November 30, 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
October 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 October 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 October 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

Stan Yuha

Facility Manager
Ryley Facility

Alberta Environment and Protected Areas (AEPA)
Monthly Ambient Air Monitoring Report
October 2023
Report Completed on November 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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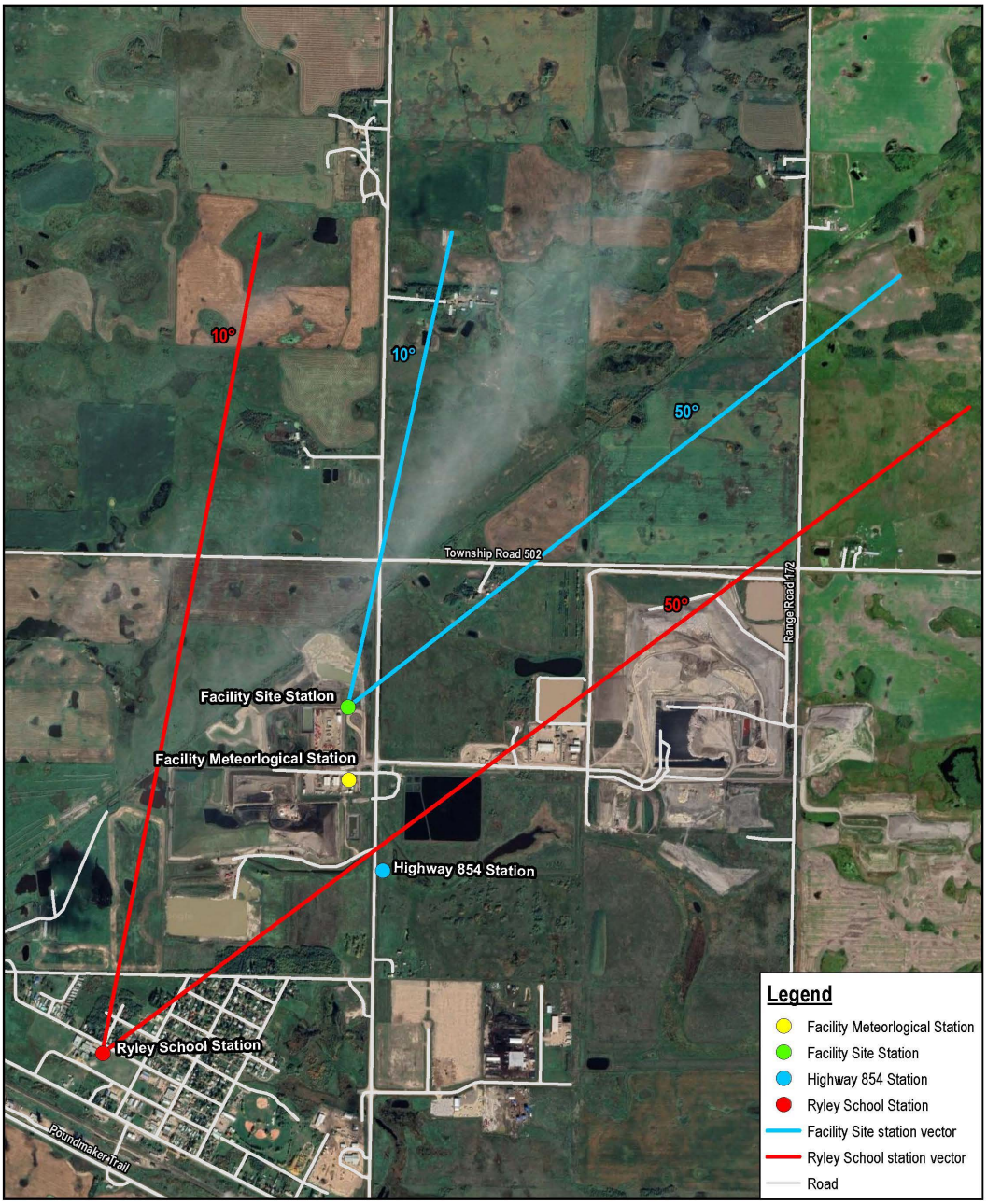
1. Introduction

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 PM10 Sampler (PM10 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 (PM10), volatile organic compounds (VOCs), and total non-methane organic compounds (TNMOC). Additionally, TSP or PM10 samples that exceed 50 µg/m3 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 PM10 data with TSP data, Clean Harbors will continue PM10 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), the Alberta Air Monitoring Directive, 2016 (AMD), and in accordance with the following AEPA standards:

- The *Alberta Stack Sampling Code*, Alberta Environment, 1995, as amended
- The *Methods Manual for Chemical Analysis of Atmospheric Pollutants*, Alberta Environment, 1993, as amended
- The *Air Monitoring Directive*, Alberta Environment, 1989, as amended

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
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Company	Clean Harbors
Responsibilities	Station Field Operator and Field Sampler
Address	PO Box 390, Ryley, AB T0B 4A0
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Name	**Mr. Pooya Shariaty**
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Name	**Ms. Stepheney Davey**
Title	Air Quality Engineer in Training
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Responsibilities	Maintenance/Calibration Services/Report Preparer/ETS Submitter
Address	10250 101 Street NW, Suite 640, Edmonton, AB
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Company	**Innotech**
Responsibilities	Laboratory Analytical Services
Address	PO Bag 4000, Vegreville, Alberta
Phone	780-632-8211
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2. Summary of Ambient Air Monitoring Activities

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

Activity	*Completed (Y/N)*	*Date(s)*
Wind – Facility Meteorological Station		
Wind Speed/Direction Sensor Calibration	N	June 30, 2023(1)
Changes to the Wind Speed/Direction Sensor	N	-
Wind – Facility Site Station		
Wind Speed/Direction Sensor Calibration	N	Anemometer Error(2)
Changes to the Wind Speed/Direction Sensor	N	-
Wind – Ryley School Station		
Wind Speed/Direction Sensor Calibration	Y	June 30, 2023
Changes to the Wind Speed/Direction Sensor	N	-
TSP – Facility Site Station		
TSP Hi-Vol Sampler Calibration	Y	October 19, 2023
Changes to the TSP Hi-Vol Sampler	N	-
TSP Samples Collected	Y	October 1 – November 1, 2023
TSP Metal Analysis Conducted	Y	October 1 – November 1, 2023
TSP Sampler Maintenance Activities	Y	October 19, 2023
TSP – Ryley School Station		
TSP Hi-Vol Sampler Calibration	Y	September 28, 2023
Changes to the TSP Hi-Vol Sampler	N	-
TSP Samples Collected	Y	October 1 – November 1, 2023
TSP Metal Analysis Conducted	Y	October 1 – November 1, 2023
TSP Sampler Maintenance Activities	Y	October 1, 2023
TSP, PM_{10}, VOC and TNMOC – Highway 854 Lift Station		
TSP Hi-Vol Sampler Calibration	Y	October 19, 2023
PM_{10} Sampler Calibration	Y	September 28, 2023
Changes to the TSP Hi-Vol Sampler	N	-
Changes to the PM_{10} Sampling Station	N	-
TSP Samples Collected	Y	October 3, 2023 October 9, 2023 October 15, 2023 October 21, 2023 October 27, 2023
PM_{10} Samples Collected	Y	October 3, 2023 October 9, 2023

Activity	*Completed (Y/N)*	*Date(s)*
		October 15, 2023 October 21, 2023 October 27, 2023
VOC and TNMOC Samples Collected	Y	October 3, 2023 October 9, 2023 October 15, 2023 October 21, 2023 October 27, 2023
TSP Metal Analysis Conducted	Y	October 3, 2023 October 9, 2023 October 27, 2023
PM_{10} Metal Analysis Conducted	Y	October 3, 2023 October 9, 2023 October 27, 2023
TSP Sampler Maintenance Activities	Y	October 3, 2023 October 9, 2023 October 15, 2023 October 19, 2023 October 21, 2023 October 27, 2023
PM_{10} Sampler Maintenance Activities	Y	October 3, 2023 October 9, 2023 October 15, 2023 October 19, 2023 October 21, 2023 October 27, 2023
Other		
Dust Suppression Activities	N	-

Note: (1) The wind speed/direction sensor on the Facility Site Meteorological Station was checked for calibration on June 30, 2023 and was shown to be within the allowable tolerances and was then re-installed after calibration.

(2) Instrument is not currently reporting due to anemometer program corruption. The 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 October 2023 monthly report, the following summarized items were submitted to the ETS:

3.1 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.

3.2 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.

3.3 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 June 30, 2023. The station was shown to be within all allowable tolerances, as required by the manufacturer, and was then re-installed after calibration. Provided in Appendix A is the calibration report and record of installation.

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 taken down and calibrated on June 30, 2023. The station was shown to be within all allowable tolerances, as required by the manufacturer, and was then re-installed after calibration. Provided in Appendix A is the calibration report.

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 October 19, 2023. It is noted that this audit could not be performed on September 28, 2023 due to a electrical cord issue which was fixed prior to the audit on October 19, 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 September 28, 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 October 19, 2023. It is noted that this an audit was initially performed on September 28, 2023 and a minor leak was identified. Following this, all parts were tightened and checked by Clean Harbors. Another leak check and audit was performed on October 19, 2023 and it was confirmed the leak was no longer present.

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 September 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 September 28, 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 June 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 October 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 October 2023, it was determined that 100% of the data is valid, which represents 100% uptime of the meteorological station. This is above the 90% 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 October 2023, it was determined that 100% of the data is valid, which represents 100% uptime of the meteorological station. This is above the 90% uptime limit required for compliance, as per the Approval.

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 October 2023 was shown to have an elevated TSP concentration of 205.379 µg/m^3, which is above the 100 µg/m^3 AAAQO threshold. The Facility Site Station is located downwind from other potential sources in the area (upwind of the Facility sources). Consequently, there are other contributing emissions sources outside of the Facility resulting in this exceedance. The Facility Site Station serves as a baseline for background air quality, and the Ryley School Station and Highway Lift Station are compared to analyze the Facility's impact on air quality. The TSP exceedance in October 2023 is likely a result of background air quality and not related to the Facility. Therefore, no contravention form was submitted for 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 October 2023 was shown to have an elevated TSP concentration of 100.147 µg/m^3, which is above the 100 µg/m^3 AAAQO threshold. As the Ryley School Station is located downwind of the Facility Site Station, and both stations only collect samples when the wind direction is from northeast to southwest, the exceedance at the Ryley School station is likely attributable to the high baseline concentration measured at the Facility Site Station. Consequently, no contravention form was submitted for 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. One out of five samples collected in October 2023 were shown to have elevated TSP concentration above the 100 µg/m^3 AAAQO threshold. The TSP exceedance for October 2023 is likely a result of the background air quality, as discussed above, and not related to the Facility. As such, no contravention form was submitted due to this exceedance.

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 October 2023. There were no exceedances for the parameters with AAAQO in October 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, nickel, and manganese. 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 October 2023 was above 50 µg/m^3 and as such, analysis for metals was conducted on the sample. Facility Test #107 (HV-23-02-11) was shown to have an elevated TSP concentration of 205.379 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 October 2023.

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

The TSP sample collected in October 2023 was above 50 µg/m^3 and as such, analysis for metals was conducted on the sample. School Test #107 (HV-23-02-12) was shown to have an elevated TSP concentration of 100.147 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 October 2023.

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

TSP

Three of the TSP samples collected in October 2023 were above 50 µg/m^3 and as such, analysis for metals was conducted on the samples. Facility Test #865 (HVF-23-06-09), Facility Test #866 (HVF-23-06-10), and Facility Test #869 (HVF-23-06-08) were shown to have elevated TSP concentrations of 112.296 µg/m^3, 98.415 µg/m^3, and 90.612 µg/m^3, respectively, which are over the 50 µg/m^3 threshold. These samples were sent for additional analysis and the results for Test #865, Test #866, and Test #869 can be found in Table 17 of this report. There were no exceedances for the parameters with AAAQO in October 2023.

PM_{10}

None of the PM_{10} samples collected in October 2023 were above the 50 µg/m^3. The PM_{10} concentrations measured for Facility Test #865 (AT79100), Facility Test #866 (AT79101), and Facility Test #869 (AT79099) were less than the 50 threshold, 16.552 µg/m^3, 46.053 µg/m^3 and 18.306 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 analysis. The results for Test #865, Test #866, and Test #869 can be found in Table 18 of this report. There were no exceedances for the parameters with AAAQO in October 2023.

The remainder of the TSP and PM_{10} samples collected in October 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 October 2023.

6. Conclusions

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

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

2 During October 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 October 2023, the continuous Ryley School wind Station operated at 100% uptime. Based on the data verification and validation procedure conducted, this is in compliance with the minimum 90% uptime required by the AMD.

4 The TSP concentration measured at the intermittent Facility Site Station from October 1, 2023 to November 1, 2023 was 205.379 µg/m^3. The AAAQO exceedance for this month is likely a result of the background air quality and not related to the Facility.

5 The TSP concentration measured at the intermittent Ryley School Station from October 1, 2023 to November 1, 2023 was 100.147 µg/m^3. The AAAQO exceedance for this month is likely a result of the background air quality 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 October 3, October 9, October 15, October 21, and October 27 were 112.296 µg/m^3, 98.415 µg/m^3, 49.351 µg/m^3, 47.213 µg/m^3, and 90.612 µg/m^3, respectively.

7 The PM_{10} concentrations measured at the intermittent Highway 854 Lift Station (AEPA Station ID 00010348-I-1) on October 3, October 9, October 15, October 21, and October 27 were 16.552 µg/m^3, 46.053 µg/m^3, 20.254 µg/m^3, 21.008 µg/m^3, and 18.306 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 October 2023.

9 The TSP concentration measured for Facility Test #107 (HV-23-02-11), conducted from October 1, 2023 to November 1, 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, nickel, and manganese).

10 The TSP concentration measured for School Test #107 (HV-23-02-12), conducted from October 1, 2023 to November 1, 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, nickel, and manganese).

11 The TSP concentrations measured for Facility Test #865 (HVF-23-06-09), Facility Test #866 (HVF-23-06-10), and Facility Test #869 (HVF-23-06-08) 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 of these tests showed that all parameters for Test #865, Test #866, and Test #869 were below any applicable AAAQO (arsenic, chromium, lead, nickel, and manganese).

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 #865 (AT79100), Facility Test #866 (AT79101), and Facility Test #869 (AT79099) 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 of these tests showed that all parameters for Test #865, Test #866, and Test #869 were below any applicable AAAQO (arsenic, chromium, lead, nickel, and manganese).

