67	97	92	205	151	59	101	123	107	93	102	115	141	117	107	129	136	149	36	151	73
31	103	253	322	228	35	256	324	296	258	261	148	110	36	59	33	27	30	82	22	65	328	327	77	15

TABLE 5

Average Wind Direction (degrees from North)
AEPA Station ID 00010348-C-2
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Ryley Wind Direction Data (degrees, blowing from) - Month of May 2023																								
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
2	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
3	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
4	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
5	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
6	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
7	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
8	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
9	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
10	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
11	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
12	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
13	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
14	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
15	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
16	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
17	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
18	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
19	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
20	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
21	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
22	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
23	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
24	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
25	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
26	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
27	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
28	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
29	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
30	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
31	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)

Notes:
- (X) - Equipment Malfunction

TABLE 6

Most Frequent Wind Direction (degrees from North)
AEPA Station ID 00010348-C-3
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Ryley Wind Direction Data (degrees, blowing from) - Month of May 2023																								
Day/Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
2	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
3	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
4	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
5	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
6	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
7	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
8	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
9	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
10	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
11	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
12	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
13	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
14	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
15	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
16	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
17	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
18	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
19	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
20	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
21	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
22	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
23	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
24	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	277	269	279	274	315	316	178	321	329	323	313	280
25	286	269	271	290	314	334	306	120	32	217	335	281	236	190	97	47	48	41	45	43	50	49	39	67
26	267	262	246	236	194	243	216	229	149	138	175	(X)	100	76	109	127	118	128	130	130	119	127	153	147
27	136	137	137	136	124	132	133	146	135	152	148	160	169	165	176	157	152	159	141	142	158	163	164	164
28	156	164	166	166	160	155	174	225	255	245	233	237	245	233	261	256	278	290	317	289	216	219	209	221
29	238	213	207	275	261	264	257	244	176	143	163	178	171	172	177	176	284	116	62	84	53	59	172	211
30	246	273	68	74	99	96	229	107	68	107	116	108	102	96	110	133	117	110	130	135	181	33	209	75
31	115	248	326	195	143	295	328	300	244	318	169	94	35	47	23	34	21	44	20	218	323	303	101	96

Notes:
- (X) - Equipment Malfunction

TABLE 7

Wind Frequency Distribution
AEPA Station ID 00010348-C-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Frequency Distribution Report: Ryley, Alberta - May 2023										
Direction	Angle	Wind Speed (m/s) and Number of Occurences (minutes)							%	Total Occurrences by Direction
		< 0.5	0.5 to < 2.1	2.1 to < 3.6	3.6 to < 5.7	5.7 to < 8.8	8.8 to < 11.1	>= 11.1		
North	> 337.5 - 22.5	98	688	1033	1203	958	483	164	10.4%	4627
Northeast	> 22.5 - 67.5	102	652	890	806	561	210	33	7.3%	3254
East	> 67.5 - 112.5	100	549	775	1310	1124	414	107	9.8%	4379
Southeast	> 112.5 - 157.5	98	1145	3053	4003	3247	944	207	28.4%	12697
South	> 157.5 - 202.5	147	1081	2232	3579	2403	479	85	22.4%	10006
Southwest	> 202.5 - 247.5	161	490	644	793	200	31	0	5.2%	2319
West	> 247.5 - 292.5	154	778	739	991	209	8	1	6.5%	2880
Northwest	> 292.5 - 337.5	131	964	1505	1073	492	205	108	10.0%	4478
Missing/Invalid Hours									0.0%	0
Total Occurences by Speed		991	6347	10871	13758	9194	2774	705		**44640**
Occurences by %		2.2%	14.2%	24.4%	30.8%	20.6%	6.2%	1.6%	**100.00%**	

TABLE 8

Wind Frequency Distribution
AEPA Station ID 00010348-C-2
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Frequency Distribution Report: Ryley, Alberta - May 2023										
Direction	Angle	Wind Speed (m/s) and Number of Occurences (minutes)							%	Total Occurrences by Direction
		< 0.5	0.5 to < 2.1	2.1 to < 3.6	3.6 to < 5.7	5.7 to < 8.8	8.8 to < 11.1	>= 11.1		
North	> 337.5 - 22.5	0	0	0	0	0	0	0	0.0%	0
Northeast	> 22.5 - 67.5	0	0	0	0	0	0	0	0.0%	0
East	> 67.5 - 112.5	0	0	0	0	0	0	0	0.0%	0
Southeast	> 112.5 - 157.5	0	0	0	0	0	0	0	0.0%	0
South	> 157.5 - 202.5	0	0	0	0	0	0	0	0.0%	0
Southwest	> 202.5 - 247.5	0	0	0	0	0	0	0	0.0%	0
West	> 247.5 - 292.5	0	0	0	0	0	0	0	0.0%	0
Northwest	> 292.5 - 337.5	0	0	0	0	0	0	0	0.0%	0
Missing/Invalid Hours									**100%**	44640
Total Occurences by Speed		0	0	0	0	0	0	0		**44640**
Occurences by %		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**100.00%**	

TABLE 9

Wind Frequency Distribution
AEPA Station ID 00010348-C-3
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Frequency Distribution Report: Ryley, Alberta - May 2023										
Direction	Angle	Wind Speed (m/s) and Number of Occurences (minutes)							%	Total Occurrences by Direction
		< 0.5	0.5 to < 2.1	2.1 to < 3.6	3.6 to < 5.7	5.7 to < 8.8	8.8 to < 11.1	>= 11.1		
North	> 337.5 - 22.5	110	657	600	565	116	1	0	4.6%	2049
Northeast	> 22.5 - 67.5	50	503	305	233	27	1	0	2.5%	1119
East	> 67.5 - 112.5	31	297	335	192	32	0	0	2.0%	887
Southeast	> 112.5 - 157.5	47	731	659	624	239	6	0	5.2%	2306
South	> 157.5 - 202.5	70	164	333	473	100	1	0	2.6%	1141
Southwest	> 202.5 - 247.5	180	307	115	64	10	0	0	1.5%	676
West	> 247.5 - 292.5	310	649	222	13	2	0	0	2.7%	1196
Northwest	> 292.5 - 337.5	107	519	393	301	99	18	7	3.2%	1444
Missing/Invalid Hours									75.8%	33822
Total Occurences by Speed		905	3827	2962	2465	625	27	7		**44640**
Occurences by %		2.0%	8.6%	6.6%	5.5%	1.4%	0.1%	0.0%	**100.00%**	

TABLE 10

Total Suspended Particulate (TSP) Matter Results
AEPA Station ID 00010348-I-2
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Filter ID	HV-22-12-13
Test ID	Facility Test # 102
Sample Start Date/Time	23/05/01 15:00:00
Sample End Date/Time	23/05/26 11:00:00
Sampling Time (hours)	25.17
Flow Rate (m^3/min)	1.229
Volume (m^3)	1855.79
TSP Mass (mg)	205
TSP Concentration (ug/m^3)	110.465
Sampler Name	TE-5170V / P8580 TSP VFC

TABLE 11

Total Suspended Particulate (TSP) Matter Results
AEPA Station ID 00010348-I-3
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Filter ID	HV-22-12-14
Test ID	School Test # 102
Sample Start Date/Time	23/05/01 15:00:00
Sample End Date/Time	23/05/26 11:00:00
Sampling Time (hours)	34.08
Flow Rate (m^3/min)	1.232
Volume (m^3)	2519.44
TSP Mass (mg)	302
TSP Concentration (ug/m^3)	119.868
Sampler Name	TE-5170V / P8581 TSP VFC

TABLE 12

Total Suspended Particulate (TSP) Matter Results
AEPA Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Filter ID	HVF-23-03-07	HVF-23-03-06	HVF-23-03-09	HVF-23-03-10	HVF-23-03-08
Test ID	840	841	842	843	844
Sample Start Date/Time	23/05/06 00:00:00	23/05/12 00:00:00	23/05/18 00:00:00	23/05/24 00:00:00	23/05/30 00:00:00
Sample End Date/Time	23/05/07 00:00:00	23/05/13 00:00:00	23/05/19 00:00:00	23/05/25 00:00:00	23/05/31 00:00:00
Sampling Time (hours)	23.85	23.78	23.91	24	23.81
Flow Rate (m^3/min)	1.227	1.227	1.227	1.227	1.227
Volume (m^3)	1755.84	1750.68	1760.25	1766.88	1752.89
TSP Mass (mg)	70.3	60.8	155	149	84.6
TSP Concentration (ug/m^3)	40.038	34.729	88.055	84.329	48.263
Sampler Name	TE-5170V / P11162 TSP VFC	TE-5170V / P11162 TSP VFC	TE-5170V / P11162 TSP VFC	TE-5170V / P11162 TSP VFC	TE-5170V / P11162 TSP VFC

TABLE 13

Particulate Matter PM_{10} Results
AEPA Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Filter ID	C9700052	C9700085	C9700051	C1169901	C1169902
Test ID	840	841	842	843	844
Sample Start Date/Time	23/05/06 00:00:00	23/05/12 00:00:00	23/05/18 00:00:00	23/05/24 00:00:00	23/05/30 00:00:00
Sample End Date/Time	23/05/07 00:00:00	23/05/13 00:00:00	23/05/19 00:00:00	23/05/25 00:00:00	23/05/31 00:00:00
Sampling Time (hours)	24	24	24	24	24
Flow Rate (l/min)	16.7	16.7	16.7	16.7	16.7
Volume (m^3)	23.1	23	23.4	22.9	22.5
PM_{10} Mass (mg)	0.399	0.272	0.905	0.646	0.386
PM_{10} Concentration (ug/m^3)	17.273	11.826	38.675	28.210	17.156
Sampler Name	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905

TABLE 14

VOC and TNMOC Analytical Results
AEPA Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Parameter	Units	Date Sample ID AAAQO[1]	6-May-23 840	12-May-23 841	18-May-23 842	24-May-23 843	30-May-23 844
Total Non-Methane Organic Carbon	ppmv	-	< 0.08	< 0.09	< 0.09	< 0.09	< 0.08
1,2,3-Trimethylbenzene	ppbv	-	< 0.08	< 0.09	< 0.09	< 0.09	< 0.08
1,2,4-Trimethylbenzene	ppbv	-	0.08	0.09	< 0.05	0.07	< 0.05
1,3,5-Trimethylbenzene	ppbv	-	0.08	0.09	< 0.05	< 0.06	< 0.05
1-Butene/Isobutylene	ppbv	-	< 0.10	< 0.11	< 0.10	< 0.11	< 0.10
1-Hexene/2-Methyl-1-pentene	ppbv	-	< 0.12	< 0.13	< 0.12	< 0.13	< 0.12
1-Pentene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05
2,2,4-Trimethylpentane	ppbv	-	< 0.03	< 0.04	< 0.03	< 0.04	< 0.03
2,2-Dimethylbutane	ppbv	-	0.06	< 0.04	< 0.03	< 0.04	< 0.03
2,3,4-Trimethylpentane	ppbv	-	< 0.03	< 0.04	< 0.03	0.13	< 0.03
2,3-Dimethylbutane	ppbv	-	< 0.15	< 0.16	< 0.15	< 0.17	< 0.15
2,3-Dimethylpentane	ppbv	-	< 0.03	< 0.04	< 0.03	0.08	< 0.03
2,4-Dimethylpentane	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05
2-Methylheptane	ppbv	-	< 0.03	< 0.04	< 0.03	0.09	< 0.03
2-Methylhexane	ppbv	-	< 0.05	< 0.05	< 0.05	0.22	< 0.05
2-Methylpentane	ppbv	-	< 0.03	< 0.04	0.06	0.45	< 0.03
3-Methylheptane	ppbv	-	< 0.05	< 0.05	< 0.05	0.06	< 0.05
3-Methylhexane	ppbv	-	< 0.03	0.04	< 0.03	0.24	< 0.03
3-Methylpentane	ppbv	-	< 0.03	< 0.04	< 0.03	0.26	< 0.03
Benzene	ppbv	-	< 0.05	< 0.05	0.16	0.46	0.05
cis-2-Butene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05
cis-2-Pentene	ppbv	-	< 0.03	< 0.04	< 0.03	< 0.04	< 0.03
Cyclohexane	ppbv	-	< 0.07	0.07	< 0.07	0.27	< 0.07
Cyclopentane	ppbv	-	< 0.03	< 0.04	< 0.03	0.08	< 0.03
Ethylbenzene	ppbv	-	0.11	0.13	< 0.05	0.16	< 0.05
Isobutane	ppbv	-	0.26	0.72	0.49	0.59	0.41
Isopentane	ppbv	-	< 0.07	0.20	0.14	0.92	0.18
Isoprene	ppbv	-	0.04	< 0.04	< 0.03	< 0.04	0.09
Isopropylbenzene	ppbv	-	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
m,p-Xylene	ppbv	161	< 0.07	< 0.07	< 0.07	1.10	0.07
m-Diethylbenzene	ppbv	-	0.10	0.12	< 0.03	< 0.04	< 0.03
m-Ethyltoluene	ppbv	-	0.06	0.07	< 0.05	0.06	< 0.05
Methylcyclohexane	ppbv	-	< 0.03	0.06	< 0.03	0.51	< 0.03
Methylcyclopentane	ppbv	-	< 0.08	< 0.09	< 0.09	0.30	< 0.08
n-Butane	ppbv	-	0.09	0.35	0.21	0.65	0.17
n-Decane	ppbv	-	< 0.10	< 0.11	< 0.10	0.17	< 0.10
n-Dodecane	ppbv	-	< 0.5	< 0.5	< 0.5	< 0.6	
n-Heptane	ppbv	-	< 0.07	0.09	< 0.07	0.45	< 0.07
n-Hexane	ppbv	1990	< 0.05	< 0.05	< 0.05	0.62	0.15
n-Nonane	ppbv	-	< 0.07	< 0.07	< 0.07	0.14	< 0.07
n-Octane	ppbv	-	< 0.03	0.13	< 0.03	0.17	< 0.03
n-Pentane	ppbv	-	< 0.07	0.11	< 0.07	0.93	< 0.07
n-Propylbenzene	ppbv	-	< 0.10	< 0.11	< 0.10	< 0.11	< 0.10
n-Undecane	ppbv	-	< 0.8	< 0.9	< 0.9	< 0.9	< 0.8
o-Ethyltoluene	ppbv	-	0.06	0.07	< 0.03	< 0.04	< 0.03
o-Xylene	ppbv	161	0.06	0.07	< 0.05	0.29	< 0.05
p-Diethylbenzene	ppbv	-	0.06	0.08	< 0.03	< 0.04	< 0.03
p-Ethyltoluene	ppbv	-	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Styrene	ppbv	-	0.13	0.15	< 0.07	< 0.07	< 0.07
Toluene	ppbv	106	< 0.05	0.11	< 0.05	1.80	0.05
trans-2-Butene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05
trans-2-Pentene	ppbv	-	< 0.03	< 0.04	< 0.03	< 0.04	< 0.03
Total VOCs [2]	ppbv	-	4.590	6.070	4.900	14.210	4.720

Notes:
(1) Alberta Ambient Air Quality Objectives for a 24 hour averaging period.
(2) Total VOCs are calculated under the assumption that values under the detection limit are equal to the detection limit, as per the AMD.

