April 28, 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
March 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 March 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
  - Ryley School Station
- TSP
  - Facility Site Station
  - Ryley School Station
  - 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 March 2023
- Summary of AMD Electronic Transfer System submittals
- Results for Total Suspended Particulate Matter (TSP) reported in µg/m^3
- Results for Particulate Matter $\leq$ 10 microns (PM_{10}) reported in µg/m^3
- Results for metals if the TSP or PM_{10} results were >50 µg/m^3
- Results for Total Non-Methane Organic Compounds (TNMOC) and Volatile Organic Compounds (VOC)
- Wind frequency distribution tables, wind rose and monthly uptime

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

Yours truly,

CLEAN HARBORS CANADA INC.

Stan Yuha

Facility Manager
Ryley Facility

Alberta Environment and Protected Areas (AEPA)
Monthly Ambient Air Monitoring Report
March 2023
Report Completed on April 28, 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

Table of Contents

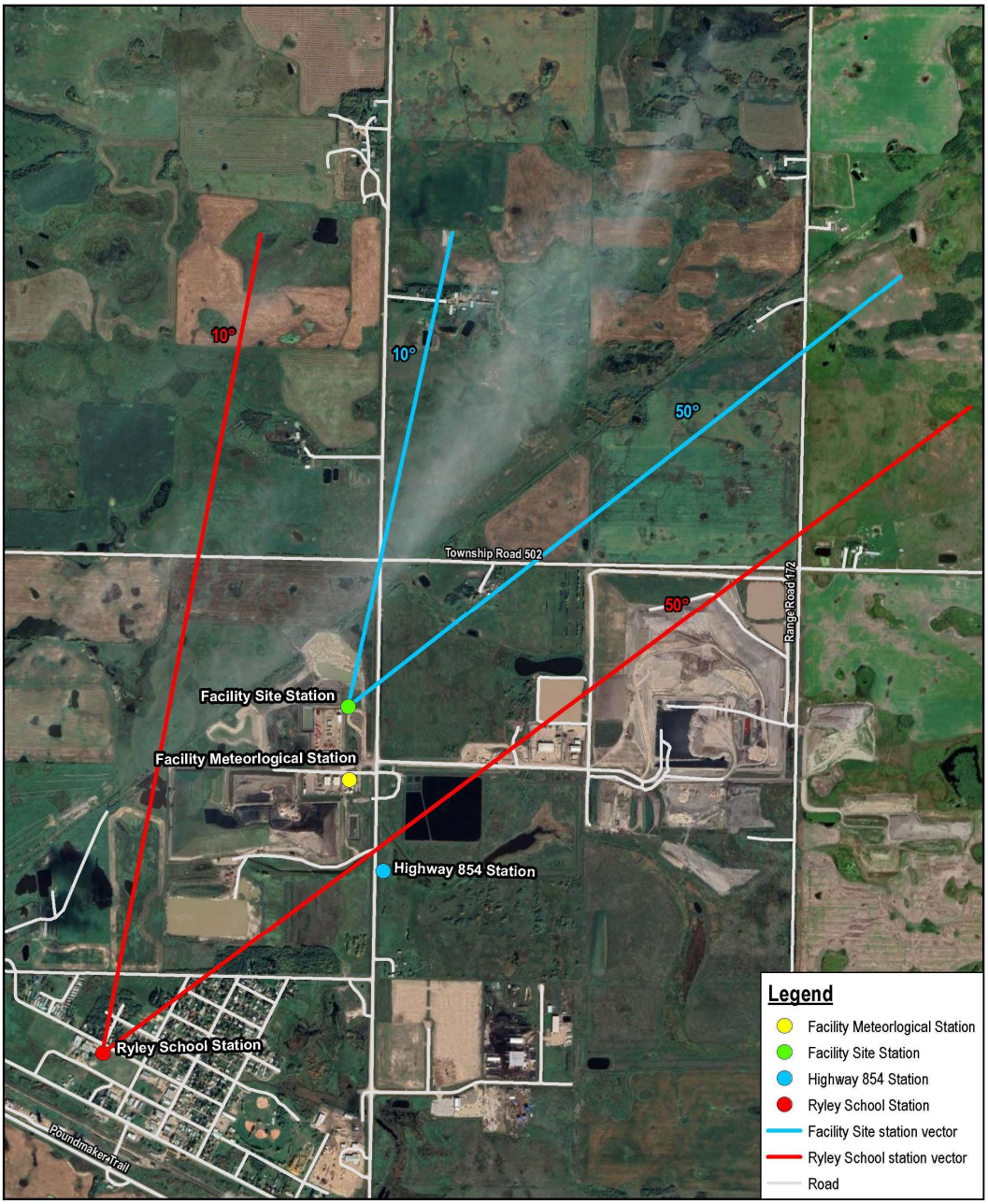
Table Index

Figure Index

Appendices

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, 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, located at 5211 52 Avenue, Ryley, Alberta (53°17'28.99"N and 112°25'55.81"W). At this location, a TSP Hi-Vol Sampler is located on the roof of the Ryley School.

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

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

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

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

1.1 Contact Information

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

Contact Information	
Name	**Mr. Stan Yuha**
Title	Plant Manager
Company	Clean Harbors
Responsibilities	Report Certifier/ETS Submitter
Address	PO Box 390, Ryley, AB T0B 4A0
Phone	780-663-2509
Email	yuha.stan@cleanharbors.com
Name	**Mr. Todd Webb**
Title	Laboratory Chemist
Company	Clean Harbors
Responsibilities	Station Field Operator and Field Sampler
Address	PO Box 390, Ryley, AB T0B 4A0
Phone	780-663-2513
Email	webb.todd@cleanharbors.com
Name	**Mr. Pooya Shariaty**
Title	Senior Air Quality Engineer/Project Manager
Company	GHD Limited
Responsibilities	Senior QA/QC
Address	3445-114th Ave. SE, Suite 103 Calgary, AB
Phone	403-538-7479
Email	Pooya.shariaty@ghd.com
Name	**Ms. Stepheney Davey**
Title	Air Quality Engineer in Training
Company	GHD Limited
Responsibilities	Maintenance/Calibration Services/Report Preparer/ETS Submitter
Address	9426 – 51st Avenue NW, Suite 101 Edmonton, AB
Phone	780-229-3687
Email	Stepheney.davey@ghd.com
Company	**Innotech**
Responsibilities	Laboratory Analytical Services
Address	PO Bag 4000, Vegreville, Alberta
Phone	780-632-8211
Email	EAS.Results@albertainnovates.ca

2. Summary of Ambient Air Monitoring Activities

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

Activity	*Completed (Y/N)*	*Date(s)*
Wind – Facility Meteorological Station		
Wind Speed/Direction Sensor Calibration	N	March 18, 2022[(1)]
Changes to the Wind Speed/Direction Sensor	N	-
Wind – Facility Site Station		
Wind Speed/Direction Sensor Calibration	N	**Due for calibration Summer 2023[(2)]**
Changes to the Wind Speed/Direction Sensor	N	-
Wind – Ryley School Station		
Wind Speed/Direction Sensor Calibration	N	**Due for calibration Summer 2023[(2)]**
Changes to the Wind Speed/Direction Sensor	N	-
TSP – Facility Site Station		
TSP Hi-Vol Sampler Calibration	Y	March 10, 2022
Changes to the TSP Hi-Vol Sampler	N	-
TSP Samples Collected	Y	March 1 - April 1, 2023
TSP Metal Analysis Conducted	Y	March 1 - April 1, 2023
TSP Sampler Maintenance Activities	Y	March 10, 2022 April 1, 2023
TSP – Ryley School Station		
TSP Hi-Vol Sampler Calibration	Y	March 10, 2022
Changes to the TSP Hi-Vol Sampler	N	-
TSP Samples Collected	Y	March 1 - April 1, 2023
TSP Metal Analysis Conducted	N	-
TSP Sampler Maintenance Activities	Y	March 10, 2022 April 1, 2023
TSP, PM_{10}, VOC and TNMOC – Highway 854 Lift Station		
TSP Hi-Vol Sampler Calibration	Y	March 10, 2022
PM_{10} Sampler Calibration	Y	March 10, 2022
Changes to the TSP Hi-Vol Sampler	N	-
Changes to the PM_{10} Sampling Station	N	-
TSP Samples Collected	Y	March 1, 2023 March 7, 2023 March 13, 2023 March 19, 2023 March 25, 2023 March 31, 2023