Clean Harbors will continue to 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 October 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
October 2023

Ryley Wind Speed Data (m/s) - Month of October 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	0.8	0.6	0.2	1.0	0.6	0.0	0.1	0.0	0.9	1.5	2.6	2.5	4.4	4.5	3.4	4.5	5.5	5.4	4.5	4.2	4.8	5.1	5.2	3.1
2	4.1	4.0	3.8	4.3	3.7	3.3	3.3	2.9	3.6	4.8	4.5	4.6	4.7	5.0	4.4	3.5	2.7	2.6	2.5	2.2	2.1	2.5	2.3	3.4
3	3.9	3.8	3.9	4.3	1.6	4.0	3.9	3.8	3.9	5.0	5.0	4.7	5.4	6.3	6.1	5.9	6.6	6.4	2.8	2.9	3.4	3.0	3.2	3.9
4	3.3	3.7	4.8	3.1	4.0	4.6	5.4	4.8	5.8	9.7	10.8	11.3	12.8	12.9	13.7	13.4	13.6	12.2	8.1	6.2	4.7	3.9	4.2	4.1
5	3.5	4.4	5.0	4.4	4.0	4.9	5.4	5.5	6.7	8.6	10.9	11.6	12.5	14.1	12.5	13.2	12.2	9.8	7.1	3.8	1.0	0.9	2.1	3.9
6	3.7	3.0	3.3	3.3	4.2	3.9	4.3	4.3	5.5	5.0	4.6	4.8	5.5	7.0	6.4	6.1	5.8	4.2	2.7	3.5	5.7	6.7	5.1	3.6
7	3.3	4.2	4.5	4.5	4.9	5.3	4.5	3.7	3.5	3.0	2.6	4.6	5.2	4.7	3.5	2.7	3.5	2.1	1.6	2.2	2.5	3.5	3.8	4.3
8	3.4	3.2	3.4	3.5	3.2	4.2	4.3	4.8	4.0	5.0	5.4	4.8	4.5	5.0	4.6	4.3	3.7	2.0	1.1	1.9	0.5	1.7	2.4	1.9
9	2.7	3.5	3.0	3.2	3.6	3.9	4.4	4.1	3.2	4.0	4.4	3.8	4.1	4.8	5.3	5.9	5.0	1.8	0.4	1.9	2.4	2.5	2.2	1.1
10	3.0	3.3	3.5	3.2	3.0	3.5	4.2	4.0	4.3	3.2	4.8	5.7	7.0	6.6	5.9	6.0	4.1	2.2	1.9	3.6	4.3	4.3	5.1	5.4
11	4.3	4.3	4.8	5.3	3.2	3.4	4.2	4.9	4.9	5.6	6.6	7.3	6.7	6.6	5.9	4.2	5.3	2.5	1.8	0.1	1.0	2.6	3.2	3.1
12	3.1	3.1	2.4	0.7	0.5	2.4	2.9	3.2	4.1	4.1	4.1	4.5	4.4	5.3	5.0	5.9	6.2	5.3	4.6	4.1	3.9	3.5	3.0	2.5
13	2.8	3.1	3.4	3.1	3.2	3.0	2.9	3.4	6.2	5.2	6.4	7.0	8.2	8.0	7.9	8.5	8.6	7.7	5.0	4.9	4.6	4.3	4.4	5.3
14	5.9	5.8	6.4	7.5	7.3	6.8	7.6	7.8	7.9	8.9	8.7	9.8	9.7	8.7	9.1	8.9	8.5	6.8	4.9	4.3	3.8	3.5	3.5	3.5
15	4.6	3.9	3.8	3.3	3.7	3.7	3.3	2.9	1.3	2.4	1.6	1.3	1.5	1.6	0.9	0.8	1.1	1.1	1.3	1.6	1.1	3.1	3.4	3.2
16	3.1	2.2	2.0	1.6	0.6	0.5	0.6	1.5	1.8	1.0	1.8	4.4	5.9	7.0	6.2	6.2	5.5	4.6	4.2	4.7	4.6	4.2	4.3	4.6
17	4.8	3.4	3.3	2.6	2.1	2.9	3.6	4.0	3.9	5.8	7.1	8.3	8.1	8.2	8.0	6.9	6.5	4.4	2.1	1.9	2.9	2.0	2.1	2.4
18	3.5	4.1	3.3	3.5	4.5	5.1	4.6	4.8	4.6	3.6	3.3	5.0	4.7	4.1	5.0	5.0	4.1	3.1	1.6	2.3	3.5	3.7	5.0	5.8
19	5.7	5.6	5.9	5.3	6.1	4.9	4.7	4.1	4.6	4.2	4.3	3.7	4.2	3.5	4.7	3.8	3.9	2.2	1.9	3.7	11.0	4.3	3.6	6.2
20	8.4	6.1	5.3	5.2	5.6	4.8	5.2	5.1	5.7	5.2	7.6	7.3	7.5	8.1	8.0	8.4	6.7	4.9	3.4	3.0	3.4	3.3	3.4	2.6
21	0.5	1.5	4.5	3.4	1.9	1.9	2.3	2.3	2.8	3.1	3.8	4.5	4.9	6.1	5.4	4.9	3.8	2.3	3.1	3.7	4.3	5.7	6.2	6.0
22	6.9	6.5	8.2	7.6	6.9	5.3	5.0	3.7	2.7	2.9	2.9	2.7	2.2	1.9	2.5	3.2	2.8	2.6	3.2	3.4	3.3	3.5	3.6	4.3
23	4.7	4.6	5.4	5.4	5.4	5.0	4.9	4.6	4.8	4.6	5.5	5.5	6.0	5.8	5.9	5.6	5.1	4.2	4.3	4.6	3.6	3.9	4.3	4.3
24	3.3	2.0	2.6	2.2	2.4	2.4	2.4	2.9	3.2	3.1	3.5	4.1	5.3	5.1	5.0	5.6	5.6	5.3	4.1	3.0	3.0	3.3	3.5	3.4
25	2.9	2.8	3.1	3.7	3.6	3.2	3.2	2.9	2.4	3.5	4.5	5.2	4.7	3.9	3.2	3.0	2.6	2.8	2.6	3.7	4.2	4.4	4.4	4.1
26	4.2	4.2	4.3	4.5	3.3	4.1	2.8	3.5	3.3	4.1	5.1	4.9	4.1	6.1	6.1	5.7	5.0	4.3	4.5	4.5	2.8	2.5	3.3	3.4
27	4.2	3.9	4.3	4.6	4.0	3.4	4.0	4.5	5.1	5.1	5.7	6.8	6.6	7.7	6.8	6.9	6.6	5.7	4.5	4.2	2.0	1.8	2.3	3.2
28	2.9	3.5	3.9	4.3	4.6	4.7	5.0	4.5	6.0	6.7	9.3	10.3	10.3	9.4	8.9	9.3	8.5	7.7	6.9	5.2	4.8	5.6	4.0	3.7
29	3.8	4.5	4.4	3.2	3.6	5.2	5.2	4.4	4.4	4.0	4.1	6.1	5.1	5.6	5.5	5.9	5.3	3.6	4.6	5.5	4.7	3.8	3.4	3.3
30	3.1	2.1	3.0	4.1	3.2	2.5	2.5	2.3	2.1	1.4	2.8	4.5	5.2	5.9	5.0	4.5	4.6	3.9	3.8	4.8	5.4	4.3	5.7	3.9
31	3.4	4.1	3.0	2.2	3.4	3.7	5.5	5.4	5.4	5.3	5.5	6.0	6.5	6.6	7.0	7.3	6.8	4.9	3.6	1.9	1.6	2.1	1.9	1.3

TABLE 2

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

Ryley Wind Speed Data (m/s) - Month of October 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
October 2023

Ryley Wind Speed Data (m/s) - Month of October 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	0.0	0.2	0.2	0.2	0.4	0.1	0.1	0.3	0.8	1.7	2.4	2.5	4.1	3.3	3.0	3.8	4.9	4.9	3.4	3.0	4.0	3.8	3.7	2.6
2	3.7	3.2	3.7	3.7	3.1	2.5	2.8	3.1	4.2	4.2	3.7	3.7	3.6	4.1	3.6	2.4	2.1	2.0	1.6	2.0	2.1	1.6	0.8	0.1
3	0.2	0.3	0.3	0.6	0.3	0.2	0.1	0.8	1.7	3.4	3.5	3.2	3.9	4.3	4.0	4.0	4.2	3.6	1.2	0.1	1.1	1.6	3.0	3.1
4	1.8	0.5	2.4	0.8	0.2	0.3	0.5	1.3	4.3	6.9	6.3	6.7	7.8	7.6	8.6	9.2	8.1	7.1	4.0	3.2	2.4	1.1	2.1	2.0
5	2.3	2.8	3.1	1.9	2.1	3.4	3.6	3.5	3.5	4.5	5.5	7.1	7.1	6.5	7.4	6.7	6.3	5.8	3.1	0.9	0.3	0.2	0.3	0.6
6	1.2	2.4	2.8	2.5	2.9	3.3	4.0	4.4	4.8	3.5	2.5	2.1	1.8	2.6	1.7	1.9	1.7	1.7	1.9	2.4	1.5	0.4	0.9	1.7
7	0.4	0.6	0.6	0.4	0.3	0.1	0.5	0.8	0.3	1.0	1.6	2.4	3.0	2.6	1.8	1.1	1.4	1.0	1.1	1.2	2.3	3.0	3.3	3.6
8	3.0	3.0	2.7	2.6	3.2	3.6	4.1	4.5	3.8	5.0	4.8	4.0	4.0	4.6	3.9	3.8	3.2	1.5	0.8	0.8	0.2	1.0	2.0	2.1
9	2.4	2.7	1.2	2.2	3.0	3.7	4.0	3.3	2.8	2.4	3.9	3.4	3.1	4.3	5.0	5.1	3.8	1.2	0.2	0.6	0.8	0.8	1.3	0.3
10	1.8	2.1	2.4	1.8	2.1	2.3	2.7	3.0	3.3	2.3	4.4	4.9	6.1	5.6	5.2	5.3	3.2	1.4	1.0	2.7	3.4	3.7	5.0	4.0
11	2.9	3.3	3.6	3.3	2.0	2.7	2.8	3.5	3.7	4.4	4.7	5.3	5.2	5.6	4.6	3.0	4.0	1.2	0.4	0.0	0.2	1.0	2.1	2.3
12	2.0	2.2	1.4	0.2	0.5	2.0	2.2	2.6	2.8	2.5	3.7	3.8	3.8	4.5	4.2	4.6	5.2	4.4	3.1	2.9	3.0	2.6	2.3	1.9
13	2.0	2.4	3.1	3.2	2.8	2.5	2.5	2.6	4.8	4.3	5.4	5.8	6.8	6.5	7.2	7.2	7.5	6.2	4.0	3.4	3.5	3.2	3.4	3.9
14	4.8	5.6	5.8	6.1	6.0	5.4	6.2	6.0	6.3	7.4	7.0	7.6	7.7	8.1	7.6	7.3	6.7	5.2	3.4	3.2	3.3	3.2	2.3	2.2
15	2.7	3.0	2.9	2.5	2.9	2.9	2.8	1.6	1.2	2.2	1.3	1.2	1.2	1.4	0.8	0.6	1.1	0.6	0.4	0.3	0.2	0.6	1.0	0.5
16	0.5	0.4	0.5	0.2	0.2	0.1	0.1	0.6	1.0	0.9	1.7	4.1	5.1	5.6	5.4	4.8	3.8	3.4	3.2	3.4	3.6	3.4	3.5	3.3
17	2.9	2.3	1.7	1.4	1.0	0.5	0.6	1.0	2.0	3.4	3.8	4.4	4.0	3.9	3.3	3.3	3.3	2.1	0.7	0.7	1.2	2.2	1.5	2.2
18	3.8	2.8	2.9	3.5	4.1	4.5	3.6	3.7	3.5	3.0	2.6	1.8	1.8	1.8	2.7	3.1	2.2	1.6	0.5	0.7	0.8	0.6	0.6	0.8
19	0.8	0.8	0.8	0.7	1.1	1.5	2.2	1.5	1.2	1.2	1.7	2.6	2.4	2.2	3.2	3.1	2.2	1.6	2.1	2.4	5.6	1.8	1.0	3.2
20	4.7	3.9	3.3	2.8	3.4	2.7	2.9	1.9	2.1	3.4	4.7	4.6	4.6	5.2	5.2	5.4	4.1	2.4	1.5	1.2	0.6	0.5	0.6	0.5
21	0.1	0.5	0.9	0.7	1.2	1.2	1.4	2.2	2.7	3.5	3.4	3.4	4.8	5.5	4.8	4.3	3.0	1.5	1.5	1.7	2.4	3.4	2.7	2.7
22	2.8	2.4	2.8	2.5	2.5	2.2	2.6	1.8	1.5	1.7	1.6	1.5	1.4	1.4	2.0	2.3	1.8	1.7	2.2	2.0	1.8	1.8	1.7	2.4
23	2.0	1.9	2.5	2.3	3.3	3.1	2.7	2.8	2.4	2.6	2.6	2.7	2.8	2.6	2.8	2.8	2.4	2.4	2.3	2.4	1.6	2.3	2.6	2.3
24	1.8	0.6	0.7	0.6	0.7	1.5	1.4	1.9	1.8	2.2	2.3	2.7	2.8	2.9	2.9	3.3	2.5	2.6	1.9	1.5	1.0	0.4	0.9	1.1
25	0.9	1.2	2.0	2.2	1.5	1.4	1.4	0.8	1.0	2.2	2.8	3.3	3.1	2.4	2.2	1.4	1.6	1.1	0.9	0.7	0.9	1.2	0.9	0.9
26	1.0	0.8	0.9	0.9	0.8	1.2	1.4	2.1	2.1	2.6	3.0	3.0	2.7	3.4	3.4	3.1	2.2	2.4	2.4	1.9	1.3	0.7	1.2	1.6
27	2.4	2.1	2.6	2.7	1.9	1.5	2.0	2.4	2.9	2.8	3.6	3.9	4.3	4.4	4.1	4.2	4.4	3.3	2.7	2.4	0.8	0.5	0.2	0.3
28	0.5	0.7	0.8	1.0	0.9	0.8	1.3	1.2	3.8	4.3	5.5	5.5	4.6	3.8	3.6	3.4	3.3	3.4	2.5	2.6	2.8	3.2	2.2	2.0
29	2.2	2.6	2.5	1.7	1.4	1.0	1.0	1.0	0.8	1.1	2.7	3.9	3.1	3.4	3.8	3.6	3.2	1.3	0.9	1.1	0.9	0.9	0.6	0.9
30	0.8	0.8	1.6	0.6	1.1	1.0	1.2	0.6	1.1	1.0	2.8	3.8	4.7	4.9	4.3	3.9	3.8	3.2	3.3	4.4	4.4	4.0	4.5	3.0
31	2.6	3.4	2.5	1.7	0.9	1.0	3.1	3.0	3.4	3.3	3.3	3.6	4.1	3.9	4.1	3.5	3.5	2.1	1.1	0.3	0.3	0.7	0.4	0.3

TABLE 4

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

Ryley Wind Direction Data (degrees, blowing from) - Month of October 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	142	77	176	283	290	130	192	238	158	116	137	168	138	141	129	133	122	131	137	135	135	139	145	121
2	108	120	124	128	124	118	123	119	119	152	167	165	146	158	176	173	174	175	168	180	176	187	233	204
3	237	241	233	245	257	218	229	244	257	276	280	281	279	285	283	283	275	278	263	212	189	185	174	174
4	197	203	264	256	207	207	214	239	272	296	316	319	322	327	330	330	330	325	309	306	307	255	279	286
5	293	299	305	277	263	299	308	311	313	320	325	325	331	327	330	329	321	316	307	305	183	54	195	192
6	182	175	166	158	155	144	140	147	161	165	182	190	197	196	208	211	200	196	186	184	192	211	233	251
7	255	253	253	234	228	220	237	262	227	222	250	259	261	272	262	235	199	193	136	123	123	124	130	143
8	120	110	116	107	118	115	114	112	118	125	131	139	134	126	131	143	163	172	150	142	189	115	118	110
9	104	109	112	108	105	105	110	112	111	102	113	120	104	101	113	107	115	91	115	105	118	140	126	116
10	88	99	97	101	102	101	103	100	102	112	112	109	111	112	125	137	147	104	104	97	108	101	107	103
11	92	82	81	85	81	63	69	76	79	74	75	79	85	76	82	108	98	97	115	82	45	46	67	76
12	85	88	90	94	82	82	89	93	96	104	111	122	116	114	111	96	96	95	100	103	115	116	118	117
13	115	119	120	121	121	125	117	115	119	115	122	108	97	99	98	104	95	97	100	96	92	97	96	90
14	90	93	93	91	87	89	91	92	92	94	94	97	101	96	98	97	101	99	98	89	94	94	98	102
15	96	99	107	103	107	110	118	117	141	125	108	106	108	148	177	197	135	103	119	173	234	228	249	256
16	245	228	199	203	183	157	156	133	166	106	89	107	95	93	88	88	88	84	78	75	82	87	79	79
17	76	70	63	84	280	298	297	309	290	297	298	304	305	307	307	306	301	296	275	168	185	170	150	125
18	158	172	149	129	116	131	109	119	129	149	171	200	204	205	234	270	288	285	212	178	279	239	207	203
19	199	204	203	209	203	196	187	185	191	190	191	188	190	192	183	172	183	162	143	172	293	286	239	287
20	298	289	283	275	297	271	273	246	244	278	297	296	294	287	289	291	296	286	286	269	253	242	245	253
21	258	159	186	180	100	102	117	116	117	107	107	106	115	115	114	116	115	137	241	262	268	289	300	297
22	304	307	314	315	318	319	334	333	212	88	26	28	45	53	51	54	52	192	134	121	77	306	318	339
23	338	332	332	335	324	312	339	29	20	15	23	27	28	30	36	43	29	23	21	28	36	137	203	293
24	236	318	312	322	302	280	268	276	293	287	293	296	303	297	301	301	311	312	310	273	251	212	226	254
25	257	264	284	287	277	259	275	264	217	249	261	290	301	295	299	302	270	204	185	190	189	182	187	183
26	195	196	184	193	225	258	281	287	288	300	304	303	289	311	314	314	315	311	312	315	304	255	237	249
27	277	276	278	287	279	240	235	245	250	246	263	289	300	315	296	314	304	314	297	302	286	258	215	204
28	199	188	187	186	188	199	199	199	276	306	325	325	322	321	321	324	320	323	320	318	319	321	284	276
29	263	277	294	281	256	206	202	214	208	219	257	302	305	309	287	292	272	234	196	200	194	189	187	185
30	203	238	275	300	296	284	276	303	254	32	71	89	106	119	127	117	118	119	99	101	113	127	137	163
31	148	141	153	164	182	225	277	279	283	278	278	296	297	294	298	301	301	302	307	303	299	273	302	192

TABLE 5

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

Ryley Wind Direction Data (degrees, blowing from) - Month of October 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
October 2023