TABLE 15

TSP Metals Analytical Results
AEPA Station ID 00010348-I-2
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Parameter	Date / Sample ID / Lab Results [1]		26-May-23 / HV-22-12-13 / (ug/m^3)[2]	AAAQO[2] (ug/m^3)
Antimony	276	ng/Filter	3.67E-04	-
Arsenic	2700	ng/Filter	3.59E-03	0.10
Barium	21700000	ng/Filter	2.89E+01	-
Beryllium	188	ng/Filter	2.50E-04	-
Boron	19400000	ng/Filter	2.58E+01	-
Cadmium	236	ng/Filter	3.14E-04	-
Chromium	6510	ng/Filter	8.66E-03	1.0
Cobalt	1150	ng/Filter	1.53E-03	-
Copper	96100	ng/Filter	1.28E-01	-
Iron	2990000	ng/Filter	3.98E+00	-
Lead	6340	ng/Filter	8.43E-03	1.5
Manganese	84400	ng/Filter	1.12E-01	-
Mercury	< 0.70	ng/Filter	9.31E-07	-
Nickel	18100	ng/Filter	2.41E-02	6
Selenium	1500	ng/Filter	1.99E-03	-
Silver	68.9	ng/Filter	9.16E-05	-
Thallium	86.1	ng/Filter	1.14E-04	-
Tin	< 0.20	ng/Filter	2.66E-07	-
Uranium	328	ng/Filter	4.36E-04	-
Vanadium	6980	ng/Filter	9.28E-03	-
Zinc	< 1000	ng/Filter	1.33E-03	-
Sampling Time (hours)	25.17			
Flow Rate (m3/min)	1.229			
Volume Sampled (m^3)	1855.79			

Notes:
(1) These results are from a 25.17 hour averaging period that took place on May 1 to May 26, 2023
(2) Measured data have been converted from the measured 25.17 hour avering period to a 1 hour averaging period based on Alberta's Air Quality Model Guideline Section 7.1.2.

TABLE 16

TSP Metals Analytical Results
AEPA Station ID 00010348-I-3
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

Parameter	Date / Sample ID / Lab Results [1]		26-May-23 / HV-22-12-14 / (ug/m^3)[2]	AAAQO[2] (ug/m^3)
Antimony	418	ng/Filter	4.46E-04	-
Arsenic	2910	ng/Filter	3.10E-03	0.10
Barium	19700000	ng/Filter	2.10E+01	-
Beryllium	157	ng/Filter	1.67E-04	-
Boron	13400000	ng/Filter	1.43E+01	-
Cadmium	585	ng/Filter	6.24E-04	-
Chromium	12300	ng/Filter	1.31E-02	1.0
Cobalt	1750	ng/Filter	1.87E-03	-
Copper	470000	ng/Filter	5.01E-01	-
Iron	4510000	ng/Filter	4.81E+00	-
Lead	15300	ng/Filter	1.63E-02	1.5
Manganese	161000	ng/Filter	1.72E-01	-
Mercury	14.1	ng/Filter	1.50E-05	-
Nickel	54900	ng/Filter	5.85E-02	6
Selenium	1410	ng/Filter	1.50E-03	-
Silver	290	ng/Filter	3.09E-04	-
Thallium	91.1	ng/Filter	9.71E-05	-
Tin	< 0.20	ng/Filter	2.13E-07	-
Uranium	301	ng/Filter	3.21E-04	-
Vanadium	11000	ng/Filter	1.17E-02	-
Zinc	< 1000	ng/Filter	1.07E-03	-
Sampling Time (hours)	34.08			
Flow Rate (m3/min)	1.232			
Volume Sampled (m^3)	2519.44			

Notes:
(1) These results are from a 34.08 hour averaging period that took place on May 1 to May 26, 2023
(2) Measured data have been converted from the measured 34.08 hour avering period to a 1 hour averaging period based on Alberta's Air Quality Model Guideline Section 7.1.2.

TABLE 17

TSP Metals Analytical Results
EPA Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

	Date	18-May-23		Date	24-May-23		Date	18-Apr-23		
	Sample ID	842		Sample ID	843		Sample ID	837[2]		
Parameter	**Lab Results [1]**		**(ug/m^3)[3]**	**Lab Results [1]**		**(ug/m^3)[3]**	**Lab Results [1]**		**(ug/m^3)[3]**	**AAAQO[3] (ug/m^3)**
Antimony	241	ng/Filter	3.33E-04	383	ng/Filter	5.28E-04	256	ng/Filter	3.55E-04	-
Arsenic	6260	ng/Filter	8.65E-03	5980	ng/Filter	8.24E-03	5550	ng/Filter	7.69E-03	0.10
Barium	19200000	ng/Filter	2.65E+01	15300000	ng/Filter	2.11E+01	14000000	ng/Filter	1.94E+01	-
Beryllium	169	ng/Filter	2.34E-04	197	ng/Filter	2.71E-04	158	ng/Filter	2.19E-04	-
Boron	11900000	ng/Filter	1.64E+01	38800000	ng/Filter	5.35E+01	8170000	ng/Filter	1.13E+01	-
Cadmium	311	ng/Filter	4.30E-04	286	ng/Filter	3.94E-04	121	ng/Filter	1.68E-04	-
Chromium	7940	ng/Filter	1.10E-02	14900	ng/Filter	2.05E-02	6090	ng/Filter	8.44E-03	1.0
Cobalt	1130	ng/Filter	1.56E-03	1730	ng/Filter	2.38E-03	847	ng/Filter	1.17E-03	-
Copper	471000	ng/Filter	6.51E-01	346000	ng/Filter	4.77E-01	498000	ng/Filter	6.90E-01	-
Iron	2500000	ng/Filter	3.45E+00	2740000	ng/Filter	3.78E+00	1670000	ng/Filter	2.31E+00	-
Lead	8620	ng/Filter	1.19E-02	29000	ng/Filter	4.00E-02	7560	ng/Filter	1.05E-02	1.5
Manganese	86900	ng/Filter	1.20E-01	134000	ng/Filter	1.85E-01	47100	ng/Filter	6.52E-02	-
Mercury	< 0.70	ng/Filter	9.67E-07	56.5	ng/Filter	7.79E-05	< 0.70	ng/Filter	9.70E-07	-
Nickel	5750	ng/Filter	7.95E-03	32600	ng/Filter	4.49E-02	3300	ng/Filter	4.57E-03	6
Selenium	473	ng/Filter	6.54E-04	2160	ng/Filter	2.98E-03	856	ng/Filter	1.19E-03	-
Silver	289	ng/Filter	3.99E-04	250	ng/Filter	3.45E-04	291	ng/Filter	4.03E-04	-
Thallium	46.0	ng/Filter	6.36E-05	39.4	ng/Filter	5.43E-05	26.6	ng/Filter	3.68E-05	-
Tin	< 0.20	ng/Filter	2.76E-07	< 0.20	ng/Filter	2.76E-07	< 0.20	ng/Filter	2.77E-07	-
Uranium	179	ng/Filter	2.47E-04	160	ng/Filter	2.20E-04	109	ng/Filter	1.51E-04	-
Vanadium	5700	ng/Filter	7.88E-03	15600	ng/Filter	2.15E-02	3800	ng/Filter	5.26E-03	-
Zinc	< 1000	ng/Filter	1.38E-03	< 1000	ng/Filter	1.38E-03	< 1000	ng/Filter	1.39E-03	-
Sampling Time (hours)	23.91			24			23.83			
Flow Rate (l/min)	1.227			1.227			1.227			
Volume Sampled (m^3)	1760.2542			1766.88			1754.3646			

Notes:

(1) These results are from an approximately 24 hour averaging period that took place on May 18 and May 24, 2023.

(2) Due to laboratory delays, the metal analysis results for Test #837 from April 18, 2023 is in the May 2023 monthly report submission

(3) Measured data have been converted from the measured approximately 24 hour avering period to a 1 hour averaging period based on Alberta's Air Quality Model Guideline Section 7.1.2.

TABLE 18

PM10 Metals Analytical Results
EPA Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
May 2023

	Date	18-May-23		Date	24-May-23		Date	18-Apr-23		
	Sample ID	842		Sample ID	843		Sample ID	837[2]		
Parameter	**Lab Results [1]**		**(ug/m^3)[2]**	**Lab Results [1]**		**(ug/m^3)[2]**	**Lab Results [1]**		**(ug/m^3)[2]**	**AAAQO[2] (ug/m^3)**
Antimony	1.22	ng/Filter	1.27E-04	3.47	ng/Filter	3.69E-04	2.26	ng/Filter	2.39E-04	-
Arsenic	7.80	ng/Filter	8.12E-04	12.2	ng/Filter	1.30E-03	6.62	ng/Filter	6.99E-04	0.10
Barium	373	ng/Filter	3.88E-02	363	ng/Filter	3.86E-02	175	ng/Filter	1.85E-02	-
Beryllium	0.77	ng/Filter	8.01E-05	0.66	ng/Filter	7.02E-05	0.39	ng/Filter	4.12E-05	-
Boron	134	ng/Filter	1.39E-02	176	ng/Filter	1.87E-02	41.0	ng/Filter	4.33E-03	-
Cadmium	1.26	ng/Filter	1.31E-04	3.37	ng/Filter	3.58E-04	0.82	ng/Filter	8.66E-05	-
Chromium	36	ng/Filter	3.75E-03	127	ng/Filter	1.35E-02	21	ng/Filter	2.22E-03	1.0
Cobalt	6.74	ng/Filter	7.01E-04	14.7	ng/Filter	1.56E-03	4.10	ng/Filter	4.33E-04	-
Copper	444	ng/Filter	4.62E-02	192	ng/Filter	2.04E-02	728	ng/Filter	7.69E-02	-
Iron	23400	ng/Filter	2.43E+00	22900	ng/Filter	2.43E+00	9030	ng/Filter	9.54E-01	-
Lead	13.1	ng/Filter	1.36E-03	221	ng/Filter	2.35E-02	15.2	ng/Filter	1.61E-03	1.5
Manganese	750	ng/Filter	7.80E-02	1090	ng/Filter	1.16E-01	215	ng/Filter	2.27E-02	-
Mercury	< 0.07	ng/Filter	7.28E-06	2.03	ng/Filter	2.16E-04	< 0.07	ng/Filter	7.39E-06	-
Nickel	20.6	ng/Filter	2.14E-03	314	ng/Filter	3.34E-02	15.1	ng/Filter	1.59E-03	6
Selenium	6.8	ng/Filter	7.08E-04	11.1	ng/Filter	1.18E-03	6.7	ng/Filter	7.08E-04	-
Silver	0.48	ng/Filter	4.99E-05	0.86	ng/Filter	9.14E-05	0.55	ng/Filter	5.81E-05	-
Thallium	0.41	ng/Filter	4.27E-05	0.34	ng/Filter	3.61E-05	0.17	ng/Filter	1.80E-05	-
Tin	< 0.02	ng/Filter	2.08E-06	3.52	ng/Filter	3.74E-04	1.07	ng/Filter	1.13E-04	-
Uranium	1.28	ng/Filter	1.33E-04	1.10	ng/Filter	1.17E-04	0.547	ng/Filter	5.78E-05	-
Vanadium	43.6	ng/Filter	4.54E-03	143	ng/Filter	1.52E-02	24.6	ng/Filter	2.60E-03	-
Zinc	191	ng/Filter	1.99E-02	1780	ng/Filter	1.89E-01	140	ng/Filter	1.48E-02	-
Sampling Time (hours)	24			24			23.43			
Flow Rate (l/min)	16.7			16.7			16.7			
Volume Sampled (m^3)	23.40			22.90			22.9			

Notes:
(1) These results are from an approximately 24 hour averaging period that took place on May 18 and May 24, 2023.
(2) Due to laboratory delays, the metal analysis results for Test #837 from April 18, 2023 is in the May 2023 monthly report submission
(3) Measured data have been converted from the measured approximately 24 hour avering period to a 1 hour averaging period based on Alberta's Air Quality Model Guideline Section 7.1.2.

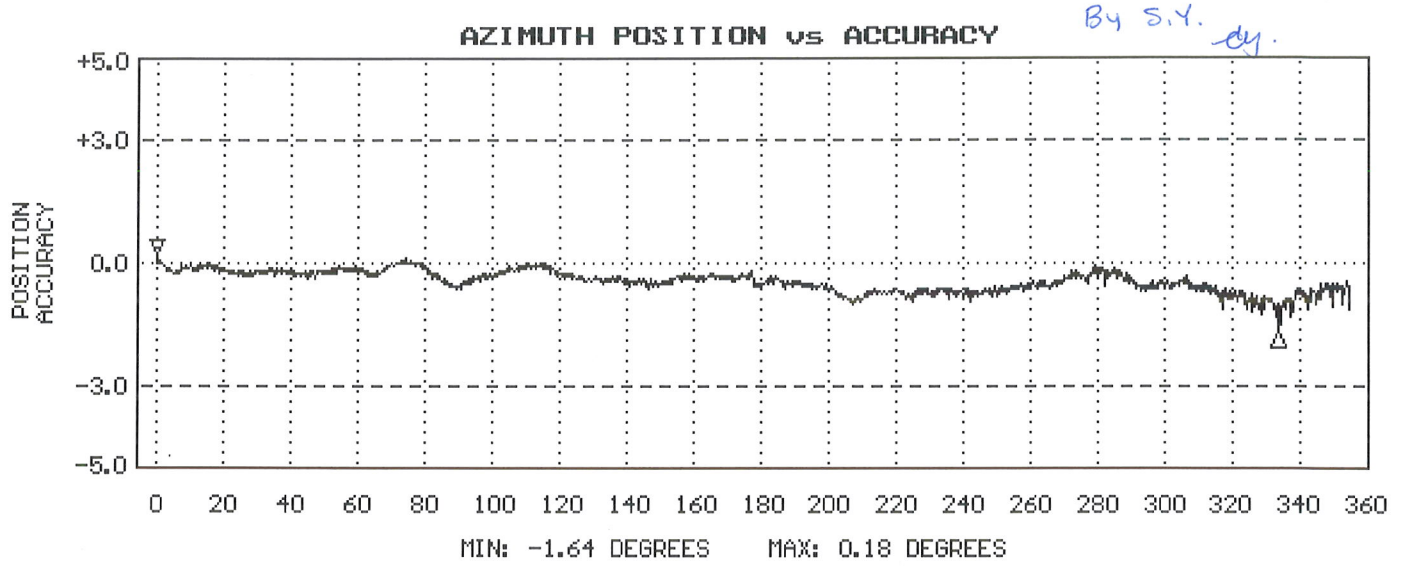
Appendix A
Meteorological Station Calibration Report