Activity	*Completed (Y/N)*	*Date(s)*
PM_{10} Samples Collected	Y	March 1, 2023 March 7, 2023 March 13, 2023 March 19, 2023 March 25, 2023 March 31, 2023
VOC and TNMOC Samples Collected	Y	March 1, 2023 March 7, 2023 March 13, 2023 March 19, 2023 March 25, 2023 March 31, 2023
TSP Metal Analysis Conducted	N	-
PM_{10} Metal Analysis Conducted	N	-
TSP Sampler Maintenance Activities	Y	March 1, 2023 March 7, 2023 March 10, 2022 March 13, 2023 March 19, 2023 March 25, 2023 March 31, 2023
PM_{10} Sampler Maintenance Activities	Y	March 1, 2023 March 7, 2023 March 10, 2022 March 13, 2023 March 19, 2023 March 25, 2023 March 31, 2023
Other		
Dust Suppression Activities	N	-
Note: (1) The wind speed/direction sensor on the Facility Site Meteorological Station was checked for calibration on March 18, 2022 and was shown to be within the allowable tolerances and was then re-installed after calibration. (2) Instrument was calibrated prior to install in the Fall of 2014 for voluntary reporting.		

3. Summary of Electronic Transfer System (ETS) Submittals

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

3.1 AMD Approval Contravention Form

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

Station experiencing an anemometer instrument failure between March 1, 2023 and March 31, 2023, resulting in an uptime less than the 90% required under Chapter 6, Section 4.1.3 of the AMD.

3.2 AMD XML Schema

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

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

3.3 Ambient Air Monitoring Program Laboratory Reports

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

3.4 Ambient Air Monitoring Program Calibration Reports

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

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

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

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

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

4.2 Facility Site Station for Wind Speed and Direction

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.

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

4.3 Ryley School Station for Wind Speed and Direction

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

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

4.4 Facility Site Station TSP Hi-Vol Sampler

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

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

4.5 Ryley School Station TSP Hi-Vol Sampler

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

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

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

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

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

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

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

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

5. Ambient Air Monitoring Results

The following section presents the results from the ambient air monitoring program for the continuous Facility Site Station, continuous Ryley School Station, AEPA Station ID 00010348-C-1, intermittent Facility Site Station, intermittent Ryley School Station, and AEPA Station ID 00010348-I-1 conducted in March 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 to 3 present the hourly and 24-hour average wind speeds, Tables 4 to 6 present the hourly and 24-hour most frequent wind direction data (degrees from north), and Tables 7 to 9 present the Wind Class Frequency Distribution for March 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 to 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 March 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

Based on the verification and validation process conducted for the meteorological data that was collected in March 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.

5.1.3 Ryley School Station Data Verification and Validation and Uptime

Based on the verification and validation process conducted for the meteorological data that was collected in March 2023, it was determined that 0% of the data is valid, which represents 0% uptime of the meteorological station. This is below the 90% uptime limit required for compliance, as per the Approval. The missing wind data was due to an instrument malfunction regarding the anemometer at the Ryley School station. The anemometer program had been corrupted and the instrument was recording zeros from March 1 until March 31 (ongoing issue which was initially reported in January 2023). The Facility confirmed that several unsuccessful attempts were made to reprogram the

instrument, and they are currently working with the company that provided the original programing to have the instrument back in compliance as soon as possible. Clean Harbors submitted a 7-day reference letter to the AEPA on February 10, 2023 (reference number # 409379) upon learning about the contravention. Per guidance from AEPA, “the incident will remain open pending confirmation that the station is fully operational.”

5.2 TSP Concentrations

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

5.2.1 Facility Site Station

Table 10 presents the results of the sampling conducted for TSP from the Facility Site Station.

5.2.2 Ryley School Station

Table 11 presents the results of the sampling conducted for TSP from the Ryley School Station.

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

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

5.3 PM_{10} Concentrations

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

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

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

5.4 VOC and TNMOC Concentrations

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

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

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

5.5 Metal Concentrations

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

5.5.1 Facility Site Station

The TSP sample collected in March 2023 was above 50 µg/m^3 and as such analysis for metals was conducted on the sample. Facility Test #100 (HV-22-12-15) was shown to have elevated TSP concentrations of 62.09 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 March 2023.

5.5.2 Ryley School Station

The TSP sample collected in March 2023 was below 50 µg/m^3 and as such analysis for metals was not required for the sample.

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

All of the TSP and PM_{10} samples collected in March 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 March 2023.

6. Conclusions

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

1 During March 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 March 2023, the continuous Facility Site 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.

3 During March 2023, the continuous Ryley School wind Station operated at 0% uptime. Based on the data verification and validation procedure conducted, this is not in compliance with the minimum 90% uptime required by the AMD.

4 The TSP concentration measured at the intermittent Facility Site Station from March 1, 2023 to April 1, 2023 was 62.085 µg/m^3.

5 The TSP concentrations measured at the intermittent Ryley School Station from March 1, 2023 to April 1, 2023 was 30.020 µg/m^3.

6 The TSP concentrations measured at the intermittent Highway 854 Lift Station (AEPA Station ID 00010348-I-1) on March 1, March 7, March 13, March 19, March 25, and March 31 were 21.552 µg/m^3, 14.367 µg/m^3, 13.328 µg/m^3, 34.522 µg/m^3, 48.39 µg/m^3 and 30.657 µg/m^3, respectively.

7 The PM_{10} concentrations measured at the intermittent Highway 854 Lift Station (AEPA Station ID 00010348-I-1) on March 1, March 7, March 13, March 19, March 25, and March 31 were 8.795 µg/m^3, 5.500 µg/m^3, 4.701 µg/m^3, 21.529 µg/m^3, 20.902 µg/m^3 and 13.621 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 March 2023.

9 The TSP concentration measured for Facility Test #100 (HV-22-12-15), conducted from March 1, 2023 to April 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, and nickel).

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

7. Certification

Per the requirements of AMD, Chapter 9, Section 2.3, the following certification is provided for the March 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
March 2023