Ryley Wind Direction Data (degrees, blowing from) - Month of October 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	106	76	195	285	262	141	225	248	167	141	151	173	150	153	152	134	134	139	150	141	152	151	162	139
2	122	130	132	132	126	118	124	125	135	156	170	164	150	166	184	187	179	180	171	195	193	209	261	257
3	257	250	241	247	232	244	260	248	265	281	283	288	287	285	293	288	281	281	263	245	214	206	190	194
4	224	245	278	253	242	242	242	251	274	283	292	291	295	295	291	290	296	294	300	297	292	256	275	279
5	283	281	287	267	270	282	289	288	292	297	296	293	296	301	295	299	298	302	304	298	177	127	219	218
6	215	197	184	169	163	165	167	172	183	196	215	217	221	219	233	234	227	221	204	205	229	235	251	265
7	241	246	250	252	239	242	247	247	246	256	260	264	266	271	266	232	219	196	131	123	123	130	143	159
8	127	120	117	108	122	118	119	121	124	132	137	149	133	136	134	141	171	173	134	146	188	139	124	123
9	117	119	120	116	120	120	120	119	124	109	127	128	111	114	117	118	116	95	118	97	126	134	125	111
10	98	98	107	106	106	106	110	112	117	121	126	120	125	126	135	138	149	99	94	101	109	110	113	111
11	102	94	95	102	83	78	77	89	90	85	91	98	101	86	100	121	110	93	155	115	106	58	78	83
12	92	92	104	151	208	96	108	108	111	114	123	136	129	129	119	110	107	108	109	113	119	117	118	116
13	114	117	118	119	117	116	114	110	117	114	118	115	117	121	124	121	120	119	117	113	113	114	115	111
14	113	117	118	116	116	116	117	117	118	120	120	121	121	121	122	120	120	113	109	105	108	107	107	104
15	108	113	117	111	112	113	117	131	154	134	115	119	137	164	179	195	121	171	179	198	234	243	250	236
16	229	220	205	209	146	147	157	126	158	110	105	125	114	114	112	109	107	100	94	96	108	109	96	102
17	82	73	68	111	317	314	321	320	296	297	297	300	301	303	305	301	298	297	282	195	202	197	168	145
18	187	174	139	125	125	128	115	121	123	148	178	221	225	228	254	282	296	289	153	154	269	237	225	225
19	227	228	228	223	226	220	211	214	224	219	218	206	206	212	196	189	197	145	138	172	302	278	239	291
20	294	286	278	275	283	275	276	250	256	279	291	288	292	284	285	290	294	296	297	258	236	236	233	231
21	156	152	224	166	96	100	127	121	124	120	117	118	128	130	129	131	138	153	261	270	275	294	300	293
22	293	305	325	333	334	334	171	219	128	77	43	56	64	77	70	81	67	145	77	88	105	231	285	191
23	278	326	305	225	74	116	127	46	17	11	19	26	29	25	38	60	26	35	28	30	39	89	80	122
24	137	337	323	286	308	282	275	281	293	284	287	292	298	298	299	290	301	301	291	255	250	239	247	253
25	248	257	281	278	267	257	262	238	240	249	261	281	293	286	276	290	266	228	222	224	224	223	226	226
26	233	225	224	228	239	249	272	286	287	292	295	293	283	297	295	294	302	297	295	302	288	246	246	256
27	277	273	277	280	263	247	245	247	249	247	262	274	287	293	281	289	281	288	279	283	271	253	230	229
28	228	222	222	223	227	230	227	227	273	286	293	299	301	303	305	311	309	307	311	294	291	296	275	272
29	255	273	279	275	250	232	228	231	229	236	263	289	286	278	282	281	274	237	223	226	221	219	227	225
30	232	248	278	285	299	294	265	231	170	100	105	118	127	137	151	139	137	141	122	128	135	150	164	189
31	166	163	176	200	224	246	275	279	282	280	286	293	292	289	292	301	300	303	312	233	265	254	304	135

TABLE 7

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

Frequency Distribution Report: Ryley, Alberta - October 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	47	205	462	713	159	17	101	3.8%	1704
Northeast	> 22.5 - 67.5	68	328	505	428	191	3	0	3.4%	1523
East	> 67.5 - 112.5	198	766	2118	4065	1979	385	49	21.4%	9560
Southeast	> 112.5 - 157.5	126	908	2253	2773	749	36	5	15.3%	6850
South	> 157.5 - 202.5	104	642	1968	2933	492	5	0	13.8%	6144
Southwest	> 202.5 - 247.5	95	291	1269	1791	491	7	0	8.8%	3944
West	> 247.5 - 292.5	136	524	2192	3043	1092	74	9	15.8%	7070
Northwest	> 292.5 - 337.5	56	327	973	2462	2572	743	712	17.6%	7845
Missing/Invalid Minutes									0.000%	0
Total Occurences by Speed		830	3991	11740	18208	7725	1270	876		**44640**
Occurences by %		1.9%	8.9%	26.3%	40.8%	17.3%	2.8%	2.0%	**100.000%**	

TABLE 8

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

Frequency Distribution Report: Ryley, Alberta - October 2023										
		Wind Speed (m/s) and Number of Occurences (minutes)								Total Occurrences
Direction	Angle	< 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	%	by Direction
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
October 2023

Frequency Distribution Report: Ryley, Alberta - October 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	347	1235	900	192	5	0	0	6.0%	2679
Northeast	> 22.5 - 67.5	175	430	180	31	1	0	0	1.8%	817
East	> 67.5 - 112.5	203	1573	2283	1214	292	9	1	12.5%	5575
Southeast	> 112.5 - 157.5	351	1569	3559	3489	1332	133	9	23.4%	10442
South	> 157.5 - 202.5	304	976	1314	743	49	0	0	7.6%	3386
Southwest	> 202.5 - 247.5	1676	4282	595	124	8	0	0	15.0%	6685
West	> 247.5 - 292.5	797	3484	3134	1707	421	91	38	21.7%	9672
Northwest	> 292.5 - 337.5	368	1341	1782	1273	513	93	14	12.1%	5384
Missing/Invalid Minutes									0.0%	0
Total Occurences by Speed		4221	14890	13747	8773	2621	326	62		**44640**
Occurences by %		9.5%	33.4%	30.8%	19.7%	5.9%	0.7%	0.1%	**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
October 2023

Filter ID	HV-23-02-13
Test ID	Facility Test # 107
Sample Start Date/Time	23/10/01 12:00:00
Sample End Date/Time	23/11/01 16:00:00
Sampling Time (hours)	31.13
Flow Rate (m^3/min)	1.272
Volume (m^3)	2376.10
TSP Mass (mg)	488
TSP Concentration (ug/m^3)	205.379
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
October 2023

Filter ID	HV-23-02-14
Test ID	School Test # 107
Sample Start Date/Time	23/10/01 12:00:00
Sample End Date/Time	23/11/01 16:00:00
Sampling Time (hours)	25.32
Flow Rate (m^3/min)	1.295
Volume (m^3)	1967.1
TSP Mass (mg)	197
TSP Concentration (ug/m^3)	100.147
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
October 2023

Filter ID	HVF-23-06-09	HVF-23-06-10	HVF-23-06-11	HVF-23-06-07	HVF-23-06-08
Test ID	865	866	867	868	869
Sample Start Date/Time	23/10/03 00:00:00	23/10/09 00:00:00	23/010/15 00:00:00	23/10/21 00:00:00	23/10/27 00:00:00
Sample End Date/Time	23/10/04 00:00:00	23/10/10 00:00:00	23/10/16 00:00:00	23/10/22 00:00:00	23/10/28 00:00:00
Sampling Time (hours)	24.41	23.78	24.13	24.05	23.91
Flow Rate (m^3/min)	1.289	1.289	1.289	1.277	1.277
Volume (m^3)	1887.87	1839.15	1866.21	1842.71	1831.98
TSP Mass (mg)	212	181	92.1	87	166
TSP Concentration (ug/m^3)	112.296	98.415	49.351	47.213	90.612
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
October 2023

Filter ID	AT79100	AT79101	AT79102	AT79103	AT79099
Test ID	865	866	867	868	869
Sample Start Date/Time	23/10/03 00:00:00	23/10/09 00:00:00	23/10/15 00:00:00	23/10/21 00:00:00	23/10/27 00:00:00
Sample End Date/Time	23/10/04 00:00:00	23/10/10 00:00:00	23/10/16 00:00:00	23/10/22 00:00:00	23/10/28 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)	23.2	22.8	23.6	23.8	24.8
PM_{10} Mass (mg)	0.384	1.05	0.478	0.5	0.454
PM_{10} Concentration (ug/m^3)	16.552	46.053	20.254	21.008	18.306
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
October 2023

Parameter	Units	Date / Sample ID / AAAQO[1]	3-Oct-23 865	9-Oct-23 866	15-Oct-23 867	21-Oct-23 868	27-Oct-23 869
Total Non-Methane Organic Carbon	ppmv	-	< 0.09	< 0.08	< 0.08	< 0.08	< 0.08
1,2,3-Trimethylbenzene	ppbv	-	< 0.09	< 0.08	< 0.08	< 0.08	< 0.08
1,2,4-Trimethylbenzene	ppbv	-	0.22	< 0.05	< 0.05	< 0.05	< 0.05
1,3,5-Trimethylbenzene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1-Butene/Isobutylene	ppbv	-	< 0.10	< 0.10	< 0.09	< 0.09	< 0.09
1-Hexene/2-Methyl-1-pentene	ppbv	-	< 0.12	< 0.12	< 0.11	< 0.11	< 0.11
1-Pentene	ppbv	-	< 0.05	< 0.05	0.06	< 0.05	0.08
2,2,4-Trimethylpentane	ppbv	-	0.07	< 0.03	0.06	< 0.03	0.08
2,2-Dimethylbutane	ppbv	-	0.04	< 0.03	0.26	< 0.03	< 0.03
2,3,4-Trimethylpentane	ppbv	-	< 0.04	< 0.03	0.08	< 0.03	0.07
2,3-Dimethylbutane	ppbv	-	< 0.16	< 0.15	0.17	< 0.14	< 0.14
2,3-Dimethylpentane	ppbv	-	0.11	< 0.03	0.11	< 0.03	0.05
2,4-Dimethylpentane	ppbv	-	< 0.05	< 0.05	0.09	< 0.05	< 0.05
2-Methylheptane	ppbv	-	0.18	< 0.03	0.08	< 0.03	0.06
2-Methylhexane	ppbv	-	0.34	< 0.05	0.25	< 0.05	0.11
2-Methylpentane	ppbv	-	0.92	0.12	1.17	0.07	0.23
3-Methylheptane	ppbv	-	0.10	< 0.05	0.05	< 0.05	< 0.05
3-Methylhexane	ppbv	-	0.42	< 0.03	0.22	0.03	0.12
3-Methylpentane	ppbv	-	0.42	0.03	0.66	0.04	0.18
Benzene	ppbv	-	0.41	< 0.05	0.19	0.07	0.32
cis-2-Butene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-2-Pentene	ppbv	-	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03
Cyclohexane	ppbv	-	0.34	< 0.07	0.24	< 0.06	0.11
Cyclopentane	ppbv	-	0.16	< 0.03	0.13	< 0.03	0.05
Ethylbenzene	ppbv	-	0.42	< 0.05	< 0.05	< 0.05	6.98
Isobutane	ppbv	-	1.06	0.28	14.8	0.46	0.42
Isopentane	ppbv	-	1.75	0.43	5.55	0.47	0.71
Isoprene	ppbv	-	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03
Isopropylbenzene	ppbv	-	< 0.07	< 0.07	< 0.06	< 0.06	< 0.06
m,p-Xylene	ppbv	161	1.38	< 0.07	0.08	< 0.06	1.18
m-Diethylbenzene	ppbv	-	< 0.04	< 0.03	0.04	< 0.03	< 0.03
m-Ethyltoluene	ppbv	-	0.10	< 0.05	0.05	< 0.05	< 0.05
Methylcyclohexane	ppbv	-	0.58	< 0.03	0.21	< 0.03	0.14
Methylcyclopentane	ppbv	-	0.44	< 0.08	0.24	< 0.08	0.15
n-Butane	ppbv	-	5.96	0.61	16.3	0.89	0.87
n-Decane	ppbv	-	0.19	< 0.10	< 0.09	< 0.09	< 0.09
n-Dodecane	ppbv	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Heptane	ppbv	-	0.53	< 0.07	0.31	< 0.06	0.14
n-Hexane	ppbv	1990	0.88	0.09	1.31	0.11	0.40
n-Nonane	ppbv	-	0.29	< 0.07	0.11	< 0.06	0.12
n-Octane	ppbv	-	0.32	< 0.03	0.16	0.04	0.12
n-Pentane	ppbv	-	1.69	0.21	4.15	0.31	0.61
n-Propylbenzene	ppbv	-	< 0.10	< 0.10	< 0.09	< 0.09	< 0.09
n-Undecane	ppbv	-	< 0.9	< 0.8	< 0.8	< 0.8	< 0.8
o-Ethyltoluene	ppbv	-	0.04	< 0.03	< 0.03	< 0.03	< 0.03
o-Xylene	ppbv	161	< 0.05	< 0.05	< 0.05	< 0.05	0.24
p-Diethylbenzene	ppbv	-	< 0.04	< 0.03	< 0.03	< 0.03	< 0.03
p-Ethyltoluene	ppbv	-	0.11	< 0.07	< 0.06	< 0.06	< 0.06
Styrene	ppbv	-	< 0.07	< 0.07	0.10	< 0.06	0.27
Toluene	ppbv	106	1.76	< 0.05	0.21	0.08	1.84
trans-2-Butene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
trans-2-Pentene	ppbv	-	< 0.04	< 0.03	0.04	< 0.03	< 0.03
Total VOCs [2]	ppbv	-	23.880	5.390	49.780	5.910	18.230

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
October 2023

Parameter	Date / Sample ID / Lab Results [1]		1-Oct-23 / HV-23-02-14 / (ug/m^3)[2]	AAAQO[2] (ug/m^3)
Antimony	394	ng/Filter	4.34E-04	-
Arsenic	2180	ng/Filter	2.40E-03	0.10
Barium	< 300	ng/Filter	3.31E-04	-
Beryllium	182	ng/Filter	2.01E-04	-
Boron	< 600	ng/Filter	6.61E-04	-
Cadmium	1590	ng/Filter	1.75E-03	-
Chromium	9000	ng/Filter	9.92E-03	1.0
Cobalt	2570	ng/Filter	2.83E-03	-
Copper	132000	ng/Filter	1.45E-01	-
Iron	5980000	ng/Filter	6.59E+00	-
Lead	12200	ng/Filter	1.34E-02	1.5
Manganese	172000	ng/Filter	1.90E-01	2
Mercury	5.89	ng/Filter	6.49E-06	-
Nickel	11100	ng/Filter	1.22E-02	6
Selenium	2110	ng/Filter	2.33E-03	-
Silver	155	ng/Filter	1.71E-04	-
Thallium	52.8	ng/Filter	5.82E-05	-
Tin	447	ng/Filter	4.93E-04	-
Uranium	959	ng/Filter	1.06E-03	-
Vanadium	13400	ng/Filter	1.48E-02	-
Zinc	< 1000	ng/Filter	1.10E-03	-
Zirconium	< 1.0	ng/Filter	1.10E-06	-

Sampling Time (hours)	31.13
Flow Rate (m3/min)	1.272
Volume Sampled (m^3)	2376.10

Notes:
(1) These results are from a 31.13 hour averaging period that took place on October 1 to November 1, 2023
(2) Measured data have been converted from the measured 31.13 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
October 2023

Parameter	Date / Sample ID	Lab Results [1]		(ug/m^3)[2]	AAAQO[2] (ug/m^3)
		1-Oct-23 / HV-23-02-14			
Antimony		159	ng/Filter	2.00E-04	-
Arsenic		645	ng/Filter	8.10E-04	0.10
Barium		< 300	ng/Filter	3.77E-04	-
Beryllium		80.8	ng/Filter	1.02E-04	-
Boron		< 600	ng/Filter	7.54E-04	-
Cadmium		274	ng/Filter	3.44E-04	-
Chromium		2810	ng/Filter	3.53E-03	1.0
Cobalt		732	ng/Filter	9.20E-04	-
Copper		197000	ng/Filter	2.48E-01	-
Iron		2060000	ng/Filter	2.59E+00	-
Lead		2460	ng/Filter	3.09E-03	1.5
Manganese		65300	ng/Filter	8.20E-02	2
Mercury		< 0.70	ng/Filter	8.79E-07	-
Nickel		2780	ng/Filter	3.49E-03	6
Selenium		50.5	ng/Filter	6.34E-05	-
Silver		109	ng/Filter	1.37E-04	-
Thallium		35.1	ng/Filter	4.41E-05	-
Tin		192	ng/Filter	2.41E-04	-
Uranium		92.1	ng/Filter	1.16E-04	-
Vanadium		3160	ng/Filter	3.97E-03	-
Zinc		< 1000	ng/Filter	1.26E-03	-
Zirconium		< 1.0	ng/Filter	1.26E-06	-
Sampling Time (hours)		25.32			
Flow Rate (m3/min)		1.295			
Volume Sampled (m^3)		1967.10			