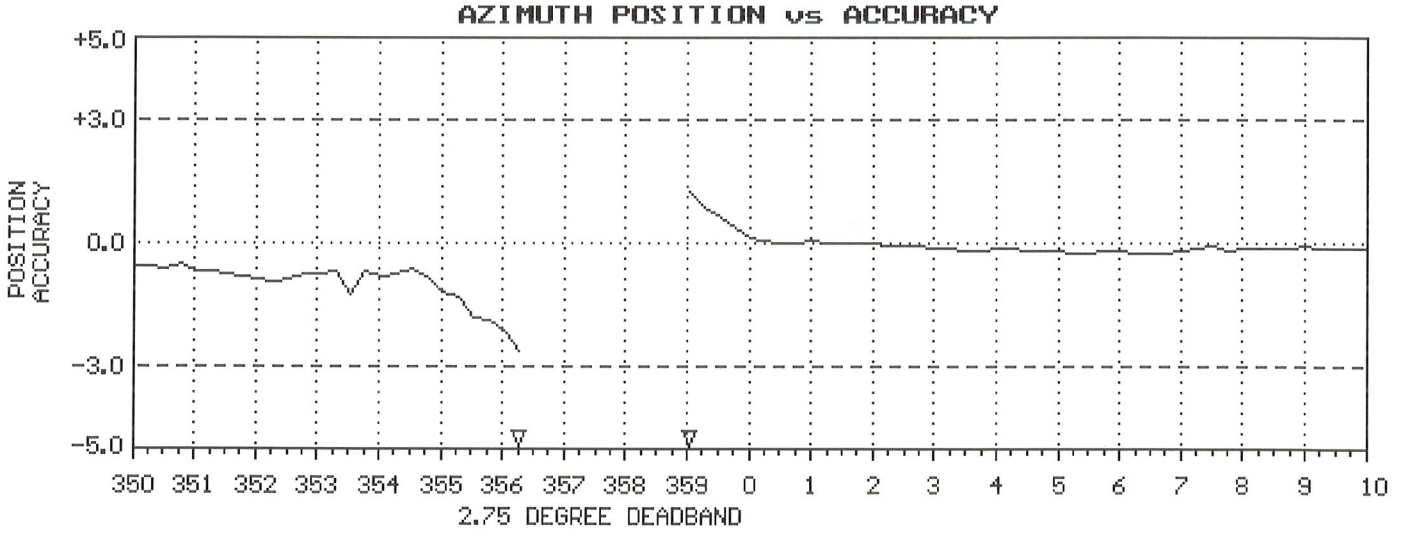
R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

SENSOR: 05305-10A WIND MONITOR-AQ
SENSOR SERIAL NUMBER: WM149768
BEARINGS: SHIELDED/OIL LUBE
DATE: AUG 3 2016
WIND SPEED THRESHOLD TEST: PASS
LOW WIND SPEED AMPLITUDE/FREQUENCY TEST: PASS
HIGH WIND SPEED AMPLITUDE/FREQUENCY TEST: PASS
VANE TORQUE TEST: PASS
SPECIAL NOTES:
SPECIAL NOTES:

Insp. By

Installed Nov. 8/16
By S.Y. dy.





NOTE: Azimuth Position vs Accuracy graphs are accurate to within 0.5 degrees. The accuracy shown in the potentiometer deadband region between 355 and 0 degrees is the result of no resistance change while position changes. The gap represents the actual deadband (open circuit).

GHD Wind Calibration Form

Site and Instrument Information

Site		Wind Monitor	
Location:	Facility	**Make:**	RM Young
Calibration Date:	Mar 18, 2022	**Model:**	05305
Tech.:	P. Shariaty & S. Davey	**Serial #:**	149768
Instrument:	Continuous Wind Monitor	**Calibration due:**	Annually
Time:	10:15 AM - 2:00 PM	**Temperature:**	4°C

Pre-Calibration Inspection	Y/N
Is the wind direction < +/- 10° from compass observation?	Y
Is siting aligned?	Y
Does the propeller rotate 360° with no friction?	Y
Does the vane rotate 360° with no friction?	Y

Calibration Information

Direction (degrees °)			Anemometer Speed (m/s)		
Test Angle (°)	Recorded Angle (°)	Within +/- 5°? (Y/N)	Test Speed (m/s)	Recorded Speed (m/s)	Within +/- 3 (m/s)? (Y/N)
180	181	Y	26.1	26.0	Y
210	213	Y	20.5	20.4	Y
240	242	Y	15.4	15.3	Y
270	272	Y	10.2	10.2	Y
300	303	Y	5.1	5.1	Y
330	332	Y			
0	4	Y			
30	31	Y			
60	61	Y			
90	90	Y			
120	122	Y			
150	151	Y			

Comments

Wind monitor (SN:149768) was removed from tower, inspected and the calibration was checked on March 18, 2022. Mechanical bearings and shaft alignment were inspected. Bearings were replaced and instrument was cleaned of any dust buildup. Alignment was in good condition. Other than the bearings and cleaning, no additional maintenance was required. It is recommended that instrument be cleaned biannually and bearings checked/replaced at the 2023 calibration interval. After calibration check, wind monitor was re-installed and sited back to original position.

Calibration Adjustment Required?: No

Conversion Factors

m/s	RPM
19.456	3800
15.360	3000
12.800	2500
9.216	1800
7.680	1500
5.632	1100
4.096	800
2.560	500
1.024	200

Appendix B
Sampling Field Sheets

FIELD SHEET				
PM_{10} (Partisol Monitoring Unit)				
CLEAN HARBORS CANADA INC				
RYLEY, ALBERTA				
A) GENERAL INFORMATION				
Filter ID:	C9700052			
PO Number:	233432			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 840			
Sample Date:	23/05/06		yy/mm/dd	
Shipping Date to Laboratory:	23/05/09			
PM10 Analysis Trigger Weight (mg):	1.16		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/05/06			
Sampling Start Time:	00:00			
Current Instrument Date:	23/05/01			
Current Instrument Time:	10:16			
Ambient Temperature °C:	20.9			
Barometric Pressure (mm Hg):	697			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Scattered clouds			
Weather Conditions set up:	Scattered clouds			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	23/05/07			
Sampling End Time:	00:00			
Current Instrument Date:	23/05/08			
Current Instrument Time:	10:11			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	23.1			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	18.5			
Barometric Pressure (mm Hg) :	699			
Sample Filter Temperature °C :	19.1			
Flow Rate Coefficient of Variation (%CV):	0.2			
Weather Conditions :	Partly sunny			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	No		(Yes/No)	
Filter ID:				
Filter Batch Number:				
Current Instrument Date:				
Current Instrument Time:				
C) OBSERVATIONS				
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No			
Describe facility operations that may affect sampling event:				
Comments:				

FIELD SHEET
VOLATILE ORGANIC COMPOUNDS
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 840	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 840	
Sample Date:	23/05/06	yy/mm/dd
Shipping Date to Laboratory:	23/05/09	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	31824	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/05/01	23/05/08
Ambient Temperature °C (inside shed):	22.3	25.4
Barometric Pressure (mm Hg):	697	699
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.1	(-)3
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	Scattered Clouds
Describe facility operations that may affect sampling event:	None
Comments:	

CLEAN HARBORS CANADA INC
TSP (High Volume Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

1. SAMPLING INFORMATION

Sample ID	Test #840			
Lab Filter ID	HVF-23-03-07			
Start Sampling	5 mm	6 dd	0 hr	2023
Stop Sampling	5 mm	7 dd	0 hr	2023
Timer Initial:	488.82			
Timer Final:	512.67			
	23.85			
Total Sampling Time	23 hr	51 min	1431	
Average Flow Rate	cfm			
Actual m3/min	1.227			
Air Volume	1755.8 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			
TSP Analysis Trigger Weight	87.8 mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 10-Mar-23

3. GUIDELINES

- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.
- TSP analysis triggers when concentration >0.05mg/m3

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

FIELD SHEET				
PM_{10} (Partisol Monitoring Unit)				
CLEAN HARBORS CANADA INC				
RYLEY, ALBERTA				
A) GENERAL INFORMATION				
Filter ID:	C9700085			
PO Number:	233432			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 841			
Sample Date:	23/05/12		yy/mm/dd	
Shipping Date to Laboratory:	23/05/16			
PM10 Analysis Trigger Weight (mg):	1.15		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/05/12			
Sampling Start Time:	00:00			
Current Instrument Date:	23/05/08			
Current Instrument Time:	10:12			
Ambient Temperature °C:	18.5			
Barometric Pressure (mm Hg):	699			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Mostly Sunny			
Weather Conditions set up:	Mostly Cloudy			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	23/05/13			
Sampling End Time:	00:00			
Current Instrument Date:	23/05/15			
Current Instrument Time:	8:26			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	23			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	21.9			
Barometric Pressure (mm Hg) :	707			
Sample Filter Temperature °C :	21.0			
Flow Rate Coefficient of Variation (%CV):	0.1			
Weather Conditions :	Sunny			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	No		(Yes/No)	
Filter ID:				
Filter Batch Number:				
Current Instrument Date:				
Current Instrument Time:				
C) OBSERVATIONS				
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No			
Describe facility operations that may affect sampling event:				
Comments:				

FIELD SHEET
VOLATILE ORGANIC COMPOUNDS
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 841	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 841	
Sample Date:	23/05/12	yy/mm/dd
Shipping Date to Laboratory:	23/05/16	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	29017	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/05/08	23/05/15
Ambient Temperature °C (inside shed):	25.4	20.2
Barometric Pressure (mm Hg):	699	707
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.1	(-)8
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	Mostly Sunny
Describe facility operations that may affect sampling event:	None
Comments:	

CLEAN HARBORS CANADA INC
TSP (High Volume Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

1. SAMPLING INFORMATION

Sample ID	Test #841			
Lab Filter ID	HVF-23-03-06			
Start Sampling	5 mm	12 dd	0 hr	2023
Stop Sampling	5 mm	13 dd	0 hr	2023
Timer Initial:	512.67			
Timer Final:	536.45			
	23.78			
Total Sampling Time	23 hr	47 min	1427	
Average Flow Rate	cfm			
Actual m3/min	1.227			
Air Volume	1750.7 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			
TSP Analysis Trigger Weight	87.5 mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 10-Mar-23

3. GUIDELINES

- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.
- TSP analysis triggers when concentration >0.05mg/m3

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

Test 627-PM10

FIELD SHEET
PM_{10} (Partisol Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Filter ID:	C9700051	
PO Number:	233432	
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905	
Test number :	Particulate Test 842	
Sample Date:	23/05/18	yy/mm/dd
Shipping Date to Laboratory:	23/05/24	
PM10 Analysis Trigger Weight (mg):	1.17	weight which PM10 conc. > 50 µg/m^3

B) SAMPLING INFORMATION

SAMPLE START		
Sampling Start Date:	23/05/18	
Sampling Start Time:	00:00	
Current Instrument Date:	23/05/15	
Current Instrument Time:	8:33	
Ambient Temperature °C:	21.9	
Barometric Pressure (mm Hg):	707	
Leak Check:	Pass	(Pass/Fail)
Clean PM10 Inlet:	Yes	(Yes/No)
Weather Conditions Sampling date :	Mostly Cloudy	
Weather Conditions set up:	Mostly Sunny	
SAMPLE RETRIEVAL		
Sampled by	T. Webb	
Sampling End Date:	23/05/18	
Sampling End Time:	00:00	
Current Instrument Date:	23/05/23	
Current Instrument Time:	10:12	
Run Status:	OK	(Ensure Run Status is OK)
Total Sampling Time (Hours):	24	
Volume Sampled (m^3):	23.4	
Average Flow Rate (L/min):	16.7 L/min	
AmbT °C :	19.5	
Barometric Pressure (mm Hg) :	697	
Sample Filter Temperature °C :	20.5	
Flow Rate Coefficient of Variation (%CV):	0.1	
Weather Conditions :	Sunny	
Leak Check:	Pass	(Pass/Fail)
FIELD BLANK		(Once every quarter)
Was a field blank collected	No	(Yes/No)
Filter ID:		
Filter Batch Number:		
Current Instrument Date:		
Current Instrument Time:		

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event? No

Describe facility operations that may affect sampling event:

Comments:

FIELD SHEET
VOLATILE ORGANIC COMPOUNDS
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 842	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 842	
Sample Date:	23/05/18	yy/mm/dd
Shipping Date to Laboratory:	23/05/24	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32266	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/05/15	23/05/23
Ambient Temperature °C (inside shed):	20.2	23.4
Barometric Pressure (mm Hg):	707	697
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.1	(-)4
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	Mostly Cloudy
Describe facility operations that may affect sampling event:	None
Comments:	

Test 627-PM10

CLEAN HARBORS CANADA INC
TSP (High Volume Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

1. SAMPLING INFORMATION

Sample ID	Test #842			
Lab Filter ID	HVF-23-03-09			
Start Sampling	5 mm	18 dd	0 hr	2023
Stop Sampling	5 mm	19 dd	0 hr	2023
Timer Initial:	536.45			
Timer Final:	560.36			
	23.91			
Total Sampling Time	23 hr	55 min	1435	
Average Flow Rate	cfm			
Actual m3/min	1.227			
Air Volume	1760.3 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			
TSP Analysis Trigger Weight	88.0 mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 10-Mar-23

3. GUIDELINES

- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.
- TSP analysis triggers when concentration >0.05mg/m3

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	C1169901		
PO Number:	233432		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 843		
Sample Date:	23/05/24	yy/mm/dd	
Shipping Date to Laboratory:	23/05/26		
PM10 Analysis Trigger Weight (mg):	1.15	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/05/24		
Sampling Start Time:	00:00		
Current Instrument Date:	23/05/23		
Current Instrument Time:	10:18		
Ambient Temperature °C:	20.4		
Barometric Pressure (mm Hg):	697		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Mostly Cloudy		
Weather Conditions set up:	Mostly Cloudy		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/05/25		
Sampling End Time:	00:00		
Current Instrument Date:	23/05/26		
Current Instrument Time:	7:52		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	22.9		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	16.0		
Barometric Pressure (mm Hg) :	703		
Sample Filter Temperature °C :	16.1		
Flow Rate Coefficient of Variation (%CV):	0.2		
Weather Conditions :	Mostly Sunny		
Leak Check:	Pass	(Pass/Fail)	
FIELD BLANK		(Once every quarter)	
Was a field blank collected	Yes	(Yes/No)	
Filter ID:	C9700088		
Filter Batch Number:			
Current Instrument Date:	23/05/26		
Current Instrument Time:	7:52		
C) OBSERVATIONS			
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No		
Describe facility operations that may affect sampling event:			
Comments:			

FIELD SHEET
VOLATILE ORGANIC COMPOUNDS
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 843	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 843	
Sample Date:	23/05/24	yy/mm/dd
Shipping Date to Laboratory:	23/05/26	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	28904	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/05/23	23/05/26
Ambient Temperature °C (inside shed):	23.4	16.0
Barometric Pressure (mm Hg):	697	703
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.1	(-)8
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	Mostly Cloudy
Describe facility operations that may affect sampling event:	None
Comments:	

CLEAN HARBORS CANADA INC
TSP (High Volume Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