Ryley Wind Speed Data (m/s) - Month of March 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	4.1	4.6	4.7	5.2	5.2	4.5	5.2	4.6	3.0	4.9	5.9	5.3	4.9	4.9	4.5	4.3	4.4	4.0	3.6	3.7	4.2	4.6	4.4	5.2
2	4.9	3.8	3.4	3.5	4.0	5.0	2.5	2.5	5.8	4.8	4.7	4.0	3.4	4.3	4.5	3.0	1.9	7.3	3.3	2.9	5.9	6.5	4.7	4.0
3	4.0	4.8	6.1	6.6	6.8	6.0	5.6	5.3	6.0	5.4	6.0	4.1	5.1	5.0	4.7	3.1	3.2	4.4	4.4	4.0	5.1	4.0	2.1	3.8
4	4.1	4.8	5.5	4.4	3.3	3.5	3.6	3.7	2.5	2.5	5.3	5.6	4.6	3.8	3.3	2.6	2.8	3.0	2.3	3.1	3.0	2.7	3.6	3.5
5	2.0	1.8	1.6	2.0	2.2	2.8	3.3	2.6	2.4	3.3	2.1	1.7	1.4	1.9	2.0	2.6	3.0	3.1	3.3	3.3	3.7	2.8	2.9	2.9
6	2.7	1.9	3.2	3.7	3.2	3.2	4.1	4.5	5.5	6.3	6.4	6.6	6.5	6.7	6.3	5.7	5.7	6.8	6.8	7.2	6.7	6.4	6.7	6.1
7	4.2	3.8	2.9	3.1	3.3	3.2	3.1	2.9	3.7	3.8	3.8	5.1	6.4	6.9	6.9	7.3	7.0	6.2	5.3	5.2	6.0	5.7	4.7	3.0
8	3.1	3.4	3.8	4.2	3.6	3.2	2.8	2.1	2.7	4.3	4.9	4.9	4.7	4.6	5.3	5.5	4.9	3.6	3.1	3.0	3.5	3.6	3.3	3.6
9	3.4	3.0	2.6	2.0	2.1	1.7	2.4	2.6	3.3	3.9	5.1	6.1	7.9	7.9	7.9	8.0	7.4	7.0	5.7	5.6	7.2	7.1	6.2	5.1
10	5.2	4.6	3.8	4.5	4.5	4.5	4.0	3.1	4.6	4.3	5.0	5.4	5.5	5.4	6.1	6.2	5.8	5.6	4.9	4.8	5.1	5.0	3.7	2.3
11	2.2	1.4	1.6	1.4	1.8	1.7	1.4	0.8	0.6	0.9	0.8	0.6	1.7	1.9	1.7	1.3	0.9	1.2	1.1	1.2	1.1	1.2	1.4	1.4
12	0.9	0.9	2.1	2.2	2.3	1.1	0.8	1.4	1.8	2.1	3.9	5.4	5.0	6.0	6.2	5.9	6.0	5.5	5.2	5.1	4.2	3.3	3.4	2.4
13	2.3	2.2	2.9	2.3	2.1	2.5	2.4	3.7	2.8	3.3	3.0	3.1	3.8	4.6	4.9	5.0	5.7	6.0	4.6	6.1	3.4	2.9	2.5	3.2
14	4.4	4.9	5.3	5.3	6.8	6.1	5.9	8.1	8.5	7.2	7.5	6.6	6.0	6.5	5.2	4.3	3.5	3.5	3.2	2.4	4.0	3.8	2.7	0.3
15	1.7	1.1	0.9	0.4	1.4	1.1	1.3	0.7	0.5	0.7	1.2	1.8	2.5	2.3	2.9	2.3	1.7	2.1	2.7	2.3	1.9	2.3	1.8	2.1
16	1.7	2.7	2.8	3.2	2.5	4.0	4.9	4.9	4.7	4.5	4.6	4.5	4.2	4.5	4.3	4.7	4.3	4.0	2.6	2.0	0.8	1.6	1.6	1.0
17	4.6	4.2	4.8	3.8	2.5	2.0	3.3	5.5	5.0	6.4	4.2	2.9	2.8	3.3	3.3	4.5	5.5	5.5	5.5	5.4	5.0	5.1	5.8	4.5
18	4.4	4.0	4.2	3.7	2.9	3.4	1.4	4.9	3.8	2.8	2.8	2.6	2.6	2.6	2.0	1.9	1.8	2.0	3.2	4.0	4.3	3.8	3.4	3.0
19	2.4	2.8	4.2	4.1	4.3	4.0	3.0	3.5	3.3	2.3	1.0	1.5	1.7	1.7	2.0	1.9	1.9	2.0	2.6	2.5	2.5	2.9	3.0	1.7
20	2.0	1.9	3.0	3.5	3.6	3.1	1.5	3.4	2.8	3.7	2.9	2.7	2.8	2.9	3.9	3.8	3.6	3.7	3.7	3.1	2.8	2.1	2.8	1.5
21	2.2	3.2	3.8	3.7	3.6	5.0	3.6	3.9	4.4	5.2	5.6	4.4	3.9	3.4	4.0	3.6	3.5	3.4	2.0	1.9	1.9	2.4	2.9	2.7
22	3.1	3.7	3.1	3.1	4.9	4.7	5.0	4.6	4.9	6.2	5.2	6.0	5.5	5.6	5.0	5.8	4.8	3.8	3.5	2.4	1.9	2.5	3.2	3.7
23	3.0	3.1	3.2	3.6	5.0	4.2	3.4	2.8	4.4	3.2	2.5	2.0	2.0	1.5	1.5	2.4	2.4	2.6	2.7	2.5	1.8	1.2	2.1	1.4
24	2.3	2.2	3.1	3.6	3.3	3.7	3.8	3.2	3.8	4.7	6.0	5.1	3.6	3.1	2.4	2.1	1.9	2.2	1.5	1.6	1.4	1.4	1.5	1.4
25	1.4	1.8	2.5	2.1	1.3	2.1	2.0	1.7	1.9	2.2	4.0	3.5	2.6	3.1	3.7	2.8	2.9	2.8	1.2	1.5	1.7	2.3	1.1	1.3
26	2.1	2.3	1.5	1.6	1.1	1.7	1.9	2.4	2.7	3.7	2.1	1.2	3.0	2.7	2.2	2.0	2.6	2.4	1.9	2.4	2.1	3.7	2.2	2.1
27	2.7	1.7	1.9	1.9	2.0	1.8	1.6	1.4	1.1	1.7	1.2	1.4	2.8	2.6	4.3	6.4	5.5	4.1	1.8	2.2	2.5	2.6	2.6	3.7
28	4.2	3.9	4.0	4.8	5.3	5.1	4.2	4.2	3.8	4.2	4.3	4.3	5.0	3.7	3.3	3.4	2.9	1.9	1.3	2.6	2.2	2.9	3.6	5.4
29	5.1	5.7	5.4	5.3	5.5	5.6	6.3	6.7	5.2	4.5	2.8	1.8	1.7	1.7	1.7	2.4	2.1	2.2	2.1	2.1	2.3	2.9	5.4	4.1
30	2.3	3.9	3.7	3.6	3.7	3.7	3.4	4.2	5.0	5.1	5.0	4.1	4.3	5.0	5.6	6.2	6.7	6.2	6.8	6.0	5.3	4.9	5.4	5.0
31	4.0	4.6	4.5	3.8	4.3	3.7	4.1	4.7	4.1	4.3	4.6	4.0	4.0	3.2	3.2	4.1	4.3	3.8	3.6	3.5	3.3	4.0	4.3	3.6