Notes:
(1) These results are from a 25.32 hour averaging period that took place on October 1 to November 1, 2023
(2) Measured data have been converted from the measured 25.32 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
October 2023

	Date			Date			Date			
	Sample ID			Sample ID			Sample ID			
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)**
	3-Oct-23			**9-Oct-23**			**27-Oct-23**			
	865			**866**			**869**			
Antimony	375	ng/Filter	4.86E-04	235	ng/Filter	3.10E-04	432	ng/Filter	5.64E-04	-
Arsenic	4330	ng/Filter	5.61E-03	683	ng/Filter	9.02E-04	4160	ng/Filter	5.44E-03	0.10
Barium	< 300	ng/Filter	3.89E-04	< 300	ng/Filter	3.96E-04	< 300	ng/Filter	3.92E-04	-
Beryllium	197	ng/Filter	2.55E-04	34.2	ng/Filter	4.52E-05	107	ng/Filter	1.40E-04	-
Boron	2340000	ng/Filter	3.03E+00	3420000	ng/Filter	0.00E+00	< 600	ng/Filter	7.84E-04	-
Cadmium	1180	ng/Filter	1.53E-03	541	ng/Filter	7.14E-04	1660	ng/Filter	2.17E-03	-
Chromium	14400	ng/Filter	1.87E-02	17200	ng/Filter	2.27E-02	36300	ng/Filter	4.74E-02	1.0
Cobalt	3180	ng/Filter	4.12E-03	1500	ng/Filter	1.98E-03	2460	ng/Filter	3.21E-03	-
Copper	403000	ng/Filter	5.22E-01	578000	ng/Filter	7.63E-01	404000	ng/Filter	5.28E-01	-
Iron	5270000	ng/Filter	6.83E+00	5140000	ng/Filter	6.79E+00	6180000	ng/Filter	8.08E+00	-
Lead	15500	ng/Filter	2.01E-02	26200	ng/Filter	3.46E-02	82000	ng/Filter	1.07E-01	1.5
Manganese	151000	ng/Filter	1.96E-01	279000	ng/Filter	3.68E-01	435000	ng/Filter	5.68E-01	2
Mercury	< 0.70	ng/Filter	9.07E-07	14.9	ng/Filter	1.97E-05	24.7	ng/Filter	3.23E-05	-
Nickel	21100	ng/Filter	2.73E-02	6510	ng/Filter	8.60E-03	17000	ng/Filter	2.22E-02	6
Selenium	1420	ng/Filter	1.84E-03	1750	ng/Filter	2.31E-03	647	ng/Filter	8.45E-04	-
Silver	265	ng/Filter	3.43E-04	450	ng/Filter	5.94E-04	936	ng/Filter	1.22E-03	-
Thallium	47.3	ng/Filter	6.13E-05	46.9	ng/Filter	6.19E-05	51.8	ng/Filter	6.77E-05	-
Tin	< 0.20	ng/Filter	2.59E-07	326	ng/Filter	4.30E-04	694	ng/Filter	9.07E-04	-
Uranium	2500	ng/Filter	3.24E-03	573	ng/Filter	7.57E-04	1090	ng/Filter	1.42E-03	-
Vanadium	25700	ng/Filter	3.33E-02	7070	ng/Filter	9.34E-03	11700	ng/Filter	1.53E-02	-
Zinc	< 1000	ng/Filter	1.30E-03	< 1000	ng/Filter	1.32E-03	< 1000	ng/Filter	1.31E-03	-
Sampling Time (hours)	24.41			23.78			23.91			
Flow Rate (l/min)	1.289			1.289			1.277			
Volume Sampled (m^3)	1887.87			1839.15			1831.98			

Notes:

(1) These results are from an approximately 24 hour averaging period that took place on October 3, October 9 and October 27, 2023.

(2) 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
October 2023

	Date			Date			Date			
	Sample ID	3-Oct-23 865		Sample ID	9-Oct-23 866		Sample ID	27-Oct-23 869		
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	7.84	ng/Filter	8.23E-04	3.53	ng/Filter	3.77E-04	9.31	ng/Filter	9.14E-04	-
Arsenic	23.7	ng/Filter	2.49E-03	11.1	ng/Filter	1.19E-03	10.0	ng/Filter	9.82E-04	0.10
Barium	409	ng/Filter	4.29E-02	497	ng/Filter	5.31E-02	239	ng/Filter	2.35E-02	-
Beryllium	0.97	ng/Filter	1.02E-04	0.97	ng/Filter	1.04E-04	0.46	ng/Filter	4.52E-05	-
Boron	100	ng/Filter	1.05E-02	118	ng/Filter	1.26E-02	79.7	ng/Filter	7.82E-03	-
Cadmium	9.47	ng/Filter	9.94E-04	0.63	ng/Filter	6.73E-05	5.64	ng/Filter	5.54E-04	-
Chromium	49	ng/Filter	5.14E-03	23	ng/Filter	2.46E-03	144	ng/Filter	1.41E-02	1.0
Cobalt	15.2	ng/Filter	1.60E-03	8.98	ng/Filter	9.59E-04	8.49	ng/Filter	8.34E-04	-
Copper	609	ng/Filter	6.39E-02	166	ng/Filter	1.77E-02	531	ng/Filter	5.21E-02	-
Iron	24100	ng/Filter	2.53E+00	40600	ng/Filter	4.34E+00	21800	ng/Filter	2.14E+00	-
Lead	85.4	ng/Filter	8.96E-03	20.3	ng/Filter	2.17E-03	27.6	ng/Filter	2.71E-03	1.5
Manganese	619	ng/Filter	6.50E-02	1280	ng/Filter	1.37E-01	1560	ng/Filter	1.53E-01	2
Mercury	< 0.07	ng/Filter	7.35E-06	0.26	ng/Filter	2.78E-05	0.24	ng/Filter	2.36E-05	-
Nickel	120	ng/Filter	1.26E-02	18.7	ng/Filter	2.00E-03	56.3	ng/Filter	5.53E-03	6
Selenium	8.6	ng/Filter	9.03E-04	9.9	ng/Filter	1.06E-03	5.4	ng/Filter	5.30E-04	-
Silver	0.74	ng/Filter	7.77E-05	0.21	ng/Filter	2.24E-05	3.11	ng/Filter	3.05E-04	-
Thallium	0.50	ng/Filter	5.25E-05	0.69	ng/Filter	7.37E-05	0.29	ng/Filter	2.85E-05	-
Tin	6.43	ng/Filter	6.75E-04	1.98	ng/Filter	2.11E-04	10.4	ng/Filter	1.02E-03	-
Uranium	13.7	ng/Filter	1.44E-03	1.92	ng/Filter	2.05E-04	4.40	ng/Filter	4.32E-04	-
Vanadium	177	ng/Filter	1.86E-02	55.4	ng/Filter	5.92E-03	55.3	ng/Filter	5.43E-03	-
Zinc	987	ng/Filter	1.04E-01	166	ng/Filter	1.77E-02	564	ng/Filter	5.54E-02	-
Sampling Time (hours)	24			24			24			
Flow Rate (l/min)	16.7			16.7			16.7			
Volume Sampled (m^3)	23.2			22.8			24.8			

Notes:

(1) These results are from an approximately 24 hour averaging period that took place on October 3, October 9 and October 27, 2023.

(2) 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.

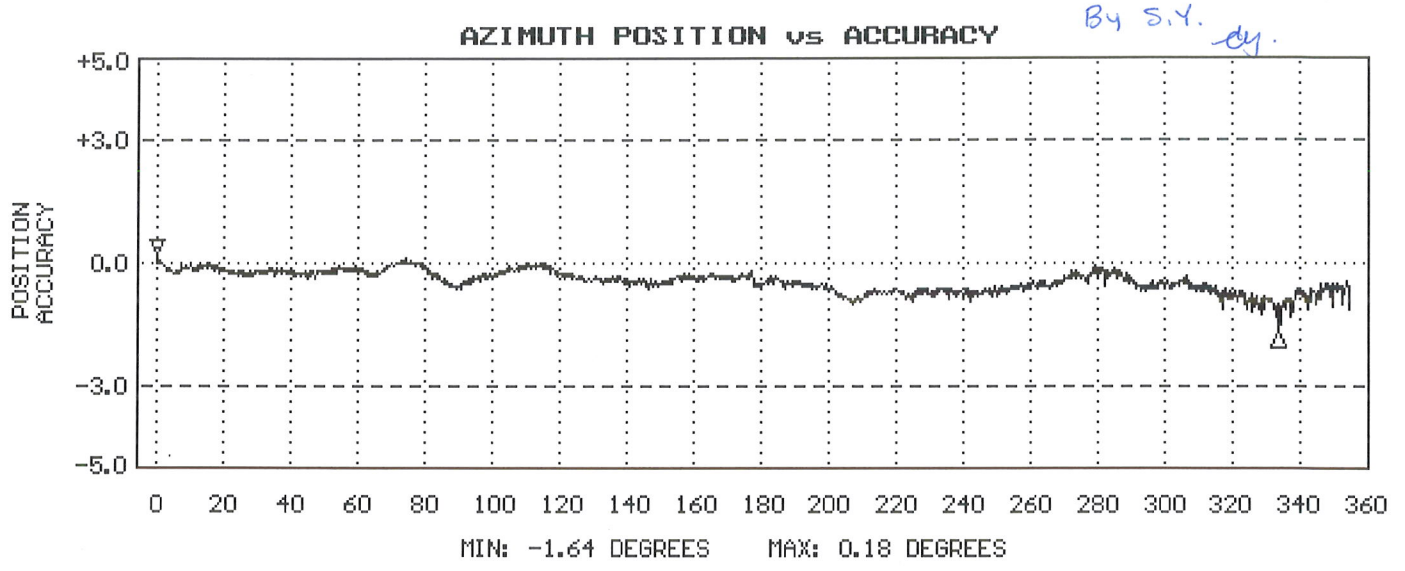
Appendix A
Meteorological Station Calibration Report

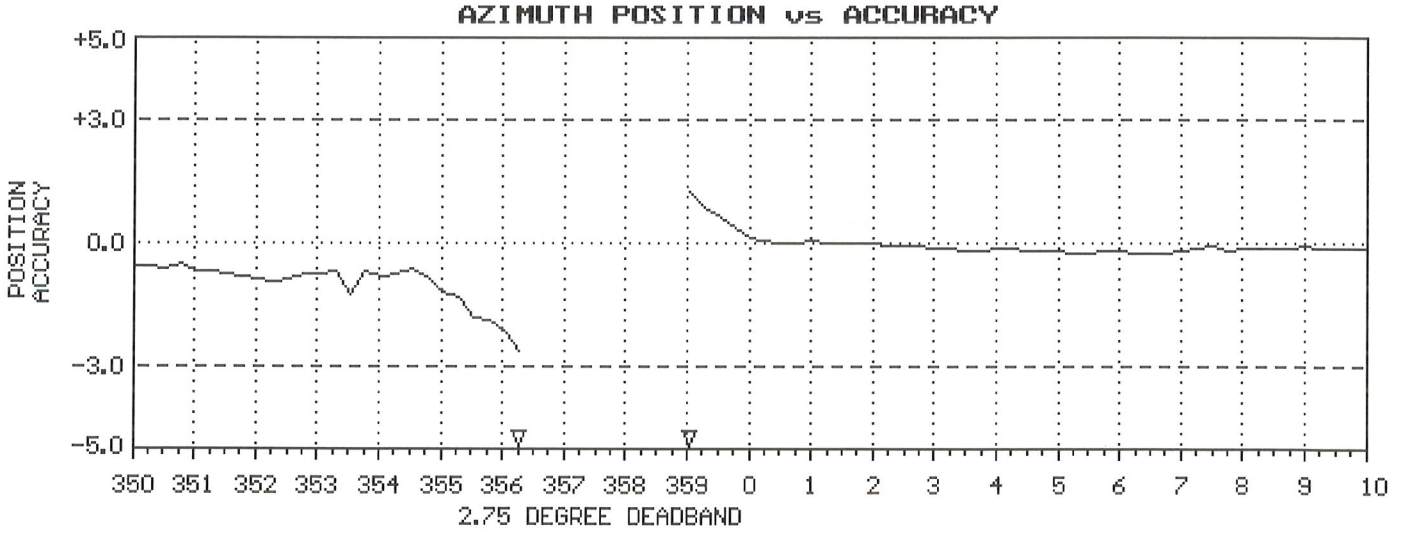
R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

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:	Jun 30, 2023	**Model:**	05305
Tech.:	P. Shariaty & S. Davey	**Serial #:**	149768
Instrument:	Continuous Wind Monitor	**Calibration due:**	Annually
Time:	1:05 PM - 1:20 PM	**Temperature:**	25°C

Pre-Calibration Inspection	Y/N
Is the wind direction < +/- 10° from compass observation?	N
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)
0	0	Y	26.1	26.0	Y
30	29	Y	24.6	24.5	Y
60	59	Y	23.0	22.9	Y
180	178	Y	20.5	20.4	Y
			18.9	18.9	Y
			41.0	40.8	Y

Comments	Conversion Factors	
	m/s	RPM
Wind monitor (SN:149768) was removed from tower, inspected and the calibration was checked on June 30, 2023. Mechanical bearings and shaft alignment were inspected. Bearings were cleaned of any dust buildup. Alignment was in good condition. Wind direction calibration adjustment was required based on the pre-calibration inspection. Other than cleaning and direction calibration, no additional maintenance was required. It is recommended that the instrument be cleaned biannually and bearings checked and replaced (if required) at the next calibration interval. After calibration check, wind monitor was re-installed and sited back to original position.	26.112	5100.0
	24.576	4800.0
	23.040	4500.0
	20.480	4000.0
	18.944	3700.0
	40.960	8000.0
Calibration Adjustment Required?: Yes		

GHD Wind Calibration Form

Site and Instrument Information

Site		Wind Monitor	
Location:	Ryley School	**Make:**	RM Young
Calibration Date:	Jun 30, 2023	**Model:**	05305
Tech.:	P. Shariaty & S. Davey	**Serial #:**	183487
Instrument:	Continuous Wind Monitor	**Calibration due:**	Annually
Time:	10:00 AM - 11:20 AM	**Temperature:**	22°C

Pre-Calibration Inspection	Y/N
Is the wind direction < +/- 10° from compass observation?	N
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)
0	1	Y	26.112	26.0	Y
30	29	Y	24.576	24.5	Y
330	332	Y	23.040	22.9	Y
60	57	Y	20.480	20.4	Y
90	86	Y	18.944	18.9	Y
0	1	Y	40.960	40.8	Y
180	176	Y			
260	256	Y			

Comments	Conversion Factors	
	m/s	RPM
Wind monitor (SN:183487) was removed from tower, inspected and the calibration was checked on June 30, 2023. Mechanical bearings and shaft alignment were inspected. Bearings were cleaned of any dust buildup. Alignment was in good condition. Wind direction calibration adjustment was required based on the pre-calibration inspection. Other than cleaning and direction calibration, no additional maintenance was required. It is recommended that the instrument be cleaned biannually and bearings checked and replaced (if required) at the next calibration interval. After the calibration check, the wind monitor was re-installed and sited back to the original position.	26.112	5100.0
	24.576	4800.0
	23.040	4500.0
	20.480	4000.0
	18.944	3700.0
	40.960	8000.0
Calibration Adjustment Required?: Yes		

Appendix B
Sampling Field Sheets

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	AT79100		
PO Number:	236651		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 865		
Sample Date:	23/10/3	yy/mm/dd	
Shipping Date to Laboratory:	23/10/4		
PM10 Analysis Trigger Weight (mg):	1.16	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/10/3		
Sampling Start Time:	00:00		
Current Instrument Date:	23/10/2		
Current Instrument Time:	10:30		
Ambient Temperature °C:	8.7		
Barometric Pressure (mm Hg):	696		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Mostly Cloudy		
Weather Conditions set up:	Partly Sunny		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/10/4		
Sampling End Time:	00:00		
Current Instrument Date:	23/10/4		
Current Instrument Time:	10:00		
Run Status:	Ok	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	23.2		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	11.6		
Barometric Pressure (mm Hg) :	698		
Sample Filter Temperature °C :	10.8		
Flow Rate Coefficient of Variation (%CV):	0		
Weather Conditions :	Mostly 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 865	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 865	
Sample Date:	23/10/3	yy/mm/dd
Shipping Date to Laboratory:	23/10/4	
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:	23/10/2	23/10/4
Ambient Temperature °C (inside shed):	9.2	15.0
Barometric Pressure (mm Hg):	696	698
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 #865				
Lab Filter ID	HVF-23-06-09				
Start Sampling	10 mm	3 dd	0 hr	2023	
Stop Sampling	10 mm	4 dd	0 hr	2023	
Timer Initial:	1091.56				
Timer Final:	1115.97				
	24.41				
Total Sampling Time	24 hr		25 min		1465
Average Flow Rate		cfm			
Actual m3/min	1.289				
Air Volume	1887.9	cubic metres			
Net TSP Weight		g			
TSP Concentration		mg/m3			
TSP Analysis Trigger Weight	94.4	mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 28-Sep-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:	AT79101			
PO Number:	236651			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 866			
Sample Date:	23/10/9		yy/mm/dd	
Shipping Date to Laboratory:	23/10/11			
PM10 Analysis Trigger Weight (mg):	1.14		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/10/9			
Sampling Start Time:	00:00			
Current Instrument Date:	23/10/4			
Current Instrument Time:	10:08			
Ambient Temperature °C:	12.1			
Barometric Pressure (mm Hg):	698			
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:	23/10/10			
Sampling End Time:	00:00			
Current Instrument Date:	23/10/11			
Current Instrument Time:	6:51			
Run Status:	Ok		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	22.8			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	8.2			
Barometric Pressure (mm Hg) :	690			
Sample Filter Temperature °C :	7.5			
Flow Rate Coefficient of Variation (%CV):	0.2			
Weather Conditions :	Mostly Cloudy			
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 866	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 866	
Sample Date:	23/10/9	yy/mm/dd
Shipping Date to Laboratory:	23/10/10	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32189	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/10/4	23/10/11
Ambient Temperature °C (inside shed):	15.0	9.5
Barometric Pressure (mm Hg):	698	690
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:	