1. SAMPLING INFORMATION

Sample ID	Test #843			
Lab Filter ID	HVF-23-03-10			
Start Sampling	5 mm	24 dd	0 hr	2023
Stop Sampling	5 mm	25 dd	0 hr	2023
Timer Initial:	560.36			
Timer Final:	584.36			
	24.00			
Total Sampling Time	24 hr	0 min	1440	
Average Flow Rate	cfm			
Actual m3/min	1.227			
Air Volume	1766.9 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			
TSP Analysis Trigger Weight	88.3 mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	10-Mar-23

3. GUIDELINES

- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.
- TSP analysis triggers when concentration >0.05mg/m3

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

_____

FIELD SHEET				
PM_{10} (Partisol Monitoring Unit)				
CLEAN HARBORS CANADA INC				
RYLEY, ALBERTA				
A) GENERAL INFORMATION				
Filter ID:	C1169902			
PO Number:	233432			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 844			
Sample Date:	23/05/30		yy/mm/dd	
Shipping Date to Laboratory:	23/06/01			
PM10 Analysis Trigger Weight (mg):	1.13		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/05/30			
Sampling Start Time:	00:00			
Current Instrument Date:	23/05/26			
Current Instrument Time:	8:03			
Ambient Temperature °C:	17.0			
Barometric Pressure (mm Hg):	703			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Partly Cloudy			
Weather Conditions set up:	Passing clouds			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	23/05/31			
Sampling End Time:	00:00			
Current Instrument Date:	23/05/31			
Current Instrument Time:	10:12			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	22.5			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	19.9			
Barometric Pressure (mm Hg) :	697			
Sample Filter Temperature °C :	22.0			
Flow Rate Coefficient of Variation (%CV):	0.2			
Weather Conditions :	Scattered clouds			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	No		(Yes/No)	
Filter ID:				
Filter Batch Number:				
Current Instrument Date:				
Current Instrument Time:				
C) OBSERVATIONS				
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No			
Describe facility operations that may affect sampling event:				
Comments:				

FIELD SHEET
VOLATILE ORGANIC COMPOUNDS
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 844	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 844	
Sample Date:	23/05/30	yy/mm/dd
Shipping Date to Laboratory:	23/06/01	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	31818	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/05/26	23/05/31
Ambient Temperature °C (inside shed):	16.0	22.6
Barometric Pressure (mm Hg):	703	697
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.1	(-)5
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	Partly Cloudy
Describe facility operations that may affect sampling event:	None
Comments:	

CLEAN HARBORS CANADA INC
TSP (High Volume Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

1. SAMPLING INFORMATION

Sample ID	Test #844				
Lab Filter ID	HVF-23-03-08				
Start Sampling	5 mm	30 dd	0 hr	2023	
Stop Sampling	5 mm	31 dd	0 hr	2023	
Timer Initial:	584.36				
Timer Final:	608.17				
	23.81				
Total Sampling Time	23 hr		49 min		1429
Average Flow Rate		cfm			
Actual m3/min	1.227				
Air Volume	1752.9	cubic metres			
Net TSP Weight		g			
TSP Concentration		mg/m3			
TSP Analysis Trigger Weight	87.6	mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	10-Mar-23

3. GUIDELINES

- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.
- TSP analysis triggers when concentration >0.05mg/m3

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

_____

FIELD SHEET
TSP (High Volume Monitoring Unit)
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

1. SAMPLING INFORMATION

Sample ID	Facility Test # 102			
Lab Filter ID	HV-22-12-13			
Start Sampling	5 mm	1 dd	15 hr	2023
Stop Sampling	5 mm	26 dd	11 hr	2023
Timer Initial:	2472.33			
Timer Final:	2497.5			
Total Sampling Time	25 hr	10 min	1510	
Average Flow Rate	cfm			
Actual m3/min	1.229			
Air Volume	1855.8 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			

2. SAMPLING INFORMATION

Sample ID	School Test # 102			
Lab Filter ID	HV-22-12-14			
Start Sampling	5 mm	1 dd	15 hr	2023
Stop Sampling	5 mm	26 dd	11 hr	2023
Timer Initial:	3057.06			
Timer Final:	3091.14			
Total Sampling Time	34 hr	5 min	2045	
Average Flow Rate	cfm			
Actual m3/min	1.232			
Air Volume	2519.4 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 10-Mar-23

3. GUIDELINES

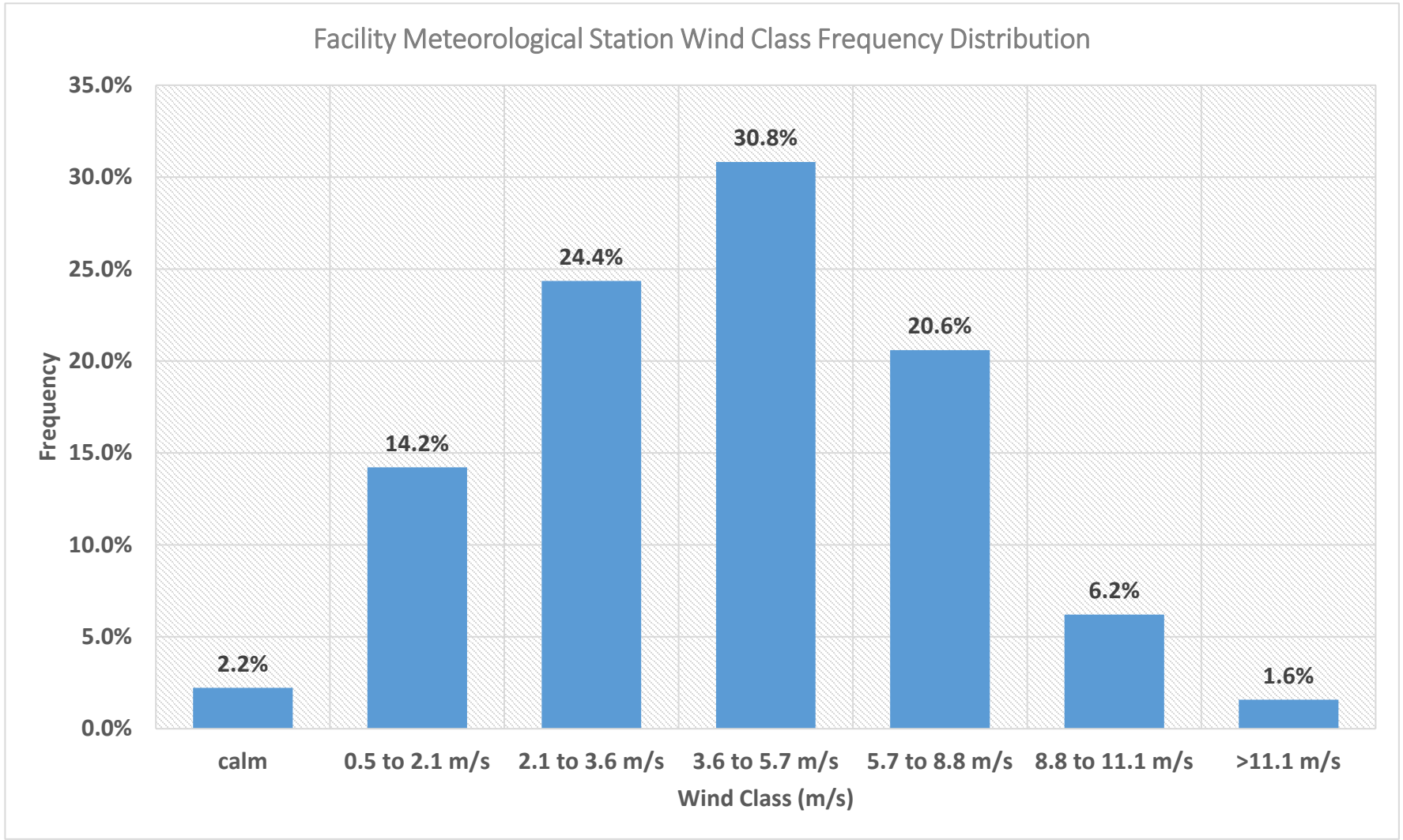
- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.

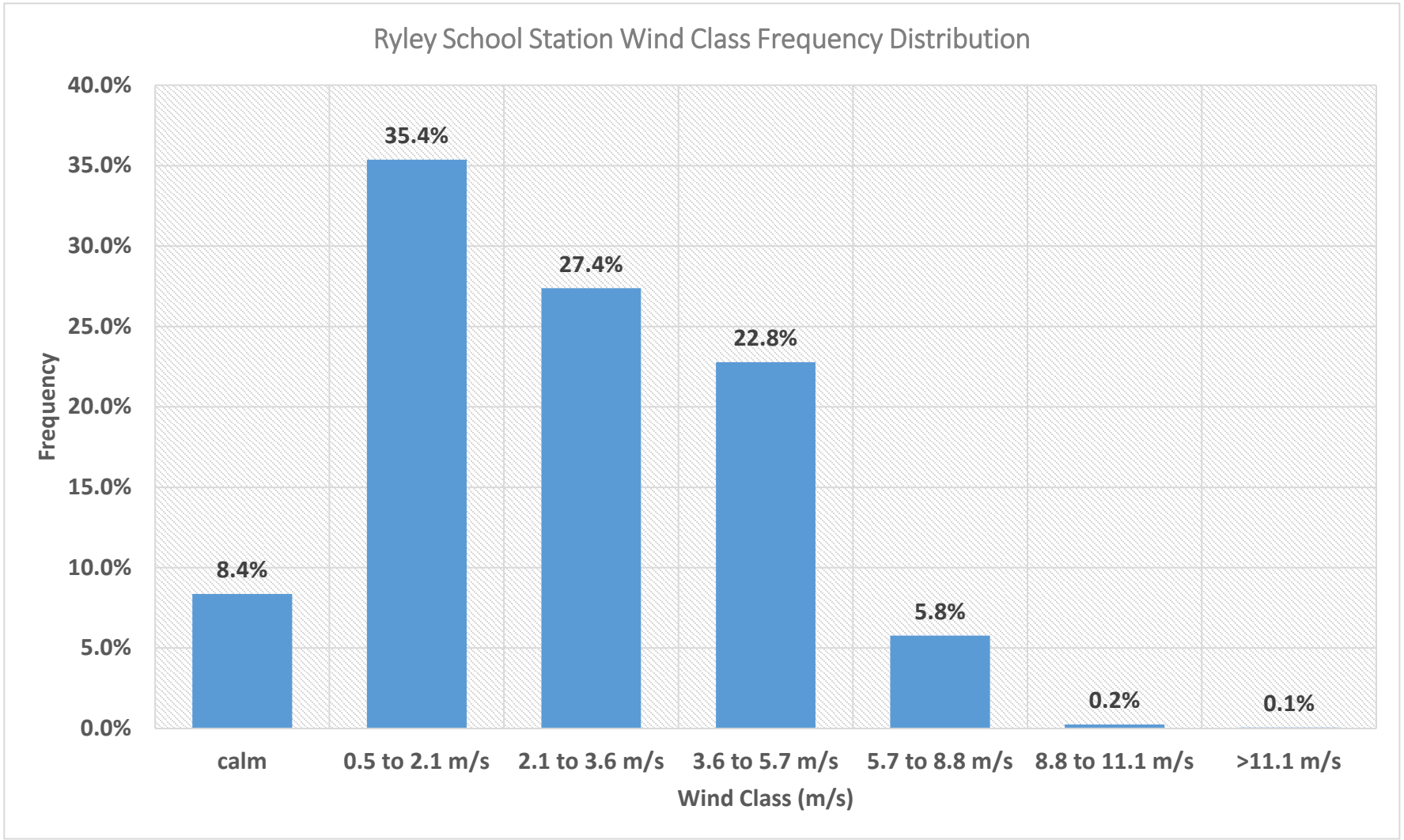
Sample was collected in accordance with the above guidelines.

Sampler's Signature: Alan Yuka

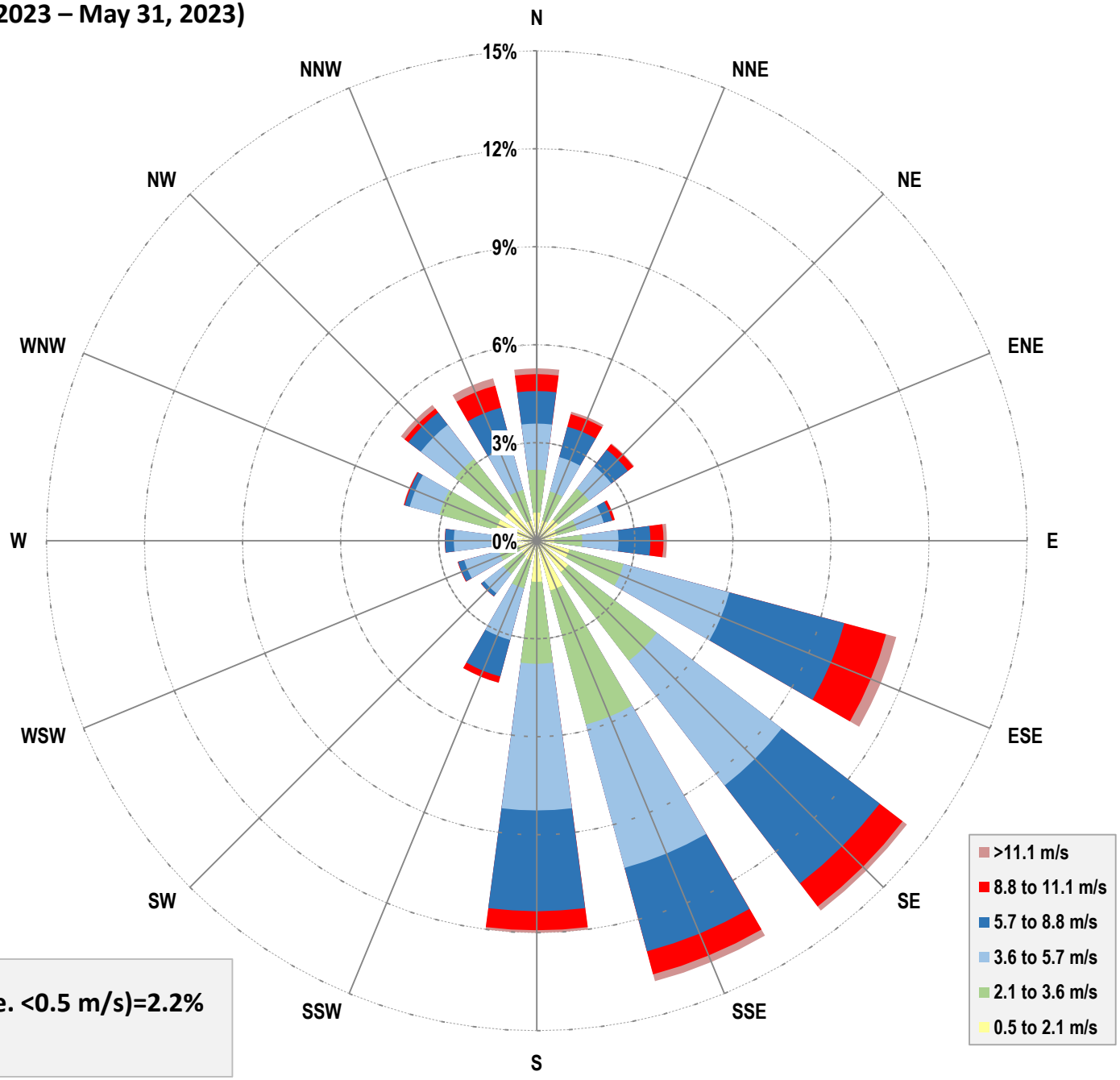
Comments:

Appendix C
Wind Class Frequency Distribution Graphs and Wind Rose


Facility Meteorological Station Wind Class Frequency Distribution
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Frequency
2.2%
14.2%
24.4%
30.8%
20.6%
6.2%
1.6%
calm
0.5 to 2.1 m/s
2.1 to 3.6 m/s
3.6 to 5.7 m/s
5.7 to 8.8 m/s
8.8 to 11.1 m/s
>11.1 m/s
Wind Class (m/s)

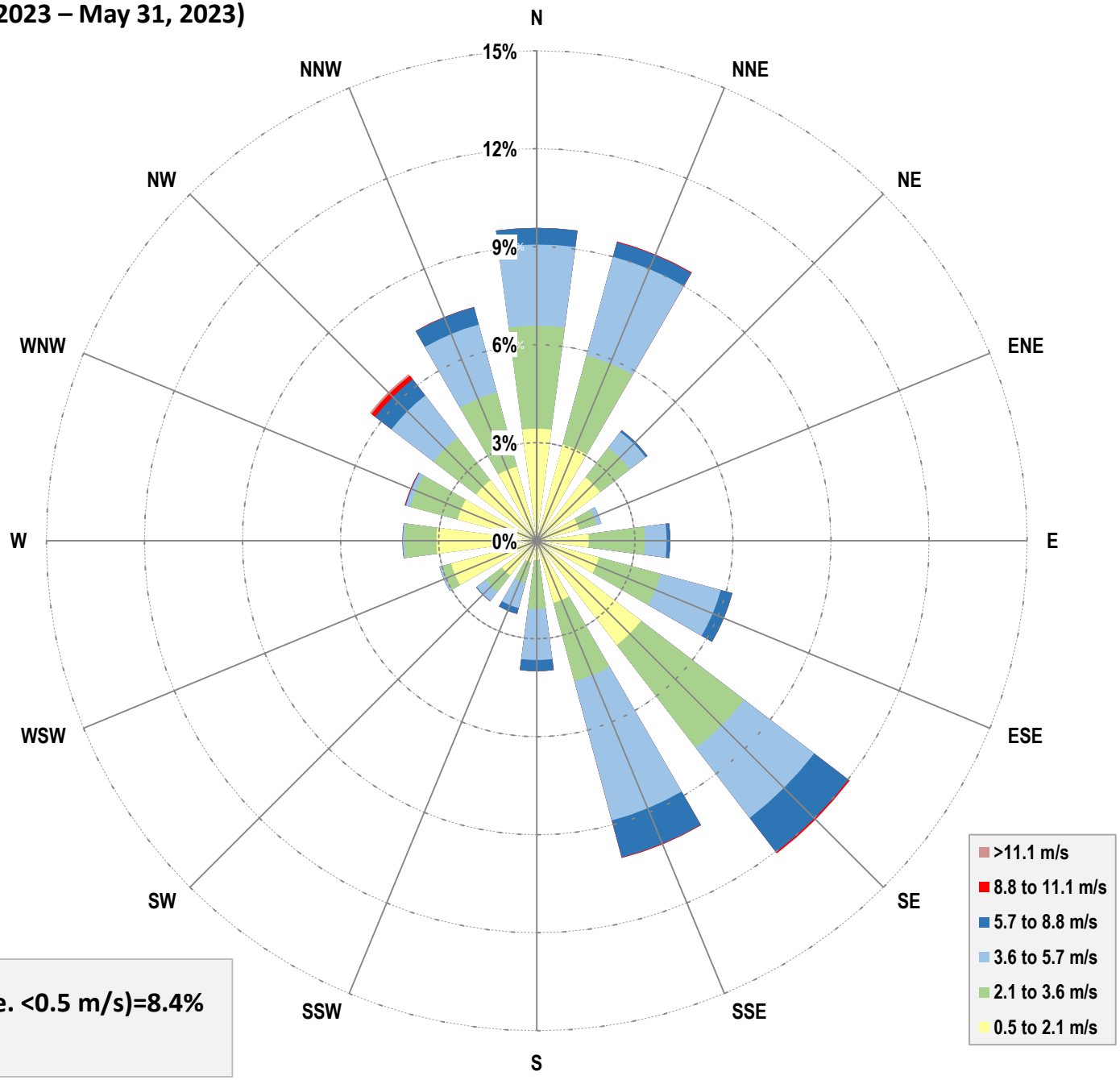

Ryley School Station Wind Class Frequency Distribution
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Frequency
8.4%
35.4%
27.4%
22.8%
5.8%
0.2%
0.1%
calm
0.5 to 2.1 m/s
2.1 to 3.6 m/s
3.6 to 5.7 m/s
5.7 to 8.8 m/s
8.8 to 11.1 m/s
>11.1 m/s
Wind Class (m/s)

Clean Harbors Facility Meteorological Station
(May 1, 2023 – May 31, 2023)



calms (i.e. <0.5 m/s)=2.2%

Clean Harbors Ryley School Station
(May 1, 2023 – May 31, 2023)



calms (i.e. <0.5 m/s)=8.4%

Appendix D
Chain of Custody Forms and Laboratory Analytical Reports

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Stephanie Dennis
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: Ryley Facility Test #102
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Filter Number # HV-22-12-13
DATE SAMPLED: 01-May-23
DATE RECEIVED: 30-May-23
REPORT CREATED: 28-Jun-23
REPORT NUMBER: 23050416
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050416-001	Antimony		276	ng/Filter	0.30	AC-021	19-Jun-23
23050416-001	Arsenic		2700	ng/Filter	0.30	AC-021	19-Jun-23
23050416-001	Barium		21700000	ng/Filter	300	AC-021	19-Jun-23
23050416-001	Beryllium		188	ng/Filter	0.60	AC-021	19-Jun-23
23050416-001	Boron		19400000	ng/Filter	600	AC-021	19-Jun-23
23050416-001	Cadmium		236	ng/Filter	0.80	AC-021	19-Jun-23
23050416-001	Chromium		6510	ng/Filter	20	AC-021	19-Jun-23
23050416-001	Cobalt		1150	ng/Filter	0.50	AC-021	19-Jun-23
23050416-001	Copper		96100	ng/Filter	20	AC-021	19-Jun-23
23050416-001	Iron		2990000	ng/Filter	80	AC-021	19-Jun-23
23050416-001	Lead		6340	ng/Filter	0.70	AC-021	19-Jun-23
23050416-001	Manganese		84400	ng/filter	1.0	AC-021	19-Jun-23
23050416-001	Mercury	K, T, U	< 0.70	ng/Filter	0.70	AC-021	19-Jun-23
23050416-001	Nickel		18100	ng/Filter	5.0	AC-021	19-Jun-23
23050416-001	Selenium		1500	ng/Filter	4.0	AC-021	19-Jun-23
23050416-001	Silver		68.9	ng/Filter	0.50	AC-021	19-Jun-23
23050416-001	Thallium		86.1	ng/Filter	0.20	AC-021	19-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 28, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Ryley Facility Test #102		Air Filter	01-May-23

DESCRIPTION: Filter Number # HV-22-12-13

REPORT NUMBER: 23050416 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050416-001	Tin	T, U	< 0.20	ng/Filter	0.20	AC-021	19-Jun-23
23050416-001	Uranium		328	ng/Filter	0.200	AC-021	19-Jun-23
23050416-001	Vanadium		6980	ng/Filter	0.40	AC-021	19-Jun-23
23050416-001	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	19-Jun-23
23050416-001	Particulate Weight		205	mg	0.1	Research	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Ryley School Test #102		Air Filter	01-May-23

DESCRIPTION: Filter Number # HV-22-12-14

REPORT NUMBER: 23050416 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050416-002	Antimony		418	ng/Filter	0.30	AC-021	19-Jun-23
23050416-002	Arsenic		2910	ng/Filter	0.30	AC-021	19-Jun-23
23050416-002	Barium		19700000	ng/Filter	300	AC-021	19-Jun-23
23050416-002	Beryllium		157	ng/Filter	0.60	AC-021	19-Jun-23
23050416-002	Boron		13400000	ng/Filter	600	AC-021	19-Jun-23
23050416-002	Cadmium		585	ng/Filter	0.80	AC-021	19-Jun-23
23050416-002	Chromium		12300	ng/Filter	20	AC-021	19-Jun-23
23050416-002	Cobalt		1750	ng/Filter	0.50	AC-021	19-Jun-23
23050416-002	Copper		470000	ng/Filter	20	AC-021	19-Jun-23
23050416-002	Iron		4510000	ng/Filter	80	AC-021	19-Jun-23
23050416-002	Lead		15300	ng/Filter	0.70	AC-021	19-Jun-23
23050416-002	Manganese		161000	ng/filter	1.0	AC-021	19-Jun-23
23050416-002	Mercury		14.1	ng/Filter	0.70	AC-021	19-Jun-23
23050416-002	Nickel		54900	ng/Filter	5.0	AC-021	19-Jun-23
23050416-002	Selenium		1410	ng/Filter	4.0	AC-021	19-Jun-23
23050416-002	Silver		290	ng/Filter	0.50	AC-021	19-Jun-23
23050416-002	Thallium		91.1	ng/Filter	0.20	AC-021	19-Jun-23
23050416-002	Tin	T, U	< 0.20	ng/Filter	0.20	AC-021	19-Jun-23
23050416-002	Uranium		301	ng/Filter	0.200	AC-021	19-Jun-23
23050416-002	Vanadium		11000	ng/Filter	0.40	AC-021	19-Jun-23
23050416-002	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	19-Jun-23
23050416-002	Particulate Weight		302	mg	0.1	Research	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23050416	01	28-Jun-23	Report created

Methods

Method	Description
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
Research	Research method

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

23050416

Quote ID: QT140005

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Robbi Gooding
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: Hi-Vol Test #: 837, Flt # HVF-23-03-11
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Hi-Vol Filter
DATE SAMPLED: 18-Apr-23 0:00
DATE RECEIVED: 30-May-23
REPORT CREATED: 28-Jun-23
REPORT NUMBER: 23050421
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050421-002	Antimony		256	ng/Filter	0.30	AC-021	19-Jun-23
23050421-002	Arsenic		5550	ng/Filter	0.30	AC-021	19-Jun-23
23050421-002	Barium		14000000	ng/Filter	300	AC-021	19-Jun-23
23050421-002	Beryllium		158	ng/Filter	0.60	AC-021	19-Jun-23
23050421-002	Boron		8170000	ng/Filter	600	AC-021	19-Jun-23
23050421-002	Cadmium		121	ng/Filter	0.80	AC-021	19-Jun-23
23050421-002	Chromium		6090	ng/Filter	20	AC-021	19-Jun-23
23050421-002	Cobalt		847	ng/Filter	0.50	AC-021	19-Jun-23
23050421-002	Copper		498000	ng/Filter	20	AC-021	19-Jun-23
23050421-002	Iron		1670000	ng/Filter	80	AC-021	19-Jun-23
23050421-002	Lead		7560	ng/Filter	0.70	AC-021	19-Jun-23
23050421-002	Manganese		47100	ng/filter	1.0	AC-021	19-Jun-23
23050421-002	Mercury	K, T, U	< 0.70	ng/Filter	0.70	AC-021	19-Jun-23
23050421-002	Nickel		3300	ng/Filter	5.0	AC-021	19-Jun-23
23050421-002	Selenium		856	ng/Filter	4.0	AC-021	19-Jun-23
23050421-002	Silver		291	ng/Filter	0.50	AC-021	19-Jun-23
23050421-002	Thallium		26.6	ng/Filter	0.20	AC-021	19-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 28, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Hi-Vol Test #: 837, Flt # HVF-23-03-11		Air Filter	18-Apr-23 0:00

DESCRIPTION: Hi-Vol Filter

REPORT NUMBER: 23050421 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050421-002	Tin	T, U	< 0.20	ng/Filter	0.20	AC-021	19-Jun-23
23050421-002	Uranium		109	ng/Filter	0.200	AC-021	19-Jun-23
23050421-002	Vanadium		3800	ng/Filter	0.40	AC-021	19-Jun-23
23050421-002	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	19-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test #: 837 Flt # C9700054		Air Filter	18-Apr-23 0:00

DESCRIPTION: PM10 Filter

REPORT NUMBER: 23050421 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050421-001	Antimony		2.26	ng/filter	0.03	AC-021	16-Jun-23
23050421-001	Arsenic		6.62	ng/filter	0.03	AC-021	16-Jun-23
23050421-001	Barium		175	ng/filter	0.3	AC-021	16-Jun-23
23050421-001	Beryllium		0.39	ng/filter	0.06	AC-021	16-Jun-23
23050421-001	Boron		41.0	ng/filter	0.6	AC-021	16-Jun-23
23050421-001	Cadmium		0.82	ng/filter	0.08	AC-021	16-Jun-23
23050421-001	Chromium		21	ng/filter	2	AC-021	16-Jun-23
23050421-001	Cobalt		4.10	ng/filter	0.05	AC-021	16-Jun-23
23050421-001	Copper		728	ng/filter	2	AC-021	16-Jun-23
23050421-001	Iron		9030	ng/filter	8	AC-021	16-Jun-23
23050421-001	Lead		15.2	ng/filter	0.07	AC-021	16-Jun-23
23050421-001	Manganese		215	ng/filter	0.1	AC-021	16-Jun-23
23050421-001	Mercury	K, T, U	< 0.07	ng/filter	0.07	AC-021	16-Jun-23
23050421-001	Nickel		15.1	ng/filter	0.5	AC-021	16-Jun-23
23050421-001	Selenium		6.7	ng/filter	0.4	AC-021	16-Jun-23
23050421-001	Silver		0.55	ng/filter	0.05	AC-021	16-Jun-23
23050421-001	Thallium	I	0.17	ng/filter	0.02	AC-021	16-Jun-23
23050421-001	Tin		1.07	ng/filter	0.02	AC-021	16-Jun-23
23050421-001	Uranium		0.547	ng/filter	0.020	AC-021	16-Jun-23
23050421-001	Vanadium		24.6	ng/filter	0.04	AC-021	16-Jun-23
23050421-001	Zinc		140	ng/filter	1	AC-021	16-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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Revision History

Order ID	Ver	Date	Reason
23050421	01	28-Jun-23	Report created

Methods

Method	Description
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

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Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

23050421

Project ID: Test # 837. Report also to Stan Yuha. Invoice also to Stephanie Dennis. No canister, metals analysis for filters from order 23040208.