TABLE 2

Average Wind Speed (metres/second)
Facility Site Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Ryley Wind Speed Data (m/s) - Month of March 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	3.2	3.7	3.6	4.3	4.2	5.3	4.9	4.6	5.3	3.2	3.4	5.5	4.8	4.7	4.3	4.5	4.1	4.3	4.0	3.2	2.8	3.5	4.3	4.4
2	4.9	5.2	4.5	3.5	3.7	3.4	4.7	4.1	2.0	2.1	3.0	3.1	3.3	3.1	2.7	4.0	3.3	1.0	2.6	6.0	1.7	2.1	3.8	4.7
3	3.6	2.2	2.5	3.1	3.4	3.2	3.5	3.6	3.1	3.1	3.2	3.8	3.6	3.2	4.6	4.2	3.8	2.2	2.5	2.6	2.6	2.5	3.1	2.2
4	1.8	2.2	2.8	2.9	2.9	2.2	2.0	2.6	2.7	2.9	1.7	3.0	4.9	4.5	3.8	3.3	2.4	2.2	2.2	2.1	1.6	2.4	2.1	2.0
5	2.8	2.5	1.2	1.0	0.7	1.3	1.9	2.5	2.7	2.2	2.7	2.8	1.9	1.6	1.5	1.7	2.2	2.2	2.8	2.9	2.8	2.9	3.2	2.6
6	2.2	2.1	2.1	2.1	3.0	3.0	2.5	3.4	3.9	3.9	5.0	5.6	5.8	5.9	5.7	5.7	5.2	4.9	5.1	6.3	6.1	5.9	5.5	5.3
7	5.3	4.6	2.7	2.3	2.4	2.1	2.5	2.2	2.2	2.4	3.5	3.5	3.8	5.1	5.9	6.2	6.1	6.4	6.0	5.1	3.8	5.0	4.8	4.7
8	3.3	1.9	2.7	2.9	3.5	3.7	2.8	2.7	2.4	2.2	3.1	4.1	4.4	4.4	4.0	4.3	4.8	4.9	3.9	3.1	2.7	2.1	2.5	2.7
9	2.6	2.4	2.2	1.7	1.5	1.3	1.2	1.6	2.2	2.6	3.0	4.1	4.9	6.2	7.3	6.7	7.4	6.9	6.6	5.4	5.0	5.1	6.4	5.8
10	4.7	4.0	3.6	3.4	3.2	3.2	3.5	3.3	2.9	2.8	4.0	4.2	4.5	5.1	5.3	5.1	5.2	5.6	6.0	5.2	4.4	4.4	4.3	3.8
11	2.7	1.9	1.4	0.6	0.8	1.0	1.4	1.4	1.4	1.4	1.4	1.0	0.7	0.6	1.7	1.8	1.5	1.1	1.1	1.1	0.9	1.0	1.0	1.2
12	1.1	1.0	1.0	1.7	2.1	1.9	1.9	0.9	0.9	1.5	1.5	2.3	4.4	4.7	5.5	5.7	5.8	5.6	5.3	4.8	4.2	4.0	3.4	2.5
13	2.5	1.8	2.1	2.4	2.5	1.7	2.0	2.7	2.5	2.5	3.3	2.7	3.0	3.8	4.4	4.2	5.0	5.0	4.7	4.4	4.3	2.8	2.7	2.2
14	3.0	4.8	4.6	4.9	5.7	5.8	5.1	6.0	7.1	6.6	7.1	5.6	5.7	5.5	5.1	4.5	3.6	2.3	2.3	1.7	2.1	2.3	2.1	0.5
15	0.7	1.5	0.5	0.7	0.5	0.7	0.9	1.1	0.8	0.4	0.5	1.0	1.9	2.2	2.5	2.8	1.9	1.6	2.3	2.2	1.6	1.5	1.8	1.5
16	1.2	1.3	1.8	1.9	1.9	1.7	2.3	3.4	3.3	2.8	3.4	3.8	3.4	3.5	4.3	3.6	3.5	3.7	2.4	1.7	1.2	0.8	1.2	1.6
17	1.3	2.8	3.8	3.0	2.2	1.2	0.9	3.2	3.8	3.0	3.1	2.3	2.1	3.0	3.4	3.7	4.4	5.1	5.0	4.7	4.4	4.3	4.7	4.8
18	3.6	3.6	3.7	3.5	3.4	2.5	1.7	1.5	3.3	2.4	1.9	2.3	2.0	2.3	2.0	1.7	1.3	1.7	2.0	1.8	2.0	2.4	2.3	2.0
19	1.9	1.6	2.1	2.5	2.7	2.3	2.0	2.0	2.4	2.1	1.6	1.0	1.3	1.9	1.8	1.8	1.4	1.8	1.9	2.1	2.4	2.5	2.5	2.2
20	1.1	1.9	2.0	2.7	3.2	3.4	2.2	1.3	3.2	2.3	3.5	2.6	2.5	2.6	3.1	3.9	3.5	3.5	3.6	3.9	2.8	3.0	2.2	2.2
21	0.8	2.0	2.3	2.7	2.7	3.6	4.3	3.6	3.9	4.6	5.1	5.1	4.1	3.3	3.3	3.5	3.3	3.2	2.8	1.4	1.5	1.7	2.1	2.5
22	2.3	3.0	3.5	2.8	3.2	5.1	4.4	4.8	5.2	5.7	6.1	5.7	5.7	5.1	5.0	4.7	5.2	4.0	3.2	3.0	2.2	2.8	3.5	4.3
23	2.6	2.8	3.2	3.1	2.3	2.4	2.3	1.9	2.1	2.4	2.3	2.0	1.7	1.7	1.3	2.0	2.4	2.3	2.5	2.1	2.3	1.3	0.9	1.9
24	1.7	0.9	1.8	2.1	3.0	3.0	2.9	3.0	2.6	3.2	4.6	4.9	4.4	3.2	2.9	2.3	2.0	2.0	1.8	1.4	1.3	1.1	1.6	1.8
25	2.0	2.0	2.4	3.1	2.6	2.8	3.1	2.5	2.9	2.2	2.5	2.6	2.3	2.4	2.4	3.3	2.1	2.8	1.7	0.6	1.1	0.9	1.7	0.6
26	1.1	1.7	1.6	1.1	0.9	0.9	1.7	1.7	2.2	2.7	2.6	1.8	1.8	2.6	2.3	1.9	2.1	2.6	1.9	1.9	2.2	1.6	3.1	1.5
27	1.8	1.7	1.3	1.5	1.7	1.6	1.4	1.3	1.1	1.1	1.4	1.1	1.8	2.5	2.3	5.0	5.2	4.8	2.8	1.5	2.2	2.3	3.1	3.3
28	3.2	2.5	2.4	2.1	2.1	2.8	2.8	2.7	2.7	2.6	2.4	3.2	3.9	3.9	3.0	2.9	2.8	2.2	1.5	1.6	2.2	2.4	3.2	4.4
29	4.8	4.4	4.2	4.5	4.5	3.9	3.0	3.4	3.5	3.2	2.4	1.8	1.6	1.3	1.5	1.8	2.4	2.2	2.1	1.8	1.8	1.5	3.3	5.1
30	2.8	2.3	3.3	3.5	3.5	3.4	3.1	3.1	3.9	4.5	4.2	3.9	3.7	4.0	4.9	5.3	5.6	6.2	5.7	5.4	4.7	4.2	4.2	4.7
31	3.8	3.4	4.2	3.6	3.3	3.8	3.3	3.6	4.9	3.7	4.2	3.7	3.7	3.5	3.0	3.1	4.0	4.0	3.3	3.1	3.1	2.6	3.6	3.5

TABLE 3

Average Wind Speed (metres/second)
Ryley Schoool Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Ryley Wind Speed Data (m/s) - Month of March 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 4

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

Ryley Wind Direction Data (degrees, blowing from) - Month of March 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	121	126	139	153	158	166	163	175	188	170	175	181	183	179	180	168	160	151	154	154	162	175	170	176
2	173	174	177	184	186	171	187	182	232	223	239	234	233	230	224	254	205	295	293	261	244	273	299	282
3	282	278	234	257	267	250	240	243	243	259	255	232	289	285	290	257	217	242	237	228	228	282	287	260
4	259	271	282	284	294	321	315	319	324	327	27	14	84	162	19	28	19	21	162	337	313	314	53	22
5	50	184	47	174	320	57	36	30	31	50	96	110	107	108	104	90	94	91	91	93	111	115	120	123
6	116	121	124	121	119	107	101	108	112	113	112	111	108	104	107	108	114	115	117	118	119	121	123	127
7	129	130	131	124	114	116	117	118	115	114	115	120	124	125	120	109	111	116	116	116	117	117	121	122
8	109	111	109	106	105	109	99	106	102	99	102	99	89	89	94	92	108	103	100	112	114	113	113	115
9	117	122	123	134	135	122	114	117	120	118	115	118	121	118	122	121	120	121	121	118	119	121	119	113
10	113	118	115	111	112	112	115	115	111	113	112	107	104	94	81	65	57	58	63	61	66	81	110	83
11	56	132	27	249	323	318	313	305	306	296	287	139	99	122	127	107	112	123	146	154	134	150	152	137
12	135	120	104	134	157	168	141	120	133	118	148	167	163	151	148	141	142	136	115	115	117	134	112	114
13	109	104	104	107	93	83	76	65	67	86	93	74	72	71	80	81	65	66	62	68	60	35	33	118
14	261	328	321	318	321	313	306	315	321	314	319	317	306	298	286	287	262	218	217	172	225	223	207	144
15	166	189	150	185	154	58	126	215	249	76	130	111	109	115	145	128	109	111	102	114	136	161	198	230
16	161	170	258	272	271	274	266	269	274	277	295	296	293	308	310	308	313	315	298	286	274	185	175	126
17	210	201	216	203	182	185	185	221	216	243	211	187	167	173	152	135	135	138	136	133	130	139	139	142
18	148	151	141	148	167	171	194	247	265	284	286	290	282	282	281	287	279	255	237	219	234	248	266	269
19	277	277	264	267	272	278	280	280	284	285	245	36	134	158	141	190	185	158	128	136	139	129	142	163
20	141	164	142	137	126	147	151	141	138	144	162	162	141	151	145	162	180	167	165	164	171	169	172	255
21	276	312	319	312	316	341	337	328	327	334	323	287	300	323	81	25	28	43	52	123	152	169	164	162
22	162	160	156	150	146	148	133	132	133	147	153	160	169	171	174	177	177	177	183	171	148	169	181	168
23	127	128	145	169	208	263	277	256	268	280	277	281	262	179	98	119	140	126	152	141	136	90	158	171
24	218	42	67	37	37	26	32	29	29	26	23	28	43	42	44	36	44	40	96	121	157	176	173	171
25	148	148	168	163	158	157	158	144	156	161	222	223	258	245	277	138	169	202	201	210	201	150	61	295
26	289	287	100	15	220	312	299	35	25	21	98	142	93	36	30	38	41	44	68	81	49	34	32	28
27	34	191	277	92	98	167	15	75	258	296	172	173	22	58	184	312	320	120	64	127	162	168	179	213
28	221	213	212	222	234	243	264	246	246	229	247	244	288	293	306	311	185	104	150	160	168	167	183	231
29	237	253	255	252	249	250	259	251	250	239	225	214	216	190	152	104	133	93	52	49	60	39	39	48
30	55	43	44	42	45	51	50	95	100	101	105	108	108	109	106	105	102	109	117	115	114	123	141	147
31	121	125	125	127	136	139	141	148	159	154	173	167	170	167	170	145	155	156	144	137	111	107	106	109