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

1. SAMPLING INFORMATION

Sample ID	Test #866			
Lab Filter ID	HVF-23-06-10			
Start Sampling	10 mm	9 dd	0 hr	2023
Stop Sampling	10 mm	10 dd	0 hr	2023
Timer Initial:	1115.97			
Timer Final:	1139.75			
	23.78			
Total Sampling Time	23 hr		47 min	1427
Average Flow Rate		cfm		
Actual m3/min	1.289			
Air Volume	1839.1	cubic metres		
Net TSP Weight		g		
TSP Concentration		mg/m3		
TSP Analysis Trigger Weight	92.0	mg	weight which TSP conc. > 50 µg/m^3	

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	28-Sep-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:	AT79102			
PO Number:	236651			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 867			
Sample Date:	23/10/15		yy/mm/dd	
Shipping Date to Laboratory:	23/10/17			
PM10 Analysis Trigger Weight (mg):	1.18		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/10/15			
Sampling Start Time:	00:00			
Current Instrument Date:	23/10/11			
Current Instrument Time:	6:58			
Ambient Temperature °C:	8.7			
Barometric Pressure (mm Hg):	690			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Partly Sunny			
Weather Conditions set up:	Passing clouds			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	23/10/16			
Sampling End Time:	00:00			
Current Instrument Date:	23/10/16			
Current Instrument Time:	13:29			
Run Status:	Ok		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	23.6			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	15.5			
Barometric Pressure (mm Hg) :	700			
Sample Filter Temperature °C :	14.7			
Flow Rate Coefficient of Variation (%CV):	0.2			
Weather Conditions :	Mostly Cloudy			
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 867	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 867	
Sample Date:	23/10/15	yy/mm/dd
Shipping Date to Laboratory:	23/10/17	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32211	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/10/11	23/10/16
Ambient Temperature °C (inside shed):	9.5	22.3
Barometric Pressure (mm Hg):	690	700
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:	

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

1. SAMPLING INFORMATION

Sample ID	Test #867				
Lab Filter ID	HVF-23-06-11				
Start Sampling	10	15	0	2023	
	mm	dd	hr		
Stop Sampling	10	16	0	2023	
	mm	dd	hr		
Timer Initial:	1139.75				
Timer Final:	1163.88				
	24.13				
Total Sampling Time	24	hr	8	min	1448
Average Flow Rate		cfm			
Actual m3/min	1.289				
Air Volume	1866.2	cubic metres			
Net TSP Weight		g			
TSP Concentration		mg/m3			
TSP Analysis Trigger Weight	93.3	mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	28-Sep-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:	AT79103			
PO Number:	236651			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 868			
Sample Date:	23/10/21		yy/mm/dd	
Shipping Date to Laboratory:	23/10/24			
PM10 Analysis Trigger Weight (mg):	1.19		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/10/21			
Sampling Start Time:	00:00			
Current Instrument Date:	23/10/20			
Current Instrument Time:	7:03			
Ambient Temperature °C:	6.3			
Barometric Pressure (mm Hg):	700			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Mostly Cloudy			
Weather Conditions set up:	Passing clouds			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	23/10/22			
Sampling End Time:	00:00			
Current Instrument Date:	23/10/24			
Current Instrument Time:	6:50			
Run Status:	Ok		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	23.8			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	-7.9			
Barometric Pressure (mm Hg) :	708			
Sample Filter Temperature °C :	-6.3			
Flow Rate Coefficient of Variation (%CV):	0			
Weather Conditions :	Mostly Cloudy			
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 868	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 868	
Sample Date:	23/10/21	yy/mm/dd
Shipping Date to Laboratory:	23/10/24	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	29035	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/10/20	23/10/24
Ambient Temperature °C (inside shed):	8.8	2.3
Barometric Pressure (mm Hg):	700	708
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.2	(-)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:	

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

1. SAMPLING INFORMATION

Sample ID	Test #868					
Lab Filter ID	HVF-23-06-07					
Start Sampling	10 mm	21 dd	0 hr	2023		
Stop Sampling	10 mm	22 dd	0 hr	2023		
Timer Initial:	1163.88					
Timer Final:	1187.93					
	24.05					
Total Sampling Time	24	hr	3	min	1443	
Average Flow Rate		cfm				
Actual m3/min	1.277					
Air Volume	1842.7	cubic metres				
Net TSP Weight		g				
TSP Concentration		mg/m3				
TSP Analysis Trigger Weight	92.1	mg	weight which TSP conc. > 50 µg/m^3			

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	19-Oct-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:	AT79099			
PO Number:	236651			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 869			
Sample Date:	23/10/27		yy/mm/dd	
Shipping Date to Laboratory:	23/10/31			
PM10 Analysis Trigger Weight (mg):	1.24		weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	23/10/27			
Sampling Start Time:	00:00			
Current Instrument Date:	23/10/24			
Current Instrument Time:	6:57			
Ambient Temperature °C:	-7.4			
Barometric Pressure (mm Hg):	708			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	light snow			
Weather Conditions set up:	partly sunny			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	23/10/28			
Sampling End Time:	00:00			
Current Instrument Date:	23/10/30			
Current Instrument Time:	10:27			
Run Status:	Ok		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	24.8			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	-2.0			
Barometric Pressure (mm Hg) :	711			
Sample Filter Temperature °C :	-1.4			
Flow Rate Coefficient of Variation (%CV):	0			
Weather Conditions :	cloudy			
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 869	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 869	
Sample Date:	23/10/27	yy/mm/dd
Shipping Date to Laboratory:	23/10/31	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32207	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/10/24	23/10/30
Ambient Temperature °C (inside shed):	2.3	19.7
Barometric Pressure (mm Hg):	708	711
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.2	(-)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:	light snow
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 #869			
Lab Filter ID	HVF-23-06-08			
Start Sampling	10 mm	27 dd	0 hr	2023
Stop Sampling	10 mm	28 dd	0 hr	2023
Timer Initial:	1187.93			
Timer Final:	1211.84			
	23.91			
Total Sampling Time	23 hr	55 min	1435	
Average Flow Rate	cfm			
Actual m3/min	1.277			
Air Volume	1832.0 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			
TSP Analysis Trigger Weight	91.6 mg	weight which TSP conc. > 50 µg/m^3		

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 19-Oct-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 # 107			
Lab Filter ID	HV-23-02-13			
Start Sampling	10 mm	1 dd	12 hr	2023
Stop Sampling	11 mm	1 dd	16 hr	2023
Timer Initial:	3201.22			
Timer Final:	3232.36			

Total Sampling Time	31	hr	8	min	1868
Average Flow Rate		cfm			
Actual m3/min	1.272				
Air Volume	2376.1	cubic metres			
Net TSP Weight		g			
TSP Concentration		mg/m3			

2. SAMPLING INFORMATION

Sample ID	School Test # 107			
Lab Filter ID	HV-23-02-14			
Start Sampling	10 mm	1 dd	12 hr	2023
Stop Sampling	11 mm	1 dd	16 hr	2023
Timer Initial:	2601.71			
Timer Final:	2627.02			

Total Sampling Time	25	hr	19	min	1519
Average Flow Rate		cfm			
Actual m3/min	1.295				
Air Volume	1967.1	cubic metres			
Net TSP Weight		g			
TSP Concentration		mg/m3			

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 28-Sep-23

3. GUIDELINES

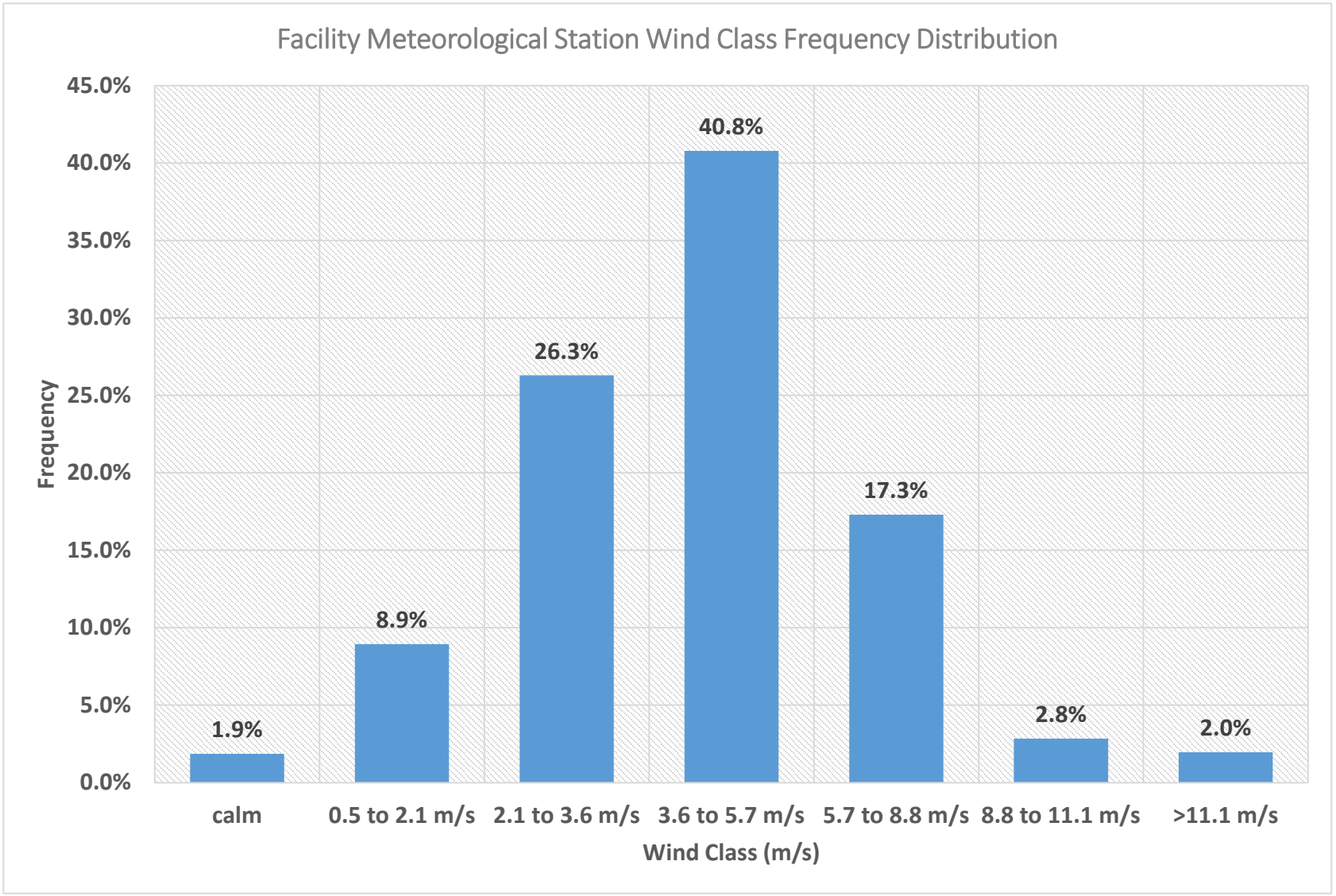
- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.

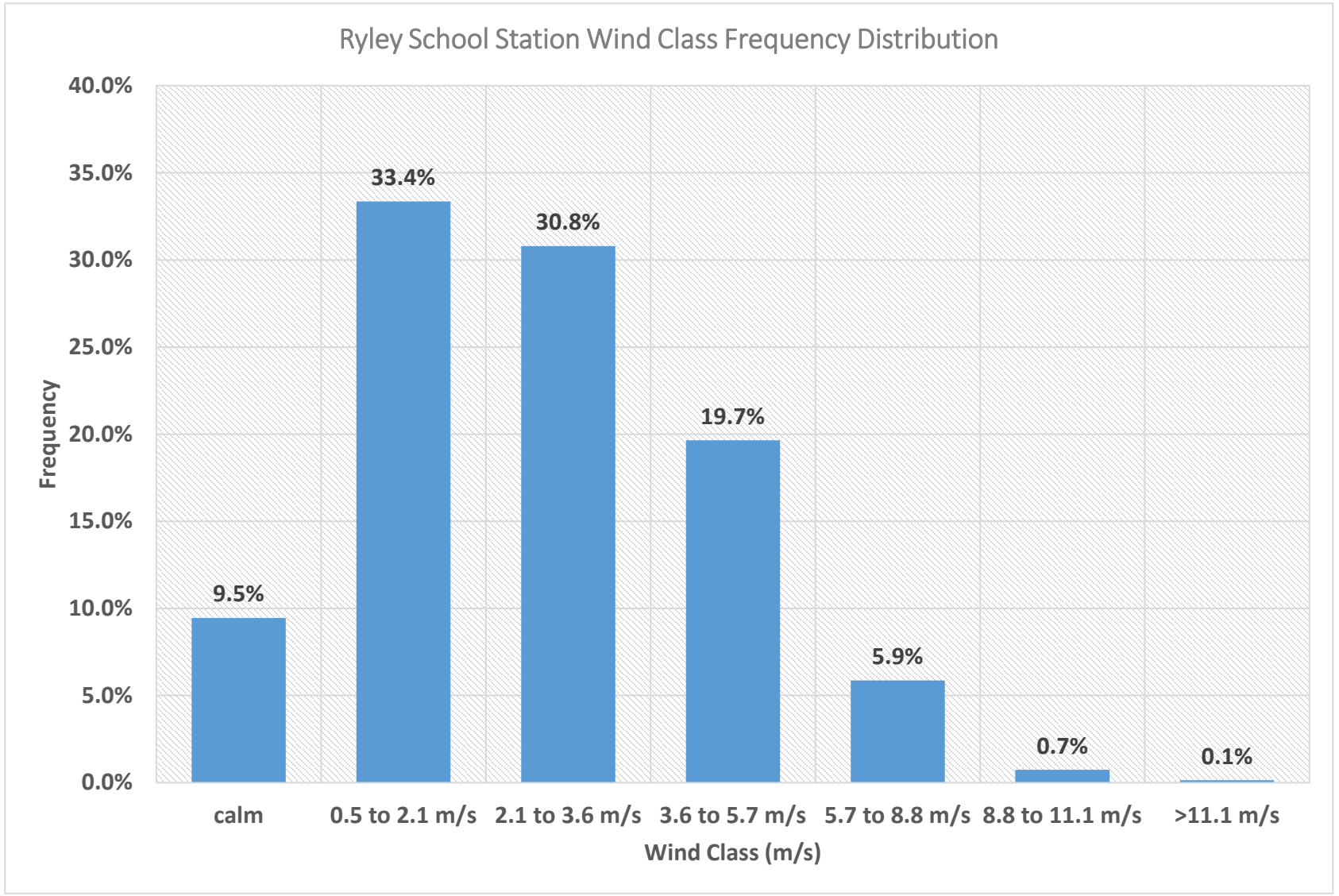
Sample was collected in accordance with the above guidelines.