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Sample Comments

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Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Stephanie Dennis
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: HI-VOL Test #r 840 - HVF-23-03-07
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 06-May-23 0:00
DATE RECEIVED: 11-May-23
REPORT CREATED: 06-Jun-23
REPORT NUMBER: 23050172
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050172-003	Particulate Weight		70.3	mg	0.1	Research	05-Jun-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 6, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 840 - C9700052		Air Filter	06-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050172 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050172-002	Particulate Weight		0.399	mg	0.004	AC-029	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 6, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 840	31824	Ambient Air	06-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050172 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050172-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	15-May-23
23050172-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	16-May-23
23050172-001	1,2,4-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	16-May-23
23050172-001	1,3,5-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	16-May-23
23050172-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	16-May-23
23050172-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	16-May-23
23050172-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	2,2-Dimethylbutane	I	0.06	ppbv	0.03	AC-058	16-May-23
23050172-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	16-May-23
23050172-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	3-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	Benzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	Ethylbenzene	I	0.11	ppbv	0.05	AC-058	16-May-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 6, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 840	31824	Ambient Air	06-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050172 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050172-001	Isobutane		0.26	ppbv	0.05	AC-058	16-May-23
23050172-001	Isopentane	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	Isoprene	I	0.04	ppbv	0.03	AC-058	16-May-23
23050172-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	m-Diethylbenzene	I	0.10	ppbv	0.03	AC-058	16-May-23
23050172-001	m-Ethyltoluene	I	0.06	ppbv	0.05	AC-058	16-May-23
23050172-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	16-May-23
23050172-001	n-Butane	I	0.09	ppbv	0.03	AC-058	16-May-23
23050172-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	16-May-23
23050172-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-May-23
23050172-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	n-Hexane	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23
23050172-001	n-Pentane	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	16-May-23
23050172-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	16-May-23
23050172-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	o-Ethyltoluene	I	0.06	ppbv	0.03	AC-058	16-May-23
23050172-001	o-Xylene	I	0.06	ppbv	0.05	AC-058	16-May-23
23050172-001	p-Diethylbenzene	I	0.06	ppbv	0.03	AC-058	16-May-23
23050172-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	16-May-23
23050172-001	Styrene	I	0.13	ppbv	0.07	AC-058	16-May-23
23050172-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 6, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 840	31824	Ambient Air	06-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050172 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050172-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-May-23
23050172-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-May-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 6, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23050172	01	06-Jun-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-028	Determination of Total Non-methane Hydrocarbons and Total Hydrocarbons in Ambient Air by Gas Chromatography Flame Ionization Detector
Research	Research method

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

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Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

23050172

Test # 840.

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Sample Comments

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Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Stephanie Dennis
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID	Matrix
HI-VOL Test # 841 - Filter # HVF-23-03-06	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION:

DATE SAMPLED: 12-May-23 0:00
DATE RECEIVED: 17-May-23
REPORT CREATED: 12-Jun-23
REPORT NUMBER: 23050235
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050235-003	Particulate Weight		60.8	mg	0.1	Research	05-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 12, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 841 - Filter # C9700085		Air Filter	12-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050235 **REPORT CREATED:** 12-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050235-002	Particulate Weight		0.272	mg	0.004	AC-029	18-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 12, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 841	29017	Ambient Air	12-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050235 **REPORT CREATED:** 12-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050235-001	Total Non-Methane Organic Carbon	K, T, U	< 0.09	ppmv	0.09	NA-028	17-May-23
23050235-001	1,2,3-Trimethylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	18-May-23
23050235-001	1,2,4-Trimethylbenzene	I	0.09	ppbv	0.05	AC-058	18-May-23
23050235-001	1,3,5-Trimethylbenzene	I	0.09	ppbv	0.05	AC-058	18-May-23
23050235-001	1-Butene/Isobutylene	K, T, U	< 0.11	ppbv	0.11	AC-058	18-May-23
23050235-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.13	ppbv	0.13	AC-058	18-May-23
23050235-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	2,2,4-Trimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	2,2-Dimethylbutane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	2,3,4-Trimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	2,3-Dimethylbutane	K, T, U	< 0.16	ppbv	0.16	AC-058	18-May-23
23050235-001	2,3-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	2-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	2-Methylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	3-Methylhexane	I	0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	3-Methylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	Benzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	cis-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	Cyclohexane	I	0.07	ppbv	0.07	AC-058	18-May-23
23050235-001	Cyclopentane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	Ethylbenzene	I	0.13	ppbv	0.05	AC-058	18-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 12, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 841	29017	Ambient Air	12-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050235 **REPORT CREATED:** 12-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050235-001	Isobutane		0.72	ppbv	0.05	AC-058	18-May-23
23050235-001	Isopentane		0.20	ppbv	0.07	AC-058	18-May-23
23050235-001	Isoprene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23
23050235-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-May-23
23050235-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-May-23
23050235-001	m-Diethylbenzene	I	0.12	ppbv	0.04	AC-058	18-May-23
23050235-001	m-Ethyltoluene	I	0.07	ppbv	0.05	AC-058	18-May-23
23050235-001	Methylcyclohexane	I	0.06	ppbv	0.04	AC-058	18-May-23
23050235-001	Methylcyclopentane	K, T, U	< 0.09	ppbv	0.09	AC-058	18-May-23
23050235-001	n-Butane		0.35	ppbv	0.04	AC-058	18-May-23
23050235-001	n-Decane	K, T, U	< 0.11	ppbv	0.11	AC-058	18-May-23
23050235-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-May-23
23050235-001	n-Heptane	I	0.09	ppbv	0.07	AC-058	18-May-23
23050235-001	n-Hexane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	n-Octane	I	0.13	ppbv	0.04	AC-058	18-May-23
23050235-001	n-Pentane	I	0.11	ppbv	0.07	AC-058	18-May-23
23050235-001	n-Propylbenzene	K, T, U	< 0.11	ppbv	0.11	AC-058	18-May-23
23050235-001	n-Undecane	K, T, U	< 0.9	ppbv	0.9	AC-058	18-May-23
23050235-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	18-May-23
23050235-001	o-Ethyltoluene	I	0.07	ppbv	0.04	AC-058	18-May-23
23050235-001	o-Xylene	I	0.07	ppbv	0.05	AC-058	18-May-23
23050235-001	p-Diethylbenzene	I	0.08	ppbv	0.04	AC-058	18-May-23
23050235-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-May-23
23050235-001	Styrene	I	0.15	ppbv	0.07	AC-058	18-May-23
23050235-001	Toluene	I	0.11	ppbv	0.05	AC-058	18-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 12, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 841	29017	Ambient Air	12-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050235 **REPORT CREATED:** 12-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050235-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-23
23050235-001	trans-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 12, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23050235	01	12-Jun-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-028	Determination of Total Non-methane Hydrocarbons and Total Hydrocarbons in Ambient Air by Gas Chromatography Flame Ionization Detector
Research	Research method

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

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Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

23050235

Test # 841. Send results to Stan Yuha. Send invoice to Robbi Gooding.

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Sample Comments

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Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Stephanie Dennis
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: HI-VOL Test # 842 - Filter # HVF-23-03-09
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 18-May-23 0:00
DATE RECEIVED: 25-May-23
REPORT CREATED: 28-Jun-23
REPORT NUMBER: 23050378
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050378-003	Antimony		241	ng/Filter	0.30	AC-021	19-Jun-23
23050378-003	Arsenic		6260	ng/Filter	0.30	AC-021	19-Jun-23
23050378-003	Barium		19200000	ng/Filter	300	AC-021	19-Jun-23
23050378-003	Beryllium		169	ng/Filter	0.60	AC-021	19-Jun-23
23050378-003	Boron		11900000	ng/Filter	600	AC-021	19-Jun-23
23050378-003	Cadmium		311	ng/Filter	0.80	AC-021	19-Jun-23
23050378-003	Chromium		7940	ng/Filter	20	AC-021	19-Jun-23
23050378-003	Cobalt		1130	ng/Filter	0.50	AC-021	19-Jun-23
23050378-003	Copper		471000	ng/Filter	20	AC-021	19-Jun-23
23050378-003	Iron		2500000	ng/Filter	80	AC-021	19-Jun-23
23050378-003	Lead		8620	ng/Filter	0.70	AC-021	19-Jun-23
23050378-003	Manganese		86900	ng/Filter	1.0	AC-021	19-Jun-23
23050378-003	Mercury	K, T, U	< 0.70	ng/Filter	0.70	AC-021	19-Jun-23
23050378-003	Nickel		5750	ng/Filter	5.0	AC-021	19-Jun-23
23050378-003	Selenium		473	ng/Filter	4.0	AC-021	19-Jun-23
23050378-003	Silver		289	ng/Filter	0.50	AC-021	19-Jun-23
23050378-003	Thallium		46.0	ng/Filter	0.20	AC-021	19-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
HI-VOL Test # 842 - Filter # HVF-23-03-09		Air Filter	18-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050378 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050378-003	Tin	T, U	< 0.20	ng/Filter	0.20	AC-021	19-Jun-23
23050378-003	Uranium		179	ng/Filter	0.200	AC-021	19-Jun-23
23050378-003	Vanadium		5700	ng/Filter	0.40	AC-021	19-Jun-23
23050378-003	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	19-Jun-23
23050378-003	Particulate Weight		155	mg	0.1	Research	05-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 842 - Filter # C9700051		Air Filter	18-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050378 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050378-002	Antimony		1.22	ng/filter	0.03	AC-021	16-Jun-23
23050378-002	Arsenic		7.80	ng/filter	0.03	AC-021	16-Jun-23
23050378-002	Barium		373	ng/filter	0.3	AC-021	16-Jun-23
23050378-002	Beryllium		0.77	ng/filter	0.06	AC-021	16-Jun-23
23050378-002	Boron		134	ng/filter	0.6	AC-021	16-Jun-23
23050378-002	Cadmium		1.26	ng/filter	0.08	AC-021	16-Jun-23
23050378-002	Chromium		36	ng/filter	2	AC-021	16-Jun-23
23050378-002	Cobalt		6.74	ng/filter	0.05	AC-021	16-Jun-23
23050378-002	Copper		444	ng/filter	2	AC-021	16-Jun-23
23050378-002	Iron		23400	ng/filter	8	AC-021	16-Jun-23
23050378-002	Lead		13.1	ng/filter	0.07	AC-021	16-Jun-23
23050378-002	Manganese		750	ng/filter	0.1	AC-021	16-Jun-23
23050378-002	Mercury	K, T, U	< 0.07	ng/filter	0.07	AC-021	16-Jun-23
23050378-002	Nickel		20.6	ng/filter	0.5	AC-021	16-Jun-23
23050378-002	Selenium		6.8	ng/filter	0.4	AC-021	16-Jun-23
23050378-002	Silver		0.48	ng/filter	0.05	AC-021	16-Jun-23
23050378-002	Thallium		0.41	ng/filter	0.02	AC-021	16-Jun-23
23050378-002	Tin	K, T, U	< 0.02	ng/filter	0.02	AC-021	16-Jun-23
23050378-002	Uranium		1.28	ng/filter	0.020	AC-021	16-Jun-23
23050378-002	Vanadium		43.6	ng/filter	0.04	AC-021	16-Jun-23
23050378-002	Zinc		191	ng/filter	1	AC-021	16-Jun-23
23050378-002	Particulate Weight		0.905	mg	0.004	AC-029	26-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 842	32266	Ambient Air	18-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050378 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050378-001	Total Non-Methane Organic Carbon	K, T, U	< 0.09	ppmv	0.09	NA-028	29-May-23
23050378-001	1,2,3-Trimethylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Jun-23
23050378-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Jun-23
23050378-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	07-Jun-23
23050378-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	07-Jun-23
23050378-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	2-Methylpentane	I	0.06	ppbv	0.03	AC-058	07-Jun-23
23050378-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	3-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	Benzene	I	0.16	ppbv	0.05	AC-058	07-Jun-23
23050378-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 842	32266	Ambient Air	18-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050378 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050378-001	Isobutane		0.49	ppbv	0.05	AC-058	07-Jun-23
23050378-001	Isopentane	I	0.14	ppbv	0.07	AC-058	07-Jun-23
23050378-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	Methylcyclopentane	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Jun-23
23050378-001	n-Butane		0.21	ppbv	0.03	AC-058	07-Jun-23
23050378-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Jun-23
23050378-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23050378-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	n-Hexane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	n-Pentane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Jun-23
23050378-001	n-Undecane	K, T, U	< 0.9	ppbv	0.9	AC-058	07-Jun-23
23050378-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050378-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050378-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 842	32266	Ambient Air	18-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050378 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050378-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050378-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23050378	01	28-Jun-23	Report created

Methods

Method	Description
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-028	Determination of Total Non-methane Hydrocarbons and Total Hydrocarbons in Ambient Air by Gas Chromatography Flame Ionization Detector
Research	Research method

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

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Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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Order Comments

23050378

Test # 842. Send results to Stan Yuha. Send invoice to Robbi Gooding.