TABLE 5

Average Wind Direction (degrees from North)
Facility Site Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Ryley Wind Direction Data (degrees, blowing from) - Month of March 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	116	117	126	137	147	153	161	161	163	185	181	168	178	180	181	177	173	161	153	148	150	150	162	170
2	164	175	161	175	164	178	181	166	184	194	216	218	233	226	233	205	223	214	210	306	271	230	238	276
3	291	265	264	252	224	240	239	231	235	233	227	243	234	247	294	271	278	231	223	239	233	233	242	280
4	253	244	250	253	260	268	287	326	316	338	323	246	10	10	223	101	30	24	20	39	336	334	305	242
5	23	20	267	277	221	327	293	22	35	26	41	63	115	123	129	86	70	85	79	83	82	91	110	109
6	119	114	108	120	128	119	112	98	95	109	112	116	110	107	104	102	102	107	113	124	123	124	127	127
7	132	135	132	131	126	122	114	123	120	111	114	112	109	122	127	126	116	106	108	118	112	119	120	120
8	124	115	107	109	103	100	103	107	103	101	92	97	102	93	82	77	83	91	106	93	102	109	110	109
9	117	119	118	123	132	144	139	123	121	121	121	116	116	128	131	125	132	128	125	126	121	120	129	127
10	120	116	117	119	115	115	119	116	120	114	115	114	113	106	102	89	83	70	66	71	71	71	76	96
11	104	71	65	284	177	312	306	284	272	266	265	270	293	169	113	132	119	119	132	132	150	145	151	155
12	149	138	138	130	134	148	173	159	122	140	133	129	157	173	161	155	149	144	146	139	131	132	136	138
13	111	127	123	118	113	115	98	94	93	87	103	88	79	73	82	80	84	81	74	79	82	61	39	72
14	286	330	332	322	318	319	299	297	300	310	299	306	302	291	283	277	278	248	221	194	175	236	212	136
15	99	147	149	89	273	77	109	206	249	252	93	136	121	120	126	142	116	114	105	108	130	151	175	221
16	171	140	204	249	252	258	256	247	254	251	269	293	284	299	319	314	306	316	309	281	262	176	178	180
17	155	208	202	211	176	117	95	184	206	215	225	207	182	159	186	142	138	144	145	145	144	146	152	150
18	155	156	151	146	153	149	185	241	242	253	272	275	278	272	255	263	281	258	240	243	231	242	246	254
19	256	261	258	253	254	257	261	259	260	263	258	282	81	142	136	165	200	182	133	130	144	146	138	149
20	143	151	141	139	137	141	143	126	138	135	146	159	151	138	147	143	167	176	168	160	166	171	169	181
21	263	308	320	317	309	328	345	338	322	328	333	325	302	335	311	31	26	30	47	64	128	167	177	171
22	169	174	173	162	155	165	160	151	151	152	161	161	168	177	176	180	178	175	175	185	158	158	178	199
23	172	132	140	157	161	232	259	270	234	261	266	258	282	252	188	103	125	132	131	150	142	85	120	164
24	211	211	39	112	43	27	26	30	27	23	21	20	28	35	29	38	45	29	33	106	131	163	169	164
25	162	142	153	173	164	157	164	160	150	141	189	221	222	286	326	200	241	299	270	286	195	214	75	159
26	285	266	296	21	111	257	325	286	34	28	26	133	235	38	31	35	33	37	40	66	68	46	34	32
27	30	51	323	201	184	165	208	28	112	307	311	211	152	27	62	265	317	317	65	75	145	163	173	192
28	206	214	212	215	229	240	241	246	236	235	222	236	250	307	338	330	308	256	45	157	164	167	186	201
29	207	209	213	209	209	211	222	233	230	231	230	226	233	249	172	120	131	120	64	48	50	77	48	52
30	63	56	58	51	50	57	60	68	111	124	110	117	109	110	112	109	108	110	122	134	133	132	142	151
31	145	134	139	138	140	146	143	149	152	179	185	188	183	177	183	174	156	164	161	151	137	119	127	129

TABLE 6

Most Frequent Wind Direction (degrees from North)
Ryley Schoool Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Ryley Wind Direction Data (degrees, blowing from) - Month of March 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 7

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

Frequency Distribution Report: Ryley, Alberta - March 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	40	1025	1155	656	126	0	0	6.7%	3002
Northeast	> 22.5 - 67.5	54	954	1928	1119	245	0	0	9.6%	4300
East	> 67.5 - 112.5	52	940	1865	2238	1033	29	0	13.8%	6157
Southeast	> 112.5 - 157.5	47	2190	3751	3865	2003	69	1	26.8%	11926
South	> 157.5 - 202.5	55	1566	2481	2088	445	1	0	14.9%	6636
Southwest	> 202.5 - 247.5	24	279	738	1890	532	0	0	7.8%	3463
West	> 247.5 - 292.5	60	649	1459	1919	504	2	0	10.3%	4593
Northwest	> 292.5 - 337.5	66	1006	1130	1418	798	75	10	10.1%	4503
Missing/Invalid Hours									0.0%	0
Total Occurences by Speed		398	8609	14507	15193	5686	176	11		**44580**
Occurences by %		0.9%	19.3%	32.5%	34.1%	12.8%	0.4%	0.0%	**100.00%**	

TABLE 8

Wind Frequency Distribution
Facility Site Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Frequency Distribution Report: Ryley, Alberta - March 2023										
		Wind Speed (m/s) and Number of Occurences (minutes)								
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	%	Total Occurrences by Direction
North	> 337.5 - 22.5	123	1355	1202	531	40	0	0	7.3%	3251
Northeast	> 22.5 - 67.5	91	1292	1833	510	73	0	0	8.5%	3799
East	> 67.5 - 112.5	56	1007	2104	2007	598	0	0	12.9%	5772
Southeast	> 112.5 - 157.5	80	3345	4520	3837	1267	11	0	29.3%	13060
South	> 157.5 - 202.5	53	1316	2376	1991	356	0	0	13.6%	6092
Southwest	> 202.5 - 247.5	68	1220	2383	1106	43	0	0	10.8%	4820
West	> 247.5 - 292.5	40	2019	1776	498	64	0	0	9.8%	4397
Northwest	> 292.5 - 337.5	58	1053	875	1004	437	0	22	7.7%	3449
Missing/Invalid Minutes									0.0%	0
Total Occurences by Speed		569	12607	17069	11484	2878	11	22		**44640**
Occurences by %		1.3%	28.2%	38.2%	25.7%	6.4%	0.0%	0.0%	**100.00%**	