Sampler's Signature: Stan Yuska

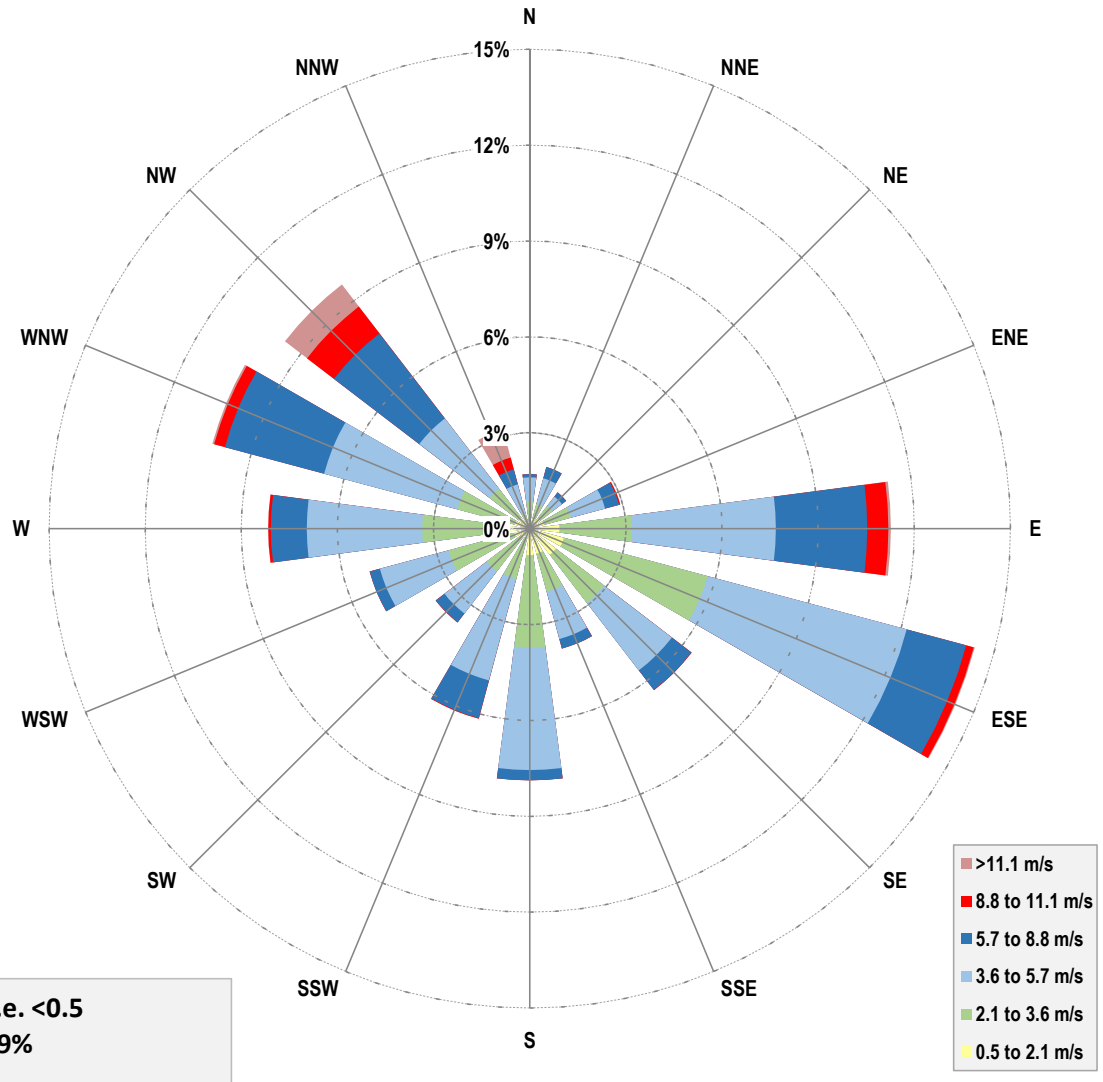
Comments:

Appendix C
Wind Class Frequency Distribution Graphs and Wind Rose


Facility Meteorological Station Wind Class Frequency Distribution
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Frequency
1.9%
8.9%
26.3%
40.8%
17.3%
2.8%
2.0%
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)

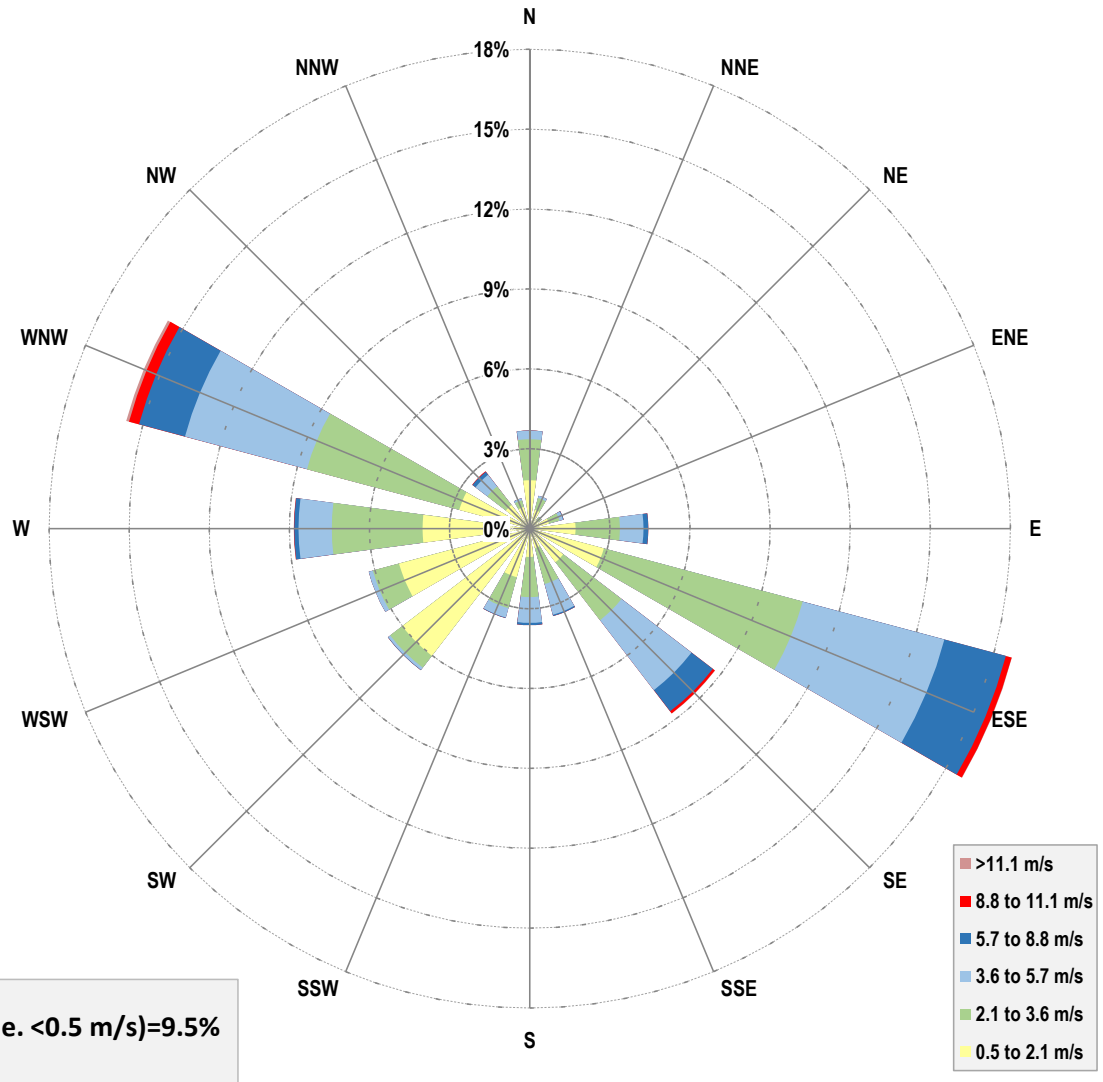

Ryley School Station Wind Class Frequency Distribution
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Frequency
33.4%
30.8%
19.7%
9.5%
5.9%
0.7%
0.1%
calm
0.5 to 2.1 m/s
2.1 to 3.6 m/s
3.6 to 5.7 m/s
5.7 to 8.8 m/s
8.8 to 11.1 m/s
>11.1 m/s
Wind Class (m/s)

Clean Harbors Facility Meteorological Station
(Oct 1, 2023 – Oct 30, 2023)



calms (i.e. <0.5 m/s)=1.9%

Clean Harbors Ryley School Station
(Oct 1, 2023 – Oct 30, 2023)



calms (i.e. <0.5 m/s)=9.5%

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 # 107 HVF-23-02-13
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 10-Oct-23 0:00
DATE RECEIVED: 06-Nov-23
REPORT CREATED: 21-Nov-23
REPORT NUMBER: 23110062
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110062-001	Antimony		394	ng/Filter	0.30	AC-021	17-Nov-23
23110062-001	Arsenic		2180	ng/Filter	0.30	AC-021	17-Nov-23
23110062-001	Barium	K, T, U	< 300	ng/Filter	300	AC-021	17-Nov-23
23110062-001	Beryllium		182	ng/Filter	0.60	AC-021	17-Nov-23
23110062-001	Boron	K, T, U	< 600	ng/Filter	600	AC-021	17-Nov-23
23110062-001	Cadmium		1590	ng/Filter	0.80	AC-021	17-Nov-23
23110062-001	Chromium		9000	ng/Filter	20	AC-021	17-Nov-23
23110062-001	Cobalt		2570	ng/Filter	0.50	AC-021	17-Nov-23
23110062-001	Copper		132000	ng/Filter	20	AC-021	17-Nov-23
23110062-001	Iron		5980000	ng/Filter	80	AC-021	17-Nov-23
23110062-001	Lead		12200	ng/Filter	0.70	AC-021	17-Nov-23
23110062-001	Manganese		172000	ng/Filter	1.0	AC-021	17-Nov-23
23110062-001	Mercury		5.89	ng/Filter	0.70	AC-021	17-Nov-23
23110062-001	Nickel		11100	ng/Filter	5.0	AC-021	17-Nov-23
23110062-001	Selenium		2110	ng/Filter	4.0	AC-021	17-Nov-23
23110062-001	Silver		155	ng/Filter	0.50	AC-021	17-Nov-23
23110062-001	Thallium		52.8	ng/Filter	0.20	AC-021	17-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 21, 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
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Ryley Facility Test # 107 HVF-23-02-13		Air Filter	10-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110062 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110062-001	Tin		447	ng/Filter	0.20	AC-021	17-Nov-23
23110062-001	Uranium		959	ng/Filter	0.200	AC-021	17-Nov-23
23110062-001	Vanadium		13400	ng/Filter	0.40	AC-021	17-Nov-23
23110062-001	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	17-Nov-23
23110062-001	Zirconium	K, T, U	< 1.0	ng/Filter	1.0	AC-021	17-Nov-23
23110062-001	Particulate Weight		488	mg	0.1	Research	08-Nov-23

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

Date: November 21, 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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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Ryley School Test # 107 HVF-23-02-14		Air Filter	10-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110062 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110062-002	Antimony		159	ng/Filter	0.30	AC-021	17-Nov-23
23110062-002	Arsenic		645	ng/Filter	0.30	AC-021	17-Nov-23
23110062-002	Barium	K, T, U	< 300	ng/Filter	300	AC-021	17-Nov-23
23110062-002	Beryllium		80.8	ng/Filter	0.60	AC-021	17-Nov-23
23110062-002	Boron	K, T, U	< 600	ng/Filter	600	AC-021	17-Nov-23
23110062-002	Cadmium		274	ng/Filter	0.80	AC-021	17-Nov-23
23110062-002	Chromium		2810	ng/Filter	20	AC-021	17-Nov-23
23110062-002	Cobalt		732	ng/Filter	0.50	AC-021	17-Nov-23
23110062-002	Copper		197000	ng/Filter	20	AC-021	17-Nov-23
23110062-002	Iron		2060000	ng/Filter	80	AC-021	17-Nov-23
23110062-002	Lead		2460	ng/Filter	0.70	AC-021	17-Nov-23
23110062-002	Manganese		65300	ng/Filter	1.0	AC-021	17-Nov-23
23110062-002	Mercury	K, T, U	< 0.70	ng/Filter	0.70	AC-021	17-Nov-23
23110062-002	Nickel		2780	ng/Filter	5.0	AC-021	17-Nov-23
23110062-002	Selenium		50.5	ng/Filter	4.0	AC-021	17-Nov-23
23110062-002	Silver		109	ng/Filter	0.50	AC-021	17-Nov-23
23110062-002	Thallium		35.1	ng/Filter	0.20	AC-021	17-Nov-23
23110062-002	Tin		192	ng/Filter	0.20	AC-021	17-Nov-23
23110062-002	Uranium		92.1	ng/Filter	0.200	AC-021	17-Nov-23
23110062-002	Vanadium		3160	ng/Filter	0.40	AC-021	17-Nov-23
23110062-002	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	17-Nov-23
23110062-002	Zirconium	K, T, U	< 1.0	ng/Filter	1.0	AC-021	17-Nov-23
23110062-002	Particulate Weight		197	mg	0.1	Research	08-Nov-23

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

Date: November 21, 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
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Revision History

Order ID	Ver	Date	Reason
23110062	01	21-Nov-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

23110062

Send results to Stan Yuha. Quote 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: 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 #: 865, Flt #: HVF-23-06-09
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Hi-Vol Filter
DATE SAMPLED: 03-Oct-23 0:00
DATE RECEIVED: 06-Oct-23
REPORT CREATED: 25-Oct-23
REPORT NUMBER: 23100043
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100043-003	Antimony		375	ng/Filter	0.30	AC-021	20-Oct-23
23100043-003	Arsenic		4330	ng/Filter	0.30	AC-021	20-Oct-23
23100043-003	Barium	K, T, U	< 300	ng/Filter	300	AC-021	20-Oct-23
23100043-003	Beryllium		197	ng/Filter	0.60	AC-021	20-Oct-23
23100043-003	Boron		2340000	ng/Filter	600	AC-021	20-Oct-23
23100043-003	Cadmium		1180	ng/Filter	0.80	AC-021	20-Oct-23
23100043-003	Chromium		14400	ng/Filter	20	AC-021	20-Oct-23
23100043-003	Cobalt		3180	ng/Filter	0.50	AC-021	20-Oct-23
23100043-003	Copper		403000	ng/Filter	20	AC-021	20-Oct-23
23100043-003	Iron		5270000	ng/Filter	80	AC-021	20-Oct-23
23100043-003	Lead		15500	ng/Filter	0.70	AC-021	20-Oct-23
23100043-003	Manganese		151000	ng/Filter	1.0	AC-021	20-Oct-23
23100043-003	Mercury	K, T, U	< 0.70	ng/Filter	0.70	AC-021	20-Oct-23
23100043-003	Nickel		21100	ng/Filter	5.0	AC-021	20-Oct-23
23100043-003	Selenium		1420	ng/Filter	4.0	AC-021	20-Oct-23
23100043-003	Silver		265	ng/Filter	0.50	AC-021	20-Oct-23
23100043-003	Thallium		47.3	ng/Filter	0.20	AC-021	20-Oct-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: October 25, 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 #: 865, Flt #: HVF-23-06-09		Air Filter	03-Oct-23 0:00

DESCRIPTION: Hi-Vol Filter

REPORT NUMBER: 23100043 **REPORT CREATED:** 25-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100043-003	Tin	K, T, U	< 0.20	ng/Filter	0.20	AC-021	20-Oct-23
23100043-003	Uranium		2500	ng/Filter	0.200	AC-021	20-Oct-23
23100043-003	Vanadium		25700	ng/Filter	0.40	AC-021	20-Oct-23
23100043-003	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	20-Oct-23
23100043-003	Particulate Weight		212	mg	0.1	Research	10-Oct-23

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

Date: October 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test #: 865, Flt # AT79100		Air Filter	03-Oct-23 0:00

DESCRIPTION: PM10 Filter

REPORT NUMBER: 23100043 **REPORT CREATED:** 25-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100043-002	Antimony		7.84	ng/Filter	0.03	AC-021	19-Oct-23
23100043-002	Arsenic		23.7	ng/Filter	0.03	AC-021	19-Oct-23
23100043-002	Barium		409	ng/Filter	0.3	AC-021	19-Oct-23
23100043-002	Beryllium		0.97	ng/Filter	0.06	AC-021	19-Oct-23
23100043-002	Boron		100	ng/Filter	0.6	AC-021	19-Oct-23
23100043-002	Cadmium		9.47	ng/Filter	0.08	AC-021	19-Oct-23
23100043-002	Chromium		49	ng/Filter	2	AC-021	19-Oct-23
23100043-002	Cobalt		15.2	ng/Filter	0.05	AC-021	19-Oct-23
23100043-002	Copper		609	ng/Filter	2	AC-021	19-Oct-23
23100043-002	Iron		24100	ng/Filter	8	AC-021	19-Oct-23
23100043-002	Lead		85.4	ng/Filter	0.07	AC-021	19-Oct-23
23100043-002	Manganese		619	ng/Filter	0.1	AC-021	19-Oct-23
23100043-002	Mercury	K, T, U	< 0.07	ng/Filter	0.07	AC-021	19-Oct-23
23100043-002	Nickel		120	ng/Filter	0.5	AC-021	19-Oct-23
23100043-002	Selenium		8.6	ng/Filter	0.4	AC-021	19-Oct-23
23100043-002	Silver		0.74	ng/Filter	0.05	AC-021	19-Oct-23
23100043-002	Thallium		0.50	ng/Filter	0.02	AC-021	19-Oct-23
23100043-002	Tin		6.43	ng/Filter	0.02	AC-021	19-Oct-23
23100043-002	Uranium		13.7	ng/Filter	0.020	AC-021	19-Oct-23
23100043-002	Vanadium		177	ng/Filter	0.04	AC-021	19-Oct-23
23100043-002	Zinc		987	ng/Filter	1	AC-021	19-Oct-23
23100043-002	Particulate Weight		0.384	mg	0.004	AC-029	10-Oct-23