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Sample Comments

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Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Stephanie Dennis
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: HI-VOL Test Number: 843, HVF-23-03-10
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 24-May-23 0:00
DATE RECEIVED: 30-May-23
REPORT CREATED: 28-Jun-23
REPORT NUMBER: 23050415
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-003	Antimony		383	ng/Filter	0.30	AC-021	19-Jun-23
23050415-003	Arsenic		5980	ng/Filter	0.30	AC-021	19-Jun-23
23050415-003	Barium		15300000	ng/Filter	300	AC-021	19-Jun-23
23050415-003	Beryllium		197	ng/Filter	0.60	AC-021	19-Jun-23
23050415-003	Boron		38800000	ng/Filter	600	AC-021	19-Jun-23
23050415-003	Cadmium		286	ng/Filter	0.80	AC-021	19-Jun-23
23050415-003	Chromium		14900	ng/Filter	20	AC-021	19-Jun-23
23050415-003	Cobalt		1730	ng/Filter	0.50	AC-021	19-Jun-23
23050415-003	Copper		346000	ng/Filter	20	AC-021	19-Jun-23
23050415-003	Iron		2740000	ng/Filter	80	AC-021	19-Jun-23
23050415-003	Lead		29000	ng/Filter	0.70	AC-021	19-Jun-23
23050415-003	Manganese		134000	ng/filter	1.0	AC-021	19-Jun-23
23050415-003	Mercury		56.5	ng/Filter	0.70	AC-021	19-Jun-23
23050415-003	Nickel		32600	ng/Filter	5.0	AC-021	19-Jun-23
23050415-003	Selenium		2160	ng/Filter	4.0	AC-021	19-Jun-23
23050415-003	Silver		250	ng/Filter	0.50	AC-021	19-Jun-23
23050415-003	Thallium		39.4	ng/Filter	0.20	AC-021	19-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 28, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
HI-VOL Test Number: 843, HVF-23-03-10		Air Filter	24-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050415 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-003	Tin	T, U	< 0.20	ng/Filter	0.20	AC-021	19-Jun-23
23050415-003	Uranium		160	ng/Filter	0.200	AC-021	19-Jun-23
23050415-003	Vanadium		15600	ng/Filter	0.40	AC-021	19-Jun-23
23050415-003	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	19-Jun-23
23050415-003	Particulate Weight		149	mg	0.1	Research	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Quarter 2 Field Blank, C9700088		Air Filter	26-May-23 7:52

DESCRIPTION:

REPORT NUMBER: 23050415 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-004	Antimony	K, T, U	< 0.03	ng/filter	0.03	AC-021	16-Jun-23
23050415-004	Arsenic		1.16	ng/filter	0.03	AC-021	16-Jun-23
23050415-004	Barium	I	2.2	ng/filter	0.3	AC-021	16-Jun-23
23050415-004	Beryllium	I	0.12	ng/filter	0.06	AC-021	16-Jun-23
23050415-004	Boron	I	1.9	ng/filter	0.6	AC-021	16-Jun-23
23050415-004	Cadmium	K, T, U	< 0.08	ng/filter	0.08	AC-021	16-Jun-23
23050415-004	Chromium	I	10	ng/filter	2	AC-021	16-Jun-23
23050415-004	Cobalt	K, T, U	< 0.05	ng/filter	0.05	AC-021	16-Jun-23
23050415-004	Copper		11	ng/filter	2	AC-021	16-Jun-23
23050415-004	Iron		128	ng/filter	8	AC-021	16-Jun-23
23050415-004	Lead		0.90	ng/filter	0.07	AC-021	16-Jun-23
23050415-004	Manganese		2.7	ng/filter	0.1	AC-021	16-Jun-23
23050415-004	Mercury	K, T, U	< 0.07	ng/filter	0.07	AC-021	16-Jun-23
23050415-004	Nickel		5.1	ng/filter	0.5	AC-021	16-Jun-23
23050415-004	Selenium		3.2	ng/filter	0.4	AC-021	16-Jun-23
23050415-004	Silver	K, T, U	< 0.05	ng/filter	0.05	AC-021	16-Jun-23
23050415-004	Thallium	I	0.12	ng/filter	0.02	AC-021	16-Jun-23
23050415-004	Tin	K, T, U	< 0.02	ng/filter	0.02	AC-021	16-Jun-23
23050415-004	Uranium	I	0.048	ng/filter	0.020	AC-021	16-Jun-23
23050415-004	Vanadium		3.32	ng/filter	0.04	AC-021	16-Jun-23
23050415-004	Zinc		26	ng/filter	1	AC-021	16-Jun-23
23050415-004	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	06-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test Number: 843, C1169901		Air Filter	24-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050415 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-002	Antimony		3.47	ng/filter	0.03	AC-021	16-Jun-23
23050415-002	Arsenic		12.2	ng/filter	0.03	AC-021	16-Jun-23
23050415-002	Barium		363	ng/filter	0.3	AC-021	16-Jun-23
23050415-002	Beryllium		0.66	ng/filter	0.06	AC-021	16-Jun-23
23050415-002	Boron		176	ng/filter	0.6	AC-021	16-Jun-23
23050415-002	Cadmium		3.37	ng/filter	0.08	AC-021	16-Jun-23
23050415-002	Chromium		127	ng/filter	2	AC-021	16-Jun-23
23050415-002	Cobalt		14.7	ng/filter	0.05	AC-021	16-Jun-23
23050415-002	Copper		192	ng/filter	2	AC-021	16-Jun-23
23050415-002	Iron		22900	ng/filter	8	AC-021	16-Jun-23
23050415-002	Lead		221	ng/filter	0.07	AC-021	16-Jun-23
23050415-002	Manganese		1090	ng/filter	0.1	AC-021	16-Jun-23
23050415-002	Mercury		2.03	ng/filter	0.07	AC-021	16-Jun-23
23050415-002	Nickel		314	ng/filter	0.5	AC-021	16-Jun-23
23050415-002	Selenium		11.1	ng/filter	0.4	AC-021	16-Jun-23
23050415-002	Silver		0.86	ng/filter	0.05	AC-021	16-Jun-23
23050415-002	Thallium		0.34	ng/filter	0.02	AC-021	16-Jun-23
23050415-002	Tin		3.52	ng/filter	0.02	AC-021	16-Jun-23
23050415-002	Uranium		1.10	ng/filter	0.020	AC-021	16-Jun-23
23050415-002	Vanadium		143	ng/filter	0.04	AC-021	16-Jun-23
23050415-002	Zinc		1780	ng/filter	1	AC-021	16-Jun-23
23050415-002	Particulate Weight		0.646	mg	0.004	AC-029	06-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test Number: 843	28904	Ambient Air	24-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050415 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-001	Total Non-Methane Organic Carbon	K, T, U	< 0.09	ppmv	0.09	NA-028	02-Jun-23
23050415-001	1,2,3-Trimethylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Jun-23
23050415-001	1,2,4-Trimethylbenzene	I	0.07	ppbv	0.06	AC-058	07-Jun-23
23050415-001	1,3,5-Trimethylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	1-Butene/Isobutylene	K, T, U	< 0.11	ppbv	0.11	AC-058	07-Jun-23
23050415-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.13	ppbv	0.13	AC-058	07-Jun-23
23050415-001	1-Pentene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	2,2,4-Trimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	2,2-Dimethylbutane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	2,3,4-Trimethylpentane	I	0.13	ppbv	0.04	AC-058	07-Jun-23
23050415-001	2,3-Dimethylbutane	K, T, U	< 0.17	ppbv	0.17	AC-058	07-Jun-23
23050415-001	2,3-Dimethylpentane	I	0.08	ppbv	0.04	AC-058	07-Jun-23
23050415-001	2,4-Dimethylpentane	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	2-Methylheptane	I	0.09	ppbv	0.04	AC-058	07-Jun-23
23050415-001	2-Methylhexane		0.22	ppbv	0.06	AC-058	07-Jun-23
23050415-001	2-Methylpentane		0.45	ppbv	0.04	AC-058	07-Jun-23
23050415-001	3-Methylheptane	I	0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	3-Methylhexane		0.24	ppbv	0.04	AC-058	07-Jun-23
23050415-001	3-Methylpentane		0.26	ppbv	0.04	AC-058	07-Jun-23
23050415-001	Benzene		0.46	ppbv	0.06	AC-058	07-Jun-23
23050415-001	cis-2-Butene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	cis-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	Cyclohexane	I	0.27	ppbv	0.07	AC-058	07-Jun-23
23050415-001	Cyclopentane	I	0.08	ppbv	0.04	AC-058	07-Jun-23
23050415-001	Ethylbenzene	I	0.16	ppbv	0.06	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test Number: 843	28904	Ambient Air	24-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050415 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-001	Isobutane		0.59	ppbv	0.06	AC-058	07-Jun-23
23050415-001	Isopentane		0.92	ppbv	0.07	AC-058	07-Jun-23
23050415-001	Isoprene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050415-001	m,p-Xylene		1.10	ppbv	0.07	AC-058	07-Jun-23
23050415-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	m-Ethyltoluene	I	0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	Methylcyclohexane		0.51	ppbv	0.04	AC-058	07-Jun-23
23050415-001	Methylcyclopentane		0.30	ppbv	0.09	AC-058	07-Jun-23
23050415-001	n-Butane		0.65	ppbv	0.04	AC-058	07-Jun-23
23050415-001	n-Decane	I	0.17	ppbv	0.11	AC-058	07-Jun-23
23050415-001	n-Dodecane	K, T, U	< 0.6	ppbv	0.6	AC-058	07-Jun-23
23050415-001	n-Heptane		0.45	ppbv	0.07	AC-058	07-Jun-23
23050415-001	n-Hexane		0.62	ppbv	0.06	AC-058	07-Jun-23
23050415-001	n-Octane	I	0.17	ppbv	0.04	AC-058	07-Jun-23
23050415-001	n-Pentane		0.93	ppbv	0.07	AC-058	07-Jun-23
23050415-001	n-Propylbenzene	K, T, U	< 0.11	ppbv	0.11	AC-058	07-Jun-23
23050415-001	n-Undecane	K, T, U	< 0.9	ppbv	0.9	AC-058	07-Jun-23
23050415-001	n-Nonane	I	0.14	ppbv	0.07	AC-058	07-Jun-23
23050415-001	o-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	o-Xylene	I	0.29	ppbv	0.06	AC-058	07-Jun-23
23050415-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050415-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050415-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050415-001	Toluene		1.80	ppbv	0.06	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test Number: 843	28904	Ambient Air	24-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050415 **REPORT CREATED:** 28-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050415-001	trans-2-Butene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050415-001	trans-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 28, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23050415	01	28-Jun-23	Report created

Methods

Method	Description
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-028	Determination of Total Non-methane Hydrocarbons and Total Hydrocarbons in Ambient Air by Gas Chromatography Flame Ionization Detector
Research	Research method

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

23050415

Project ID: Test 843. Report also to Stan Yuha. Invoice also to Robbi Gooding.

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Todd Webb
Clean Harbors Environmental
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

INVOICE: Stephanie Dennis
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: HI-VOL Test # 844, HVF-23-03-08
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: HI-VOL Filter
DATE SAMPLED: 30-May-23 0:00
DATE RECEIVED: 02-Jun-23
REPORT CREATED: 26-Jun-23
REPORT NUMBER: 23060018
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060018-003	Particulate Weight		84.6	mg	0.1	Research	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 26, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca//

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Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 844, C1169902		Air Filter	30-May-23 0:00

DESCRIPTION: PM10 Filter

REPORT NUMBER: 23060018 **REPORT CREATED:** 26-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060018-002	Particulate Weight		0.386	mg	0.004	AC-029	06-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 26, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 844	31818	Ambient Air	30-May-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23060018 **REPORT CREATED:** 26-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060018-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	05-Jun-23
23060018-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Jun-23
23060018-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Jun-23
23060018-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	07-Jun-23
23060018-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	07-Jun-23
23060018-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	3-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	Benzene	I	0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 26, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 844	31818	Ambient Air	30-May-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23060018 **REPORT CREATED:** 26-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060018-001	Isobutane		0.41	ppbv	0.05	AC-058	07-Jun-23
23060018-001	Isopentane		0.18	ppbv	0.07	AC-058	07-Jun-23
23060018-001	Isoprene	I	0.09	ppbv	0.03	AC-058	07-Jun-23
23060018-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	m,p-Xylene	I	0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Jun-23
23060018-001	n-Butane		0.17	ppbv	0.03	AC-058	07-Jun-23
23060018-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Jun-23
23060018-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23060018-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	n-Hexane	I	0.15	ppbv	0.05	AC-058	07-Jun-23
23060018-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	n-Pentane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Jun-23
23060018-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	07-Jun-23
23060018-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23060018-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23060018-001	Toluene	I	0.05	ppbv	0.05	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 26, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 844	31818	Ambient Air	30-May-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23060018 **REPORT CREATED:** 26-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060018-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23060018-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: June 26, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23060018	01	26-Jun-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
NA-028	Determination of Total Non-methane Hydrocarbons and Total Hydrocarbons in Ambient Air by Gas Chromatography Flame Ionization Detector
Research	Research method

List of Analytical Method IDs within InnoTech's ISO/IEC 17025:2017 CALA Scope of Accreditation

Method ID	Description
AC-013	Mercury in Waters by Cold Vapor Atomic Fluorescence Detection (CVAFS)
AC-020	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-021	Elemental Analysis Methodology of Filter-collected Airborne Particulate Matter (PM) by ICP-MS
AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance
AC-035	Analysis of Glyphosate, Aminomethylphosphonic Acid and Glufosinate in Water
AC-038	Trace Metal Analysis of Water Samples by ICP-MS
AC-048	Specific Conductance (Conductivity Meter Method)
AC-049	pH (Meter Method)
AC-054	Alkalinity Total and Phenolphthalein
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-060	Trace Metal Analysis of Soil Sediment and Industrial Waste Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-061	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-065	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-074	Pesticides in Water
AC-079	Alkylated PAH in Soil and Sediment
AC-080	Alkylated PAH in Water (SPE Extraction)
NA-006	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water
NA-024	Analysis of Reduced Sulfur Compounds in Air

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Qualifiers

Data Qualifier	Translation
B	Blank contamination; Analyte detected above the method reporting limit in an associated blank
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J1	Reported value is estimated; Surrogate recoveries limits were exceeded
J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Order Comments

23060018

Project ID: Test 844. Report also to Yuha.Stan@cleanharbors.com.

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Sample Comments

PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

Result Comments

Note:

1. Results relate only to items tested and apply to the sample as received.

2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.

Sample ID: 23050416-001 Priority: Normal

Customer ID: Clean Harbours
Cust Samp ID: Ryley Facility Test #102

Alberta Innovates Technology Futures

Sample Reception: Environmental Analytical Services
PO Bag 4000
Vegreville, AB T9C 1T4
Phone: (780) 632-8284 Fax: (780) 632-8620
Shipping: Highway 16 A & 75 St

ANALYSIS REQUEST FORM

Project Code:
Client Code:
Invoice Code:
Date Rec'd (D/M/Y):
Rec'd By:

RECEIVED
MAY 30 2023

FOR AITF USE ONLY

Client details:

Contact:
Company:
Project ID:
Address:
Telephone:
Email:

CleanHarbors

Jorge A. Mendoza
Laboratory Manager

Clean Harbors
Environmental Services
Box 390 , 2 Km North of Hwy 14
on Sec. Road 854
Ryley, AB T0B 4A0
www.cleanharbors.com

780.663.3828 Ext. 235
Home Office 780.663.2342
Mobile 780.934.2342
Fax 780.663.3539
Direct Line 780.663.2513
mendoza.jorge@cleanharbors.com

"People & Technology Creating a Safer, Cleaner Environment"

Special Instructions/Comments:

RUSH (Surcharge): ☐

PO # 233988
Quote ID: QT140005

AITF Contact: **Email:**
Tel:

Sample ID	Sample Source Description	Date/Time Sampled From/To		Analysis Requested
		Date (dd/mm/yy)	Time (24 Hr)	
Ryley Facility Test # 102	Filter Number # HV-22-12-13	1/05/23		Particulate weight ICP-MS analysis
		26/05/23	25.17 hrs	
Ryley School Test # 102	Filter Number # HV-22-12-14	1/05/23		Particulate weight ICP-MS analysis
		26/05/23	34.08 hrs	

Sample ID: 23050421-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test #: 837 Flt # C9700054

IN OF CUSTODY FORM

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Company:	Clean Harbors Canada, Inc
Address:	PO Box 390, 50114 Range Road 173, Ryley, AB T0B 4A0
Contact:	Todd Webb or Stan Yuha
Phone:	780-663-2513 or 780-663-3828
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com

Client Billing Information

Contact:	Robbi Gooding, Stephanie Dennis
Phone:	780-663-3828
Email:	Gooding.Robbi@cleanharbors.com, Dennis.Stephanie@cleanharbors.com
Project ID:	Test 837
PO #:	0000232879

Turnaround Time

X Normal (10 business days)

Rush

Note: Rush service not available for all tests.
Confirm rush requests with InnoTech Alberta.