TABLE 9

Wind Frequency Distribution
Ryley Schoool Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Frequency Distribution Report: Ryley, Alberta - March 2023										
Direction	Angle	Wind Speed (m/s) and Number of Occurences (minutes)							%	Total Occurrences by Direction
		< 0.5	0.5 to < 2.1	2.1 to < 3.6	3.6 to < 5.7	5.7 to < 8.8	8.8 to < 11.1	>= 11.1		
North	> 337.5 - 22.5	0	0	0	0	0	0	0	0.0%	0
Northeast	> 22.5 - 67.5	0	0	0	0	0	0	0	0.0%	0
East	> 67.5 - 112.5	0	0	0	0	0	0	0	0.0%	0
Southeast	> 112.5 - 157.5	0	0	0	0	0	0	0	0.0%	0
South	> 157.5 - 202.5	0	0	0	0	0	0	0	0.0%	0
Southwest	> 202.5 - 247.5	0	0	0	0	0	0	0	0.0%	0
West	> 247.5 - 292.5	0	0	0	0	0	0	0	0.0%	0
Northwest	> 292.5 - 337.5	0	0	0	0	0	0	0	0.0%	0
Missing/Invalid Minutes									**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 10

Total Suspended Particulate (TSP) Matter Results
Facility Site Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Filter ID	HV-22-12-15
Test ID	Facility Test # 100
Sample Start Date/Time	23/03/01 15:00:00
Sample End Date/Time	23/04/01 12:00:00
Sampling Time (hours)	26.87
Flow Rate (m^3/min)	1.229
Volume (m^3)	1981.148
TSP Mass (mg)	123
TSP Concentration (ug/m^3)	62.085
Sampler Name	TE-5170V / P8580 TSP VFC

TABLE 11

Total Suspended Particulate (TSP) Matter Results
Ryley Schoool Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Filter ID	HV-22-12-16
Test ID	Facility Test # 100
Sample Start Date/Time	23/03/01 15:00:00
Sample End Date/Time	23/04/01 12:00:00
Sampling Time (hours)	17.80
Flow Rate (m^3/min)	1.232
Volume (m^3)	1315.776
TSP Mass (mg)	39.5
TSP Concentration (ug/m^3)	30.020
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
March 2023

Filter ID	HV-22-12-12	HV-22-12-08	HV-22-12-11	HV-22-12-09	HV-22-12-20	HV-23-03-02
Test ID	829	830	831	832	833	834
Sample Start Date/Time	23/03/01 00:00:00	23/03/07 00:00:00	23/03/13 00:00:00	23/03/19 00:00:00	23/03/25 00:00:00	23/03/31 00:00:00
Sample End Date/Time	23/03/02 00:00:00	23/03/08 00:00:00	23/03/14 00:00:00	23/03/20 00:00:00	23/03/26 00:00:00	23/04/01 00:00:00
Sampling Time (hours)	23.9	23.84	23.44	24.08	23.69	23.97
Flow Rate (m^3/min)	1.236	1.236	1.227	1.227	1.227	1.227
Volume (m^3)	1772.42	1767.97	1725.65	1772.77	1744.06	1764.67
TSP Mass (mg)	38.2	25.4	23.0	61.2	84.4	54.1
TSP Concentration (ug/m^3)	21.552	14.367	13.328	34.522	48.393	30.657
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	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
March 2023

Filter ID	C1165502	C1167719	C1165521	C1165504	C1165523	C9700056
Test ID	829	830	831	832	833	834
Sample Start Date/Time	23/03/01 00:00:00	23/03/07 00:00:00	23/03/13 00:00:00	23/03/19 00:00:00	23/03/25 00:00:00	23/03/31 00:00:00
Sample End Date/Time	23/03/02 00:00:00	23/03/08 00:00:00	23/03/14 00:00:00	23/03/20 00:00:00	23/03/26 00:00:00	23/04/01 00:00:00
Sampling Time (hours)	24	24	24	24	24	24
Flow Rate (l/min)	16.7	16.7	16.7	16.7	16.7	16.7
Volume (m^3)	24.9	26	25.1	24.2	24.4	24.3
PM_{10} Mass (mg)	0.219	0.143	0.118	0.521	0.510	0.331
PM_{10} Concentration (ug/m^3)	8.795	5.500	4.701	21.529	20.902	13.621
Sampler Name	2000 FRM-AE / 200FB209860905	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
March 2023

Parameter	Units	Date / Sample ID / AAAQO[1]	1-Mar-23 829	7-Mar-23 830	13-Mar-23 831	19-Mar-23 832	25-Mar-23 833	31-Mar-23 834
Total Non-Methane Organic Carbon	ppmv	-	< 0.08	< 0.08	< 0.08	< 0.09	< 0.08	< 0.08
1,2,3-Trimethylbenzene	ppbv	-	< 0.08	< 0.08	0.13	0.13	< 0.08	< 0.08
1,2,4-Trimethylbenzene	ppbv	-	< 0.05	< 0.05	0.11	< 0.05	< 0.05	< 0.05
1,3,5-Trimethylbenzene	ppbv	-	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05
1-Butene/Isobutylene	ppbv	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.09
1-Hexene/2-Methyl-1-pentene	ppbv	-	< 0.12	< 0.11	< 0.12	< 0.12	< 0.11	< 0.11
1-Pentene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,2,4-Trimethylpentane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	0.05	< 0.03
2,2-Dimethylbutane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
2,3,4-Trimethylpentane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
2,3-Dimethylbutane	ppbv	-	< 0.15	< 0.14	< 0.15	< 0.15	< 0.15	< 0.14
2,3-Dimethylpentane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	0.06	< 0.03
2,4-Dimethylpentane	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylheptane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
2-Methylhexane	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05
2-Methylpentane	ppbv	-	0.07	0.05	0.09	0.07	< 0.03	< 0.03
3-Methylheptane	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3-Methylhexane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
3-Methylpentane	ppbv	-	0.04	0.04	0.07	< 0.03	0.13	0.09
Benzene	ppbv	-	0.06	< 0.05	< 0.05	0.10	0.29	0.11
cis-2-Butene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-2-Pentene	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Cyclohexane	ppbv	-	< 0.07	< 0.06	< 0.07	< 0.07	0.16	0.09
Cyclopentane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	0.05	< 0.03
Ethylbenzene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	0.33	< 0.05
Isobutane	ppbv	-	0.97	0.85	0.77	0.96	0.74	0.97
Isopentane	ppbv	-	0.72	0.58	0.66	0.43	0.75	0.59
Isoprene	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Isopropylbenzene	ppbv	-	< 0.07	< 0.06	< 0.07	< 0.07	< 0.06	< 0.06
m,p-Xylene	ppbv	161	< 0.07	< 0.06	< 0.07	< 0.07	1.10	0.07
m-Diethylbenzene	ppbv	-	< 0.03	< 0.03	< 0.03	0.15	< 0.03	< 0.03
m-Ethyltoluene	ppbv	-	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05
Methylcyclohexane	ppbv	-	< 0.03	< 0.03	0.06	< 0.03	0.15	< 0.03
Methylcyclopentane	ppbv	-	< 0.08	< 0.08	< 0.08	< 0.09	0.14	0.08
n-Butane	ppbv	-	1.64	1.47	1.18	1.15	1.41	1.90
n-Decane	ppbv	-	< 0.10	< 0.10	< 0.10	0.14	< 0.10	< 0.09
n-Dodecane	ppbv	-	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
n-Heptane	ppbv	-	< 0.07	< 0.06	< 0.07	< 0.07	0.17	0.08
n-Hexane	ppbv	1990	0.08	0.10	0.12	< 0.05	0.31	0.19
n-Nonane	ppbv	-	< 0.07	< 0.06	< 0.07	< 0.07	< 0.06	< 0.06
n-Octane	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
n-Pentane	ppbv	-	0.50	0.33	0.51	0.28	0.62	0.50
n-Propylbenzene	ppbv	-	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.09
n-Undecane	ppbv	-	< 0.8	< 0.8	< 0.8	< 0.9	< 0.8	< 0.8
o-Ethyltoluene	ppbv	-	< 0.03	< 0.03	< 0.03	0.05	< 0.03	< 0.03
o-Xylene	ppbv	161	< 0.05	< 0.05	< 0.05	< 0.05	0.34	< 0.05
p-Diethylbenzene	ppbv	-	< 0.03	< 0.03	< 0.03	0.16	< 0.03	< 0.03
p-Ethyltoluene	ppbv	-	< 0.07	< 0.06	< 0.07	< 0.07	< 0.06	< 0.06
Styrene	ppbv	-	< 0.07	< 0.06	0.11	0.12	< 0.06	< 0.06
Toluene	ppbv	106	< 0.05	< 0.05	< 0.05	< 0.05	1.50	< 0.05
trans-2-Butene	ppbv	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
trans-2-Pentene	ppbv	-	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Total VOCs [2]	ppbv	-	7.650	6.950	7.200	7.170	11.300	7.890