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

Date: October 25, 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 & TNMOC Test #: 865	29017	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100043 **REPORT CREATED:** 25-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100043-001	Total Non-Methane Organic Carbon	K, T, U	< 0.09	ppmv	0.09	NA-028	06-Oct-23
23100043-001	1,2,3-Trimethylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	08-Oct-23
23100043-001	1,2,4-Trimethylbenzene	I	0.22	ppbv	0.05	AC-058	08-Oct-23
23100043-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Oct-23
23100043-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	08-Oct-23
23100043-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	08-Oct-23
23100043-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Oct-23
23100043-001	2,2,4-Trimethylpentane	I	0.07	ppbv	0.04	AC-058	08-Oct-23
23100043-001	2,2-Dimethylbutane	I	0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	2,3,4-Trimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	2,3-Dimethylbutane	K, T, U	< 0.16	ppbv	0.16	AC-058	08-Oct-23
23100043-001	2,3-Dimethylpentane	I	0.11	ppbv	0.04	AC-058	08-Oct-23
23100043-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Oct-23
23100043-001	2-Methylheptane		0.18	ppbv	0.04	AC-058	08-Oct-23
23100043-001	2-Methylhexane		0.34	ppbv	0.05	AC-058	08-Oct-23
23100043-001	2-Methylpentane		0.92	ppbv	0.04	AC-058	08-Oct-23
23100043-001	3-Methylheptane	I	0.10	ppbv	0.05	AC-058	08-Oct-23
23100043-001	3-Methylhexane		0.42	ppbv	0.04	AC-058	08-Oct-23
23100043-001	3-Methylpentane		0.42	ppbv	0.04	AC-058	08-Oct-23
23100043-001	Benzene		0.41	ppbv	0.05	AC-058	08-Oct-23
23100043-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Oct-23
23100043-001	cis-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	Cyclohexane	I	0.34	ppbv	0.07	AC-058	08-Oct-23
23100043-001	Cyclopentane	I	0.16	ppbv	0.04	AC-058	08-Oct-23
23100043-001	Ethylbenzene		0.42	ppbv	0.05	AC-058	08-Oct-23

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

Date: October 25, 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 & TNMOC Test #: 865	29017	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100043 **REPORT CREATED:** 25-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100043-001	Isobutane		1.06	ppbv	0.05	AC-058	08-Oct-23
23100043-001	Isopentane		1.75	ppbv	0.07	AC-058	08-Oct-23
23100043-001	Isoprene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Oct-23
23100043-001	m,p-Xylene		1.38	ppbv	0.07	AC-058	08-Oct-23
23100043-001	m-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	m-Ethyltoluene	I	0.10	ppbv	0.05	AC-058	08-Oct-23
23100043-001	Methylcyclohexane		0.58	ppbv	0.04	AC-058	08-Oct-23
23100043-001	Methylcyclopentane		0.44	ppbv	0.09	AC-058	08-Oct-23
23100043-001	n-Butane		5.96	ppbv	0.04	AC-058	08-Oct-23
23100043-001	n-Decane		0.19	ppbv	0.10	AC-058	08-Oct-23
23100043-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Oct-23
23100043-001	n-Heptane		0.53	ppbv	0.07	AC-058	08-Oct-23
23100043-001	n-Hexane		0.88	ppbv	0.05	AC-058	08-Oct-23
23100043-001	n-Octane		0.32	ppbv	0.04	AC-058	08-Oct-23
23100043-001	n-Pentane		1.69	ppbv	0.07	AC-058	08-Oct-23
23100043-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	08-Oct-23
23100043-001	n-Undecane	K, T, U	< 0.9	ppbv	0.9	AC-058	08-Oct-23
23100043-001	n-Nonane		0.29	ppbv	0.07	AC-058	08-Oct-23
23100043-001	o-Ethyltoluene	I	0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Oct-23
23100043-001	p-Diethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Oct-23
23100043-001	p-Ethyltoluene	I	0.11	ppbv	0.07	AC-058	08-Oct-23
23100043-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Oct-23
23100043-001	Toluene		1.76	ppbv	0.05	AC-058	08-Oct-23

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

Date: October 25, 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 & TNMOC Test #: 865	29017	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100043 **REPORT CREATED:** 25-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100043-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Oct-23
23100043-001	trans-2-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Oct-23

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

Date: October 25, 2023

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

Revision History

Order ID	Ver	Date	Reason
23100043	01	25-Oct-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

Order Comments

23100043

Project ID: Test # 865. Report also to Stan Yuha.

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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.

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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: HiVol Test #: 866 Flt# HVF-23-06-10
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Hi-Vol Filter
DATE SAMPLED: 09-Oct-23 0:00
DATE RECEIVED: 13-Oct-23
REPORT CREATED: 17-Nov-23
REPORT NUMBER: 23100144
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100144-003	Antimony		235	ng/Filter	0.30	AC-021	26-Oct-23
23100144-003	Arsenic		683	ng/Filter	0.30	AC-021	26-Oct-23
23100144-003	Barium	K, T, U	< 300	ng/Filter	300	AC-021	26-Oct-23
23100144-003	Beryllium		34.2	ng/Filter	0.60	AC-021	26-Oct-23
23100144-003	Boron		3420000	ng/Filter	600	AC-021	26-Oct-23
23100144-003	Cadmium		541	ng/Filter	0.80	AC-021	26-Oct-23
23100144-003	Chromium		17200	ng/Filter	20	AC-021	26-Oct-23
23100144-003	Cobalt		1500	ng/Filter	0.50	AC-021	26-Oct-23
23100144-003	Copper		578000	ng/Filter	20	AC-021	26-Oct-23
23100144-003	Iron		5140000	ng/Filter	80	AC-021	26-Oct-23
23100144-003	Lead		26200	ng/Filter	0.70	AC-021	26-Oct-23
23100144-003	Manganese		279000	ng/Filter	1.0	AC-021	26-Oct-23
23100144-003	Mercury		14.9	ng/Filter	0.70	AC-021	26-Oct-23
23100144-003	Nickel		6510	ng/Filter	5.0	AC-021	26-Oct-23
23100144-003	Selenium		1750	ng/Filter	4.0	AC-021	26-Oct-23
23100144-003	Silver		450	ng/Filter	0.50	AC-021	26-Oct-23
23100144-003	Thallium		46.9	ng/Filter	0.20	AC-021	26-Oct-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 17, 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
HiVol Test #: 866 Flt# HVF-23-06-10		Air Filter	09-Oct-23 0:00

DESCRIPTION: Hi-Vol Filter

REPORT NUMBER: 23100144 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100144-003	Tin		326	ng/Filter	0.20	AC-021	26-Oct-23
23100144-003	Uranium		573	ng/Filter	0.200	AC-021	26-Oct-23
23100144-003	Vanadium		7070	ng/Filter	0.40	AC-021	26-Oct-23
23100144-003	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	26-Oct-23
23100144-003	Particulate Weight		181	mg	0.1	Research	16-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test #: 866, Flt# AT79101		Air Filter	09-Oct-23 0:00

DESCRIPTION: PM10 Filter

REPORT NUMBER: 23100144 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100144-002	Antimony		3.53	ng/Filter	0.03	AC-021	26-Oct-23
23100144-002	Arsenic		11.1	ng/Filter	0.03	AC-021	26-Oct-23
23100144-002	Barium		497	ng/Filter	0.3	AC-021	26-Oct-23
23100144-002	Beryllium		0.97	ng/Filter	0.06	AC-021	26-Oct-23
23100144-002	Boron		118	ng/Filter	0.6	AC-021	26-Oct-23
23100144-002	Cadmium		0.63	ng/Filter	0.08	AC-021	26-Oct-23
23100144-002	Chromium		23	ng/Filter	2	AC-021	26-Oct-23
23100144-002	Cobalt		8.98	ng/Filter	0.05	AC-021	26-Oct-23
23100144-002	Copper		166	ng/Filter	2	AC-021	26-Oct-23
23100144-002	Iron		40600	ng/Filter	8	AC-021	26-Oct-23
23100144-002	Lead		20.3	ng/Filter	0.07	AC-021	26-Oct-23
23100144-002	Manganese		1280	ng/Filter	0.1	AC-021	26-Oct-23
23100144-002	Mercury		0.26	ng/Filter	0.07	AC-021	26-Oct-23
23100144-002	Nickel		18.7	ng/Filter	0.5	AC-021	26-Oct-23
23100144-002	Selenium		9.9	ng/Filter	0.4	AC-021	26-Oct-23
23100144-002	Silver		0.21	ng/Filter	0.05	AC-021	26-Oct-23
23100144-002	Thallium		0.69	ng/Filter	0.02	AC-021	26-Oct-23
23100144-002	Tin		1.98	ng/Filter	0.02	AC-021	26-Oct-23
23100144-002	Uranium		1.92	ng/Filter	0.020	AC-021	26-Oct-23
23100144-002	Vanadium		55.4	ng/Filter	0.04	AC-021	26-Oct-23
23100144-002	Zinc		166	ng/Filter	1	AC-021	26-Oct-23
23100144-002	Particulate Weight		1.05	mg	0.004	AC-029	17-Oct-23

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

Date: November 17, 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 #: 866	32189	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100144 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100144-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	13-Oct-23
23100144-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	18-Oct-23
23100144-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	18-Oct-23
23100144-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	18-Oct-23
23100144-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	18-Oct-23
23100144-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	2-Methylpentane	I	0.12	ppbv	0.03	AC-058	18-Oct-23
23100144-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	3-Methylpentane	I	0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	Benzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23

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

Date: November 17, 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 #: 866	32189	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100144 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100144-001	Isobutane		0.28	ppbv	0.05	AC-058	18-Oct-23
23100144-001	Isopentane		0.43	ppbv	0.07	AC-058	18-Oct-23
23100144-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	18-Oct-23
23100144-001	n-Butane		0.61	ppbv	0.03	AC-058	18-Oct-23
23100144-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	18-Oct-23
23100144-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Oct-23
23100144-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	n-Hexane	I	0.09	ppbv	0.05	AC-058	18-Oct-23
23100144-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	n-Pentane		0.21	ppbv	0.07	AC-058	18-Oct-23
23100144-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	18-Oct-23
23100144-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	18-Oct-23
23100144-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100144-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100144-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23

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

Date: November 17, 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 #: 866	32189	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100144 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100144-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100144-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23

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

Date: November 17, 2023

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

Revision History

Order ID	Ver	Date	Reason
23100144	01	17-Nov-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

Order Comments

23100144

Project ID: 866. Report also to Stan Yuha.

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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.

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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 # 867 - HVF-23-06-11
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: H-VOL Filter
DATE SAMPLED: 15-Oct-23 0:00
DATE RECEIVED: 19-Oct-23
REPORT CREATED: 17-Nov-23
REPORT NUMBER: 23100198
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100198-003	Particulate Weight		92.1	mg	0.1	Research	27-Oct-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 17, 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 # 867 - AT79102		Air Filter	15-Oct-23 0:00

DESCRIPTION: PM10 filter

REPORT NUMBER: 23100198 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100198-002	Particulate Weight		0.478	mg	0.004	AC-029	23-Oct-23

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

Date: November 17, 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: 867	32211	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100198 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100198-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	24-Oct-23
23100198-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	25-Oct-23
23100198-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	25-Oct-23
23100198-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	25-Oct-23
23100198-001	1-Pentene	I	0.06	ppbv	0.05	AC-058	25-Oct-23
23100198-001	2,2,4-Trimethylpentane	I	0.06	ppbv	0.03	AC-058	25-Oct-23
23100198-001	2,2-Dimethylbutane		0.26	ppbv	0.03	AC-058	25-Oct-23
23100198-001	2,3,4-Trimethylpentane	I	0.08	ppbv	0.03	AC-058	25-Oct-23
23100198-001	2,3-Dimethylbutane		0.17	ppbv	0.14	AC-058	25-Oct-23
23100198-001	2,3-Dimethylpentane	I	0.11	ppbv	0.03	AC-058	25-Oct-23
23100198-001	2,4-Dimethylpentane	I	0.09	ppbv	0.05	AC-058	25-Oct-23
23100198-001	2-Methylheptane	I	0.08	ppbv	0.03	AC-058	25-Oct-23
23100198-001	2-Methylhexane		0.25	ppbv	0.05	AC-058	25-Oct-23
23100198-001	2-Methylpentane		1.17	ppbv	0.03	AC-058	25-Oct-23
23100198-001	3-Methylheptane	I	0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	3-Methylhexane		0.22	ppbv	0.03	AC-058	25-Oct-23
23100198-001	3-Methylpentane		0.66	ppbv	0.03	AC-058	25-Oct-23
23100198-001	Benzene	I	0.19	ppbv	0.05	AC-058	25-Oct-23
23100198-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100198-001	Cyclohexane	I	0.24	ppbv	0.06	AC-058	25-Oct-23
23100198-001	Cyclopentane	I	0.13	ppbv	0.03	AC-058	25-Oct-23
23100198-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23

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

Date: November 17, 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: 867	32211	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100198 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100198-001	Isobutane		14.8	ppbv	0.05	AC-058	25-Oct-23
23100198-001	Isopentane		5.55	ppbv	0.06	AC-058	25-Oct-23
23100198-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100198-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100198-001	m,p-Xylene	I	0.08	ppbv	0.06	AC-058	25-Oct-23
23100198-001	m-Diethylbenzene	I	0.04	ppbv	0.03	AC-058	25-Oct-23
23100198-001	m-Ethyltoluene	I	0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	Methylcyclohexane		0.21	ppbv	0.03	AC-058	25-Oct-23
23100198-001	Methylcyclopentane		0.24	ppbv	0.08	AC-058	25-Oct-23
23100198-001	n-Butane		16.3	ppbv	0.03	AC-058	25-Oct-23
23100198-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	25-Oct-23
23100198-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Oct-23
23100198-001	n-Heptane	I	0.31	ppbv	0.06	AC-058	25-Oct-23
23100198-001	n-Hexane		1.31	ppbv	0.05	AC-058	25-Oct-23
23100198-001	n-Octane		0.16	ppbv	0.03	AC-058	25-Oct-23
23100198-001	n-Pentane		4.15	ppbv	0.06	AC-058	25-Oct-23
23100198-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	25-Oct-23
23100198-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	25-Oct-23
23100198-001	n-Nonane	I	0.11	ppbv	0.06	AC-058	25-Oct-23
23100198-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100198-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100198-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100198-001	Styrene	I	0.10	ppbv	0.06	AC-058	25-Oct-23
23100198-001	Toluene	I	0.21	ppbv	0.05	AC-058	25-Oct-23

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

Date: November 17, 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: 867	32211	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23100198 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100198-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100198-001	trans-2-Pentene	I	0.04	ppbv	0.03	AC-058	25-Oct-23

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

Date: November 17, 2023

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

Revision History

Order ID	Ver	Date	Reason
23100198	01	17-Nov-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

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

Order Comments

23100198

Project ID: Test 867. Send report to yuha.stan@cleanharbors.com

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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: AT79103 - PM10 Test Number: 868

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 21-Oct-23 0:00

DATE RECEIVED: 26-Oct-23

REPORT CREATED: 10-Nov-23

REPORT NUMBER: 23100285

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100285-002	Particulate Weight		0.500	mg	0.004	AC-029	30-Oct-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 10, 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: 868 - HVF-23-06-07		Air Filter	21-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23100285 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100285-003	Particulate Weight		87.0	mg	0.1	Research	02-Nov-23

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

Date: November 10, 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: 868	29035	Ambient Air	21-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23100285 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100285-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	01-Nov-23
23100285-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Nov-23
23100285-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Nov-23
23100285-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	02-Nov-23
23100285-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	02-Nov-23
23100285-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	2-Methylpentane	I	0.07	ppbv	0.03	AC-058	02-Nov-23
23100285-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	3-Methylhexane	I	0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	3-Methylpentane	I	0.04	ppbv	0.03	AC-058	02-Nov-23
23100285-001	Benzene	I	0.07	ppbv	0.05	AC-058	02-Nov-23
23100285-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23

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

Date: November 10, 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: 868	29035	Ambient Air	21-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23100285 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100285-001	Isobutane		0.46	ppbv	0.05	AC-058	02-Nov-23
23100285-001	Isopentane		0.47	ppbv	0.06	AC-058	02-Nov-23
23100285-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	m,p-Xylene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Nov-23
23100285-001	n-Butane		0.89	ppbv	0.03	AC-058	02-Nov-23
23100285-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Nov-23
23100285-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Nov-23
23100285-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	n-Hexane	I	0.11	ppbv	0.05	AC-058	02-Nov-23
23100285-001	n-Octane	I	0.04	ppbv	0.03	AC-058	02-Nov-23
23100285-001	n-Pentane		0.31	ppbv	0.06	AC-058	02-Nov-23
23100285-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Nov-23
23100285-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	02-Nov-23
23100285-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23100285-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23100285-001	Toluene	I	0.08	ppbv	0.05	AC-058	02-Nov-23

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

Date: November 10, 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: 868	29035	Ambient Air	21-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23100285 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100285-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23100285-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23

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

Date: November 10, 2023

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

Revision History

Order ID	Ver	Date	Reason
23100285	01	10-Nov-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

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

Order Comments

23100285

Project ID: Test 868 Report also to yuha.stan@cleanharbors.com

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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.