Special Instructions/Comments:

***If either PM10 or HI-VOL filter exceeds its trigger weight, then both filters are analyzed for metals**
If neither filter exceeds its trigger weight, neither filter is analyzed for metals
If metals analysis is required, please report on the same report as filter weights and VOCs/TNMOC
Trigger Weight for Analysis (PM10): 1.15 mg
Trigger Weight for Analysis (HI-VOL): 87.7 mg

This order is for the metals analysis for the filters, from order 23040208. JMP, May 30/23.

Date Received – Lab Use Only

RECEIVED
APR 24 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
	VOCs and TNMOC Test Number: 837	Canister	29011	18/04/23	00:00	VOC PAMS & TNMOC
				19/04/23	00:00	
1	PM10 Test Number: 837	PM10 filter	C9700054	18/04/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				19/04/23	00:00	
2	HI-VOL Test Number: 837	HI-VOL Filter	HVF-23-03-11	18/04/23	00:00	Particulate Weight (& metals if over trigger weight)*
				19/04/23	00:00	
					Total: 23.83 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

Sample ID: 23050421-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test #: 837 Flt # C9700054

RECEIVED
APR 24 2023

Filter Shipping Record

Sent To: Clean Harbors
PO Box 390
Ryley, AB T0B 4A0
(1/2 mile north, Hwy 854)
Todd Webb
780-663-2513

Date: FEB 24/23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9700054 Test 837

Returns: coolers, large and small containers may be shipped to: Innotech, PO Bag 4000, HWY 16A & 75th Street, Vegreville, AB T9C 1T4

Sample ID: 23050421-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test #: 837 Flt # C9700054

InnoTech ALBERTA

Canister ID: 29011

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 07 2023

Evacuated: MAR 07 2023 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: Test 837

Sampled By: T. Webb

Starting Vacuum: -27.1 "Hg

End Pressure: -6 "Hg/ psig

{00004084:2}

TERMS AND CONDITIONS

The attached document entitled **"Chain of Custody Form"** is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1.Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2.InnoTech Alberta will perform the Services in accordance with normal professional standards.

3.The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4.InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5.For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6.All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7.The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8.The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9.Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10.Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11.Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12.Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a)be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b)reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c)indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13.The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14.If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15.InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16.In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17.The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:
(a)any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;
(b)differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or
(c)any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.
The hold harmless shall survive this Agreement.

18.The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property. 19.InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20.The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21.This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22.InnoTech Alberta shall not be liable to the Client for any failure or delay in performance of its obligations caused by circumstances beyond its control, including but not limited to acts of God, strikes, laws imposed after the fact, governmental restrictions, riots, wars, civil disorder, rebellion, sabotage, fire, flood, explosion, earthquake or other disasters.

23.InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24.This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Sample ID: 23050421-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: PM10 Test #: 837 Flt # C9700054

Sample ID: 23050172-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test Number 840

AIN OF CUSTODY FORM

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Stephanie Dennis	X Normal (10 business days)
Address:	PO Box 390, 50114 Range Road 173, Ryley, AB T0B 4A0	Phone:	780-663-3828	Rush
Contact:	Todd Webb or Stan Yuha	Email:	Dennis.Stephanie@cleanharbors.com	Note: Rush service not available for all tests. Confirm rush requests with InnoTech Alberta.
Phone:	780-663-2513 or 780-663-3828	Project ID:	Test 840	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000233432	

Special Instructions/Comments:

***If either PM10 or HI-VOL filter exceeds its trigger weight, then both filters are analyzed for metals**

If neither filter exceeds its trigger weight, neither filter is analyzed for metals

If metals analysis is required, please report on the same report as filter weights and VOCs/TNMOC

Trigger Weight for Analysis (PM10): 1.16 mg

Trigger Weight for Analysis (HI-VOL): 87.8 mg

Date Received – Lab Use Only

RECEIVED
MAY 11 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
	VOCs and TNMOC Test Number: 840	Canister	31824	06/05/23	00:00	VOC PAMS & TNMOC
				07/05/23	00:00	
	PM10 Test Number: 840	PM10 filter	C9700052	06/05/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				07/05/23	00:00	
	HI-VOL Test Number: 840	HI-VOL Filter	HVF-23-03-07	06/05/23	00:00	Particulate Weight (& metals if over trigger weight)*
				07/05/23	00:00	
					Total: 23.85 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

Filter Shipping Record

Sent To: Clean Harbors
PO Box 390
Ryley, AB T0B 4A0
(1/2 mile north, Hwy 854)
Todd Webb
780-663-2513

Date: FEB 24 23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9700052 T0S7840

Returns: coolers, large and small containers may be shipped to: Innotech, PO Bag 4000, HWY 16A & 75th Street, Vegreville, AB T9C 1T4

InnoTech ALBERTA

Canister ID: ~~3~~ 1824

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1524 on: FEB 16 2023

Evacuated: APR 18 2023 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: Test 840

Sampled By: T. Webb

Starting Vacuum: -27.1 "Hg

End Vacuum: -3 "Hg/psig

Sample ID: 23050235-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 841

HAIN OF CUSTODY FORM

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Stephanie Dennis	X Normal (10 business days)
Address:	PO Box 390, 50114 Range Road 173, Ryley, AB T0B 4A0	Phone:	780-663-3828	Rush
Contact:	Todd Webb or Stan Yuha	Email:	Dennis.Stephanie@cleanharbors.com	Note: Rush service not available for all tests. Confirm rush requests with InnoTech Alberta.
Phone:	780-663-2513 or 780-663-3828	Project ID:	Test 841	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000233432	

Special Instructions/Comments:

***If either PM10 or HI-VOL filter exceeds its trigger weight, then both filters are analyzed for metals**

If neither filter exceeds its trigger weight, neither filter is analyzed for metals

If metals analysis is required, please report on the same report as filter weights and VOCs/TNMOC

Trigger Weight for Analysis (PM10): 1.15 mg

Trigger Weight for Analysis (HI-VOL): 87.5 mg

Date Received – Lab Use Only

RECEIVED
MAY 17 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
	VOCs and TNMOC Test Number: 841	Canister	29017	12/05/23	00:00	VOC PAMS & TNMOC
				13/05/23	00:00	
	PM10 Test Number: 841	PM10 filter	C9700085	12/05/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				13/05/23	00:00	
	HI-VOL Test Number: 841	HI-VOL Filter	HVF-23-03-06	12/05/23	00:00	Particulate Weight (& metals if over trigger weight)*
				13/05/23	00:00	
					Total: 23.78 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 24017

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 02 2023

Evacuated: APR 18 2023 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: _____

Sampled By: _____

Starting Vacuum: -27.1 "Hg

End Vacuum: KS 10 "Hg/psig

Sample ID: 23050235-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 841

{00004084;2}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

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(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or
(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.
The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property. 19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

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24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Sample ID: 23050235-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 841

Sample ID: 23050378-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 842

HAIN OF CUSTODY FORM

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Stephanie Dennis	X Normal (10 business days)
Address:	PO Box 390, 50114 Range Road 173, Ryley, AB T0B 4A0	Phone:	780-663-3828	Rush
Contact:	Todd Webb or Stan Yuha	Email:	Dennis.Stephanie@cleanharbors.com	Note: Rush service not available for all tests. Confirm rush requests with InnoTech Alberta.
Phone:	780-663-2513 or 780-663-3828	Project ID:	Test 842	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000233432	

Special Instructions/Comments:

***If either PM10 or HI-VOL filter exceeds its trigger weight, then both filters are analyzed for metals**

If neither filter exceeds its trigger weight, neither filter is analyzed for metals

If metals analysis is required, please report on the same report as filter weights and VOCs/TNMOC

Trigger Weight for Analysis (PM10): 1.17 mg

Trigger Weight for Analysis (HI-VOL): 88.0 mg

Date Received – Lab Use Only

RECEIVED
MAY 25 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	VOCs and TNMOC Test Number: 842	Canister	32266	18/05/23	00:00	VOC PAMS & TNMOC
				19/05/23	00:00	
2	PM10 Test Number: 842	PM10 filter	C9700051	18/05/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				19/05/23	00:00	
3	HI-VOL Test Number: 842	HI-VOL Filter	HVF-23-03-09	18/05/23	00:00	Particulate Weight (& metals if over trigger weight)*
				19/05/23	00:00	
					Total: 23.92 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

InnoTech ALBERTA

Canister ID: 32266

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAR 0 8 2023

Evacuated: APR 2 6 2023 Recertified:

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: Test 842

Sampled By: T. Webb

Starting Vacuum:	End Vacuum: KG
-27.1 "Hg	-4 "Hg/psig

Sample ID: 23050378-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 842

{00004084:2}

TERMS AND CONDITIONS

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(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

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24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Sample ID: 23050378-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 842

F163-01

Sample ID: 23050415-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test Number: 843

CHAIN OF CUSTODY FORM

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Stephanie Dennis	X Normal (10 business days)
Address:	PO Box 390, 50114 Range Road 173, Ryley, AB T0B 4A0	Phone:	780-663-3828	Rush
Contact:	Todd Webb or Stan Yuha	Email:	Dennis.Stephanie@cleanharbors.com	Note: Rush service not available for all tests. Confirm rush requests with InnoTech Alberta.
Phone:	780-663-2513 or 780-663-3828	Project ID:	Test 843	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000233432	

Special Instructions/Comments:

***If either PM10 or HI-VOL filter exceeds its trigger weight, then both filters are analyzed for metals**

If neither filter exceeds its trigger weight, neither filter is analyzed for metals

If metals analysis is required, please report on the same report as filter weights and VOCs/TNMOC

Trigger Weight for Analysis (PM10): 1.15 mg

Trigger Weight for Analysis (HI-VOL): 88.3 mg

Date Received – Lab Use Only

RECEIVED
MAY 30 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
	VOCs and TNMOC Test Number: 843	Canister	28904	24/05/23	00:00	VOC PAMS & TNMOC
				25/05/23	00:00	
	PM10 Test Number: 843	PM10 filter	C1169901	24/05/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				25/05/23	00:00	
	HI-VOL Test Number: 843	HI-VOL Filter	HVF-23-03-10	24/05/23	00:00	Particulate Weight (& metals if over trigger weight)*
				25/05/23	00:00	
					Total: 24.00hrs	
	PM10 Quarter 2 Field Blank	PM10 Filter	C9700088	26/05/23	7:52	FLT Particulate Weight

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

{00004084:2}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1.Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2.InnoTech Alberta will perform the Services in accordance with normal professional standards.

3.The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4.InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5.For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6.All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7.The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8.The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9.Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10.Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11.Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12.Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a)be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b)reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c)indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13.The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14.If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15.InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16.In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17.The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:
(a)any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;
(b)differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or
(c)any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.
The hold harmless shall survive this Agreement.

18.The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property. 19.InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20.The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21.This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22.InnoTech Alberta shall not be liable to the Client for any failure or delay in performance of its obligations caused by circumstances beyond its control, including but not limited to acts of God, strikes, laws imposed after the fact, governmental restrictions, riots, wars, civil disorder, rebellion, sabotage, fire, flood, explosion, earthquake or other disasters.

23.InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24.This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Sample ID: 23050415-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test Number: 843

Filter Shipping Record

RECEIVED
MAY 30 2023

Sent To: Clean Harbors
PO Box 390
Ryley, AB T0B 4A0
(1/2 mile north, Hwy 854)
Todd Webb
780-663-2513

Date: FEB 24/23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1169901 Test 843

Returns: coolers, large and small containers may be shipped to: Innotech, PO Bag 4000, HWY 16A & 75th Street, Vegreville, AB T9C 1T4

Sample ID: 23050415-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test Number: 843

Filter Shipping Record

RECEIVED
MAY 30 2023

Sent To: Clean Harbors
PO Box 390
Ryley, AB T0B 4A0
(1/2 mile north, Hwy 854)
Todd Webb
780-663-2513

Date: MARCH 30/23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C97000088 Qtr 2 field blank

Returns: coolers, large and small containers may be shipped to: Innotech, PO Bag 4000, HWY 16A & 75th Street, Vegreville, AB T9C 1T4

Sample ID: 23050415

InnoTech ALBERTA

Canister ID: 28904

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAR 0 8 2023

Evacuated: APR 2 6 2023 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: Test 843

Sampled By: T. Webb

Starting Vacuum:	End Vacuum:
-27.1 "Hg	-8 "Hg/psig

Sample ID: 23050415-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test Number: 843

Sample ID: 23060018-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 844

IN OF CUSTODY FORM

Environmental Analytical Services
Highway 16A & 75 Street
Vegreville, AB T9C 1T4

Phone: 780-632-8403
Email: EAS.Reception@innotechalberta.ca
www.innotechalberta.ca

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Stephanie Dennis	X Normal (10 business days)
Address:	PO Box 390, 50114 Range Road 173, Ryley, AB T0B 4A0	Phone:	780-663-3828	Rush
Contact:	Todd Webb or Stan Yuha	Email:	Dennis.Stephanie@cleanharbors.com	Note: Rush service not available for all tests. Confirm rush requests with InnoTech Alberta.
Phone:	780-663-2513 or 780-663-3828	Project ID:	Test 844	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000233432	

Special Instructions/Comments:

***If either PM10 or HI-VOL filter exceeds its trigger weight, then both filters are analyzed for metals**

If neither filter exceeds its trigger weight, neither filter is analyzed for metals

If metals analysis is required, please report on the same report as filter weights and VOCs/TNMOC

Trigger Weight for Analysis (PM10): 1.13 mg

Trigger Weight for Analysis (HI-VOL): 87.6 mg

Date Received – Lab Use Only

RECEIVED
JUN 02 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
	VOCs and TNMOC Test Number: 844	Canister	31818	30/05/23	00:00	VOC PAMS & TNMOC
				31/05/23	00:00	
	PM10 Test Number: 844	PM10 filter	C1169902	30/05/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				31/05/23	00:00	
	HI-VOL Test Number: 844	HI-VOL Filter	HVF-23-03-08	30/05/23	00:00	Particulate Weight (& metals if over trigger weight)*
				31/05/23	00:00	
					Total: 23.81 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

This "Chain of Custody" form is subject to InnoTech Alberta standard terms and conditions.

Sample ID: 23060018-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 844

Filter Shipping Record

Sent To: Clean Harbors
PO Box 390
Ryley, AB T0B 4A0
(1/2 mile north, Hwy 854)
Todd Webb
780-663-2513

RECEIVED
JUN 02 2023

Date: FEB 24/23

Project: Clean Harbors

Prepared by: [signature]

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1169902 test 844

Returns: coolers, large and small containers may be shipped to: Innotech, PO Bag 4000, HWY 16A & 75th Street, Vegreville, AB T9C 1T4

{00004084;2}

TERMS AND CONDITIONS

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2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

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12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:
(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;
(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or
(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.
The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property. 19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

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21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

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24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

InnoTech ALBERTA

Canister ID: 31818

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: APR 12 2023

Evacuated: APR 26 2023 Recertified: _____

(Use within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: Test 844

Sampled By: T. Webb

Starting Vacuum:	End Vacuum: MW
-27.1 "Hg	-5 "Hg/psig

Sample ID: 23060018-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 844