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
Facility Site Station
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
March 2023

Parameter	Date / Sample ID / Lab Results [1]		1-Apr-23 HV-22-12-15 (ug/m^3)[2]	AAAQO[2] (ug/m^3)
Antimony	378	ng/Filter	4.79E-04	-
Arsenic	687	ng/Filter	8.71E-04	0.10
Barium	< 300	ng/Filter	3.81E-04	-
Beryllium	86.3	ng/Filter	1.09E-04	-
Boron	6050000	ng/Filter	7.67	-
Cadmium	544	ng/Filter	6.90E-04	-
Chromium	8140	ng/Filter	1.03E-02	1.0
Cobalt	1070	ng/Filter	1.36E-03	-
Copper	157000	ng/Filter	1.99E-01	-
Iron	2380000	ng/Filter	3.02	-
Lead	9470	ng/Filter	1.20E-02	1.5
Mercury	10.9	ug/Filter	1.38E-05	-
Nickel	9080	ng/Filter	1.15E-02	6
Selenium	563	ng/Filter	7.14E-04	-
Silver	112	ng/Filter	1.42E-04	-
Thallium	8.53	ng/Filter	1.08E-05	-
Uranium	46.7	ng/Filter	5.92E-05	-
Vanadium	12700	ng/Filter	1.61E-02	-
Zinc	< 1000	ng/Filter	1.27E-03	-
Zirconium	< 1.0	ng/Filter	1.27E-06	-

Sampling Time (hours)	26.87
Flow Rate (m3/min)	1.229
Volume Sampled (m^3)	1981.148

Notes:

(1) These results are from a 26.87 hour averaging period that took place on March 1 to April 1, 2023

(2) Measured data have been converted from the measured 26.87 hour avering period to a 1 hour averaging period based on Alberta's Air Quality Model Guideline Section 7.1.2.

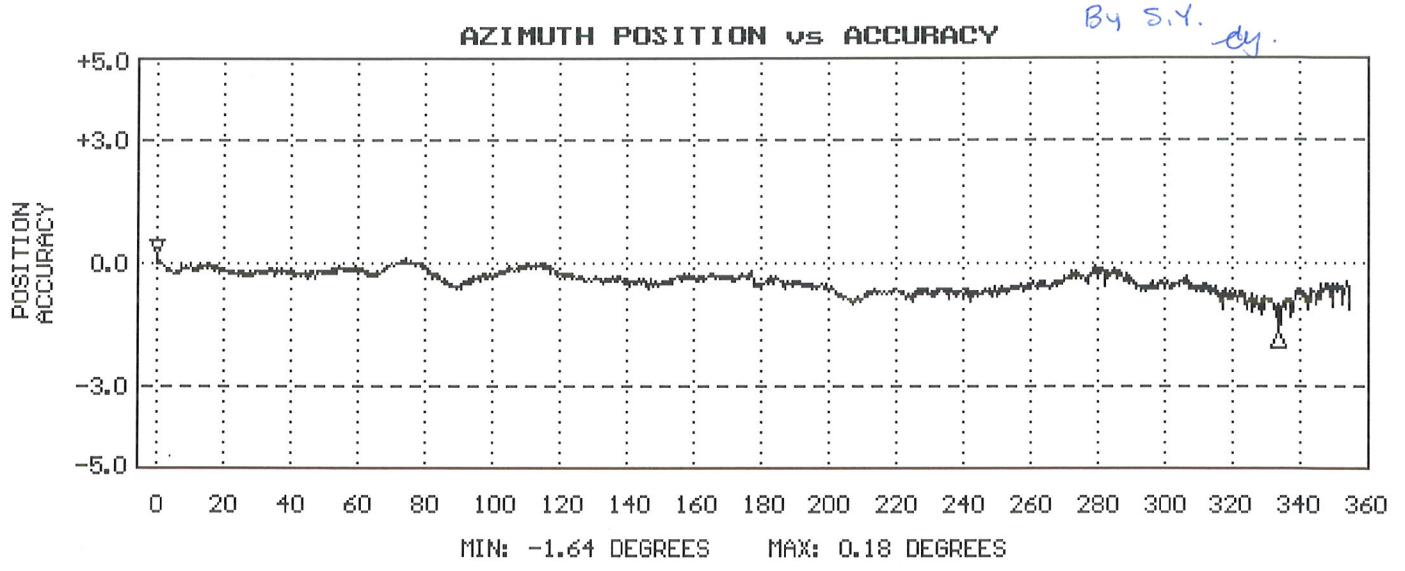
Appendix A
Meteorological Station Calibration Report

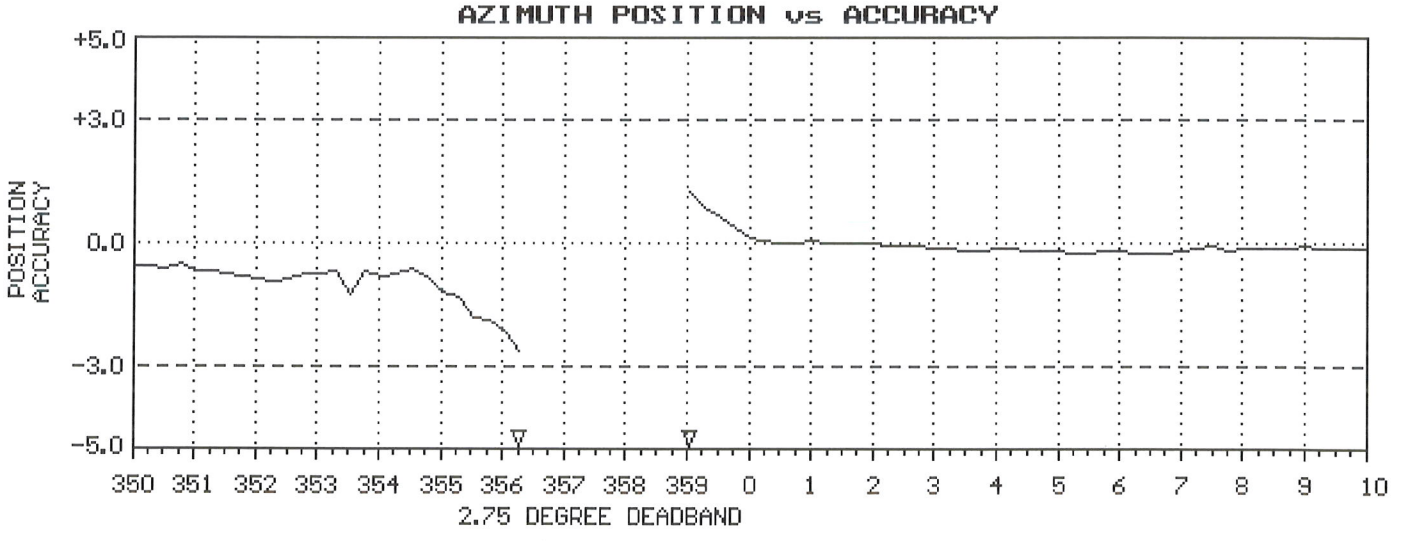
R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

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

Insp. By

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





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

GHD Wind Calibration Form

Site and Instrument Information

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

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

Calibration Information

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

Comments

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

Calibration Adjustment Required?: No

Conversion Factors

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

Appendix B
Sampling Field Sheets

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

1. SAMPLING INFORMATION

Sample ID	Test #829						
Lab Filter ID	HV-22-12-12						
Start Sampling	2 mm	1 dd	0 hr	2023			
Stop Sampling	2 mm	2 dd	0 hr	2023			
Timer Initial:	226.39						
Timer Final:	250.29						
	23.9						
Total Sampling Time	23	hr	54	min	1434	minutes	
Average Flow Rate		cfm					
Actual m3/min	1.236						
Air Volume	1772.4	cubic metres					
Net TSP Weight		g					
TSP Concentration		mg/m3					
TSP Analysis Trigger Weight	88.6	mg	weight which TSP conc. > 50 µg/m^3				