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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: 869 - HVF-23-06-08

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 27-Oct-23 0:00

DATE RECEIVED: 01-Nov-23

REPORT CREATED: 21-Nov-23

REPORT NUMBER: 23110005

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110005-003	Antimony		432	ng/Filter	0.30	AC-021	17-Nov-23
23110005-003	Arsenic		4160	ng/Filter	0.30	AC-021	17-Nov-23
23110005-003	Barium	K, T, U	< 300	ng/Filter	300	AC-021	17-Nov-23
23110005-003	Beryllium		107	ng/Filter	0.60	AC-021	17-Nov-23
23110005-003	Boron	K, T, U	< 600	ng/Filter	600	AC-021	17-Nov-23
23110005-003	Cadmium		1660	ng/Filter	0.80	AC-021	17-Nov-23
23110005-003	Chromium		36300	ng/Filter	20	AC-021	17-Nov-23
23110005-003	Cobalt		2460	ng/Filter	0.50	AC-021	17-Nov-23
23110005-003	Copper		404000	ng/Filter	20	AC-021	17-Nov-23
23110005-003	Iron		6180000	ng/Filter	80	AC-021	17-Nov-23
23110005-003	Lead		82000	ng/Filter	7.00	AC-021	17-Nov-23
23110005-003	Manganese		435000	ng/Filter	1.0	AC-021	17-Nov-23
23110005-003	Mercury		24.7	ng/Filter	0.70	AC-021	17-Nov-23
23110005-003	Nickel		17000	ng/Filter	5.0	AC-021	17-Nov-23
23110005-003	Selenium		647	ng/Filter	4.0	AC-021	17-Nov-23
23110005-003	Silver		936	ng/Filter	0.50	AC-021	17-Nov-23
23110005-003	Thallium		51.8	ng/Filter	0.20	AC-021	17-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 21, 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: 869 - HVF-23-06-08		Air Filter	27-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110005 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110005-003	Tin		694	ng/Filter	0.20	AC-021	17-Nov-23
23110005-003	Uranium		1090	ng/Filter	0.200	AC-021	17-Nov-23
23110005-003	Vanadium		11700	ng/Filter	0.40	AC-021	17-Nov-23
23110005-003	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	17-Nov-23
23110005-003	Particulate Weight		166	mg	0.1	Research	06-Nov-23

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

Date: November 21, 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 Number: 869 - Filter # AT79099		Air Filter	27-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110005 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110005-002	Antimony		9.31	ng/Filter	0.03	AC-021	16-Nov-23
23110005-002	Arsenic		10.0	ng/Filter	0.03	AC-021	16-Nov-23
23110005-002	Barium		239	ng/Filter	0.3	AC-021	16-Nov-23
23110005-002	Beryllium		0.46	ng/Filter	0.06	AC-021	16-Nov-23
23110005-002	Boron		79.7	ng/Filter	0.6	AC-021	16-Nov-23
23110005-002	Cadmium		5.64	ng/Filter	0.08	AC-021	16-Nov-23
23110005-002	Chromium		144	ng/Filter	2	AC-021	16-Nov-23
23110005-002	Cobalt		8.49	ng/Filter	0.05	AC-021	16-Nov-23
23110005-002	Copper		531	ng/Filter	2	AC-021	16-Nov-23
23110005-002	Iron		21800	ng/Filter	8	AC-021	16-Nov-23
23110005-002	Lead		27.6	ng/Filter	0.07	AC-021	16-Nov-23
23110005-002	Manganese		1560	ng/Filter	0.1	AC-021	16-Nov-23
23110005-002	Mercury	I	0.24	ng/Filter	0.07	AC-021	16-Nov-23
23110005-002	Nickel		56.3	ng/Filter	0.5	AC-021	16-Nov-23
23110005-002	Selenium		5.4	ng/Filter	0.4	AC-021	16-Nov-23
23110005-002	Silver		3.11	ng/Filter	0.05	AC-021	16-Nov-23
23110005-002	Thallium		0.29	ng/Filter	0.02	AC-021	16-Nov-23
23110005-002	Tin		10.4	ng/Filter	0.02	AC-021	16-Nov-23
23110005-002	Uranium		4.40	ng/Filter	0.020	AC-021	16-Nov-23
23110005-002	Vanadium		55.3	ng/Filter	0.04	AC-021	16-Nov-23
23110005-002	Zinc		564	ng/Filter	1	AC-021	16-Nov-23
23110005-002	Particulate Weight		0.454	mg	0.004	AC-029	02-Nov-23

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

Date: November 21, 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: 869	32207	Ambient Air	27-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110005 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110005-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	07-Nov-23
23110005-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Nov-23
23110005-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Nov-23
23110005-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	02-Nov-23
23110005-001	1-Pentene	I	0.08	ppbv	0.05	AC-058	02-Nov-23
23110005-001	2,2,4-Trimethylpentane	I	0.08	ppbv	0.03	AC-058	02-Nov-23
23110005-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23110005-001	2,3,4-Trimethylpentane	I	0.07	ppbv	0.03	AC-058	02-Nov-23
23110005-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	02-Nov-23
23110005-001	2,3-Dimethylpentane	I	0.05	ppbv	0.03	AC-058	02-Nov-23
23110005-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	2-Methylheptane	I	0.06	ppbv	0.03	AC-058	02-Nov-23
23110005-001	2-Methylhexane	I	0.11	ppbv	0.05	AC-058	02-Nov-23
23110005-001	2-Methylpentane		0.23	ppbv	0.03	AC-058	02-Nov-23
23110005-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	3-Methylhexane	I	0.12	ppbv	0.03	AC-058	02-Nov-23
23110005-001	3-Methylpentane		0.18	ppbv	0.03	AC-058	02-Nov-23
23110005-001	Benzene		0.32	ppbv	0.05	AC-058	02-Nov-23
23110005-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23110005-001	Cyclohexane	I	0.11	ppbv	0.06	AC-058	02-Nov-23
23110005-001	Cyclopentane	I	0.05	ppbv	0.03	AC-058	02-Nov-23
23110005-001	Ethylbenzene		6.98	ppbv	0.05	AC-058	02-Nov-23

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

Date: November 21, 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: 869	32207	Ambient Air	27-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110005 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110005-001	Isobutane		0.42	ppbv	0.05	AC-058	02-Nov-23
23110005-001	Isopentane		0.71	ppbv	0.06	AC-058	02-Nov-23
23110005-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23110005-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23110005-001	m,p-Xylene		1.18	ppbv	0.06	AC-058	02-Nov-23
23110005-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23110005-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	Methylcyclohexane	I	0.14	ppbv	0.03	AC-058	02-Nov-23
23110005-001	Methylcyclopentane	I	0.15	ppbv	0.08	AC-058	02-Nov-23
23110005-001	n-Butane		0.87	ppbv	0.03	AC-058	02-Nov-23
23110005-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Nov-23
23110005-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Nov-23
23110005-001	n-Heptane	I	0.14	ppbv	0.06	AC-058	02-Nov-23
23110005-001	n-Hexane		0.40	ppbv	0.05	AC-058	02-Nov-23
23110005-001	n-Octane	I	0.12	ppbv	0.03	AC-058	02-Nov-23
23110005-001	n-Pentane		0.61	ppbv	0.06	AC-058	02-Nov-23
23110005-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Nov-23
23110005-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	02-Nov-23
23110005-001	n-Nonane	I	0.12	ppbv	0.06	AC-058	02-Nov-23
23110005-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23110005-001	o-Xylene	I	0.24	ppbv	0.05	AC-058	02-Nov-23
23110005-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23
23110005-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Nov-23
23110005-001	Styrene	I	0.27	ppbv	0.06	AC-058	02-Nov-23
23110005-001	Toluene		1.84	ppbv	0.05	AC-058	02-Nov-23

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

Date: November 21, 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
VOCs and TNMOC Test Number: 869	32207	Ambient Air	27-Oct-23 0:00

DESCRIPTION:

REPORT NUMBER: 23110005 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110005-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Nov-23
23110005-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Nov-23

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

Date: November 21, 2023

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

Revision History

Order ID	Ver	Date	Reason
23110005	01	21-Nov-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

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

Order Comments

23110005

Project ID: Test 869. Send results to yuha.stan@cleanharbors.com

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.

Sample ID: 23110062-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: Ryley Facility Test # 107 HVF-23-02-13

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
NOV 03 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:

PO # 0000237337
Quote ID: QT140005

RUSH (Surcharge): ☐

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 # 107	Filter Number # HV-23-02-13	1/10/23 1/10123	 31.14 hrs	Particulate weight ICP-MS analysis
Ryley School Test # 107	Filter Number # HV-23-02-14	1/10/23 1/11/23	 25.31 hrs	Particulate weight ICP-MS analysis

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Sample ID: 23100043-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs & TNMOC Test #: 865

)RM

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 In.

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

.ıg Information

Contact:	Stephanie Dennis
Phone:	780-663-3828
Email:	Dennis.Stephanie@cleanharbors.com
Project ID:	Test 865
PO #:	0000236651

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): 1.16 mg

Trigger Weight for Analysis (HI-VOL): 94.4 mg

Date Received – Lab Use Only

RECEIVED
OCT 06 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: 865	Canister	29017	3/10/23	00:00	VOC PAMS & TNMOC
				4/10/23	00:00	
2	PM10 Test Number: 865	PM10 filter	AT79100	3/10/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				4/10/23	00:00	
3	HI-VOL Test Number: 865	HI-VOL Filter	HVF-23-06-09	3/10/23	00:00	Particulate Weight (& metals if over trigger weight)*
				4/10/23	00:00	
					Total: 24.41 hrs	

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 an

Sample ID: 23100043-001 **Priority:** Normal

y insurance it deems necessary.

Customer ID: Clean Harbours

Cust Samp ID: VOCs & TNMOC Test #: 865

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: 23100043-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs & TNMOC Test #: 865

Filter Shipping Record

RECEIVED
OCT 06 2023

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

Date: August 31/23

Project: Clean Harbors

Prepared by: S Zelenka

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	AT79100 Test 865 865

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: 29017

This cleaned canister meets or exceeds TO-15 Method Specifications

'oofed by: ISQ on: JUN 13 2023

'acuated: SEP 08 2023 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 865

Sampled By: T Webb

Starting Vacuum: -27.1 "Hg

End Vacuum: JWP -8 "Hg/psig

Sample ID: 23100043-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs & TNMOC Test #: 865

InnoTec ALBER
A SUBSIDIARY OF ALBERTA INNOV.

Sample ID: 23100144-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test #: 866

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

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

Contact:	Stephanie Dennis
Phone:	780-663-3828
Email:	Dennis.Stephanie@cleanharbors.com
Project ID:	Test 866
PO #:	0000236651

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): 1.14 mg

Trigger Weight for Analysis (HI-VOL): 92.0 mg

Date Received – Lab Use Only

RECEIVED
OCT 13 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: 866	Canister	32189	9/10/23	00:00	VOC PAMS & TNMOC
				10/10/23	00:00	
2	PM10 Test Number: 866	PM10 filter	AT79101	9/10/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				10/10/23	00:00	
3	HI-VOL Test Number: 866	HI-VOL Filter	HVF-23-06-10	9/10/23	00:00	Particulate Weight (& metals if over trigger weight)*
				10/10/23	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: 32189

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 2 2 2023

Evacuated: AUG 2 3 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 866

Sampled By: T. Webb

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

JMP.

Sample ID: 23100144-001 Priority: Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test #: 866

Sample ID: 23100144-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test #: 866

RECEIVED
OCT 13 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: August 31/23

Project: Clean Harbors

Prepared by: [signature]

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	AT79101 Test 866

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

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.

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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 Servi[illegible] or loss to items during shipping and it i[illegible] insurance it deems necessary.

Sample ID: 23100144-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test #: 866

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.

RECEIVED
OCT 13 2023

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: 23100198-001 **Priority:** Normal

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

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test Number: 867

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 867	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000236651	

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): 1.18 mg

Trigger Weight for Analysis (HI-VOL): 93.3 mg

Date Received – Lab Use Only

RECEIVED
OCT 19 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: 867	Canister	32211	15/10/23	00:00	VOC PAMS & TNMOC
				16/10/23	00:00	
	PM10 Test Number: 867	PM10 filter	AT79102	15/10/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				16/10/23	00:00	
	HI-VOL Test Number: 867	HI-VOL Filter	HVF-23-06-11	15/10/23	00:00	Particulate Weight (& metals if over trigger weight)*
				16/10/23	00:00	
					Total: 24.13 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 23100198-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test # 867 - AT79102

Filter Shipping Record

RECEIVED
OCT 19 2023

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

Date: August 31/23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	AT79102 Test 867

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: 32214

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 13 2023

Evacuated: AUG 23 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 867

Sampled By: T. Webb

Starting Vacuum: -27.1 "Hg

End Vacuum: -4 "Hg/psig

Sample ID: 23100198-003 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: HI-VOL # 867 - HVF-23-06-11

{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.

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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:
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(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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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.

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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: 23100198-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test Number: 867

InnoTech ALBERT
A SUBSIDIARY OF ALBERTA INNOVATES

Sample ID: 23100285-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: 29035 - VOCs and TNMOC Test Number:

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

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: Stephanie Dennis
Phone: 780-663-3828
Email: Dennis.Stephanie@cleanharbors.com
Project ID: Test 868
PO #: 0000236651

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): 1.19 mg
Trigger Weight for Analysis (HI-VOL): 93.0 mg

Date Received – Lab Use Only

RECEIVED
OCT 26 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: 868	Canister	29035	21/10/23	00:00	VOC PAMS & TNMOC
				22/10/23	00:00	
	PM10 Test Number: 868	PM10 filter	AT79103	21/10/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				22/10/23	00:00	
	HI-VOL Test Number: 868	HI-VOL Filter	HVF-23-06-07	21/10/23	00:00	Particulate Weight (& metals if over trigger weight)*
				22/10/23	00:00	
					Total: 24.05 hrs	

Client Authorization: _____ *(Signature)*

Laboratory Personnel: _____ *(Signature)*

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

Sample ID: 23100285-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: 29035 - VOCs and TNMOC Test Number

RECEIVED
OCT 26 2023

InnoTech ALBERTA

Canister ID: 29035

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: AUG 21 2023

Evacuated: SEP 19 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 868

Sampled By: T. Webb

Starting Vacuum: -27.2 "Hg

End Pressure: -4 "Hg/ psig MW

Sample ID: 23100285-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: 29035 - VOCs and TNMOC Test Number:

Filter Shipping Record

RECEIVED
OCT 26 2023

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

Date: August 31/23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	AT79103 Test 868

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

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.

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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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(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.

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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.

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 a.

RECEIVED
OCT 26 2023

Sample ID: 23100285-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: 29035 - VOCs and TNMOC Test Number:

Sample ID: 23110005-001 **Priority:** Normal

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

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test Number: 869

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 869	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000236651	

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): 1.24 mg

Trigger Weight for Analysis (HI-VOL): 91.6 mg

Date Received – Lab Use Only

RECEIVED
NOV 01 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: 869	Canister	32207	27/10/23	00:00	VOC PAMS & TNMOC
				28/10/23	00:00	
	PM10 Test Number: 869	PM10 filter	AT79099	27/10/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				28/10/23	00:00	
	HI-VOL Test Number: 869	HI-VOL Filter	HVF-23-06-08	27/10/23	00:00	Particulate Weight (& metals if over trigger weight)*
				28/10/23	00:00	
					Total: 23.91 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 23110005-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test Number. 869 - Filter # AT909

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: August 31/23

Project: Clean Harbors

Prepared by: [signature]

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	AT79099 Test 869

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: 32207.

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1SQ on: AUG 24 2023

Evacuated: SEP 20 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 869

Sampled By: T. Webb

Starting Vacuum:	End Vacuum:
-27.2 "Hg	-4 -6 "Hg/psig

Sample ID: 23110005-003 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: HI-VOL Test Number: 869 - HVF-23-06-(

{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 [illegible] any insurance it deems necessary.

Sample ID: 23110005-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test Number: 869

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.