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 9-Dec-22

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:	C1165502		
PO Number:	232150		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 829		
Sample Date:	23/03/01	yy/mm/dd	
Shipping Date to Laboratory:	23/03/03		
PM10 Analysis Trigger Weight (mg):	1.25	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/03/01		
Sampling Start Time:	00:00		
Current Instrument Date:	23/02/28		
Current Instrument Time:	13:41		
Ambient Temperature °C:	-10.4		
Barometric Pressure (mm Hg):	696		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Light Snow, cloudy		
Weather Conditions set up:	Mostly cloudy		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/03/02		
Sampling End Time:	00:00		
Current Instrument Date:	23/03/02		
Current Instrument Time:	11:32		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	24.9		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	2.4		
Barometric Pressure (mm Hg) :	683		
Sample Filter Temperature °C :	2.5		
Flow Rate Coefficient of Variation (%CV):	0.2		
Weather Conditions :	Partly 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 829	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 829	
Sample Date:	23/03/01	yy/mm/dd
Shipping Date to Laboratory:	23/03/03	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	28938	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/02/28	23/03/02
Ambient Temperature °C (inside shed):	12.6	18.6
Barometric Pressure (mm Hg):	696	683
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:

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	C1167719		
PO Number:	232150		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 830		
Sample Date:	23/03/07	yy/mm/dd	
Shipping Date to Laboratory:	23/03/09		
PM10 Analysis Trigger Weight (mg):	1.30	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/03/07		
Sampling Start Time:	00:00		
Current Instrument Date:	23/03/02		
Current Instrument Time:	11:41		
Ambient Temperature °C:	2.4		
Barometric Pressure (mm Hg):	683		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Sunny		
Weather Conditions set up:	Mostly cloudy		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/03/08		
Sampling End Time:	00:00		
Current Instrument Date:	23/03/08		
Current Instrument Time:	13:45		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	26		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	-12.8		
Barometric Pressure (mm Hg) :	714		
Sample Filter Temperature °C :	-10.2		
Flow Rate Coefficient of Variation (%CV):	0.1		
Weather Conditions :	Sunny		
Leak Check:	Pass	(Pass/Fail)	
FIELD BLANK		(Once every quarter)	
Was a field blank collected	Yes	(Yes/No)	
Filter ID:	C1167718		
Filter Batch Number:			
Current Instrument Date:	23/03/08		
Current Instrument Time:	13:45		
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:			

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

1. SAMPLING INFORMATION

Sample ID	Test #830						
Lab Filter ID	HV-22-12-08						
Start Sampling	3 mm	7 dd	0 hr	2023			
Stop Sampling	3 mm	8 dd	0 hr	2023			
Timer Initial:	250.29						
Timer Final:	274.13						
	23.84						
Total Sampling Time	23	hr	50	min	1430	minutes	
Average Flow Rate		cfm					
Actual m3/min	1.236						
Air Volume	1768.0	cubic metres					
Net TSP Weight		g					
TSP Concentration		mg/m3					
TSP Analysis Trigger Weight	88.4	mg	weight which TSP conc. > 50 µg/m^3				

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	9-Dec-22

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
VOLATILE ORGANIC COMPOUNDS
CLEAN HARBORS CANADA INC
RYLEY, ALBERTA

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 830	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 830	
Sample Date:	23/03/07	yy/mm/dd
Shipping Date to Laboratory:	23/03/09	
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:	23/03/02	23/03/08
Ambient Temperature °C (inside shed):	18.6	18.0
Barometric Pressure (mm Hg):	683	714
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:	Sunny
Describe facility operations that may affect sampling event:	None
Comments:	

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	C1165521		
PO Number:	232150		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 831		
Sample Date:	23/03/13	yy/mm/dd	
Shipping Date to Laboratory:	23/03/15		
PM10 Analysis Trigger Weight (mg):	1.26	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/03/13		
Sampling Start Time:	00:00		
Current Instrument Date:	23/03/08		
Current Instrument Time:	13:50		
Ambient Temperature °C:	-12.8		
Barometric Pressure (mm Hg):	713		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	overcast		
Weather Conditions set up:	light snow, overcast		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/03/14		
Sampling End Time:	00:00		
Current Instrument Date:	23/03/14		
Current Instrument Time:	13:14		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	25.1		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	-2.0		
Barometric Pressure (mm Hg) :	693		
Sample Filter Temperature °C :	-0.5		
Flow Rate Coefficient of Variation (%CV):	0.1		
Weather Conditions :	Sunny		
Leak Check:	Pass	(Pass/Fail)	
FIELD BLANK		(Once every quarter)	
Was a field blank collected	No	(Yes/No)	
Filter ID:			
Filter Batch Number:			
Current Instrument Date:			
Current Instrument Time:			
C) OBSERVATIONS			
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No		
Describe facility operations that may affect sampling event:			
Comments:			

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

1. SAMPLING INFORMATION

Sample ID	Test #831						
Lab Filter ID	HV-22-12-11						
Start Sampling	3 mm	13 dd	0 hr	2023			
Stop Sampling	3 mm	14 dd	0 hr	2023			
Timer Initial:	274.13						
Timer Final:	297.57						
	23.44						
Total Sampling Time	23	hr	26	min	1406	minutes	
Average Flow Rate		cfm					
Actual m3/min	1.227						
Air Volume	1725.7	cubic metres					
Net TSP Weight		g					
TSP Concentration		mg/m3					
TSP Analysis Trigger Weight	86.3	mg	weight which TSP conc. > 50 µg/m^3				

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 10-Mar-23

3. GUIDELINES

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

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 831	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 831	
Sample Date:	23/03/13	yy/mm/dd
Shipping Date to Laboratory:	23/03/15	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32264	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/03/08	23/03/14
Ambient Temperature °C (inside shed):	18.0	19.1
Barometric Pressure (mm Hg):	713	693
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.1	(-)5
Sample Time:	24	24

C) OBSERVATIONS

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

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	C1165504		
PO Number:	232150		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 832		
Sample Date:	23/03/19	yy/mm/dd	
Shipping Date to Laboratory:	23/03/22		
PM10 Analysis Trigger Weight (mg):	1.21	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/03/19		
Sampling Start Time:	00:00		
Current Instrument Date:	23/03/14		
Current Instrument Time:	13:23		
Ambient Temperature °C:	-2.0		
Barometric Pressure (mm Hg):	693		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Partly Cloudy		
Weather Conditions set up:	Partly Cloudy		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/03/20		
Sampling End Time:	00:00		
Current Instrument Date:	23/03/21		
Current Instrument Time:	12:25		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	24.2		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	-1.1		
Barometric Pressure (mm Hg) :	700		
Sample Filter Temperature °C :	1.5		
Flow Rate Coefficient of Variation (%CV):	0.1		
Weather Conditions :	Sunny		
Leak Check:	Pass	(Pass/Fail)	
FIELD BLANK		(Once every quarter)	
Was a field blank collected	No	(Yes/No)	
Filter ID:			
Filter Batch Number:			
Current Instrument Date:			
Current Instrument Time:			
C) OBSERVATIONS			
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No		
Describe facility operations that may affect sampling event:			
Comments:			

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

1. SAMPLING INFORMATION

Sample ID		Test #832					
Lab Filter ID		HV-22-12-09					
Start Sampling	3 mm	19 dd	0 hr	2023			
Stop Sampling	3 mm	20 dd	0 hr	2023			
Timer Initial:		297.57					
Timer Final:		321.65					
		24.08					
Total Sampling Time	24 hr		5 min		1445	minutes	
Average Flow Rate	cfm						
Actual m3/min	1.227						
Air Volume	1772.8 cubic metres						
Net TSP Weight	g						
TSP Concentration	mg/m3						
TSP Analysis Trigger Weight	88.6 mg		weight which TSP conc. > 50 µg/m^3				

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	10-Mar-23

3. GUIDELINES

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

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 832	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 832	
Sample Date:	23/03/19	yy/mm/dd
Shipping Date to Laboratory:	23/03/22	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32231	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/03/14	23/03/21
Ambient Temperature °C (inside shed):	19.1	22.1
Barometric Pressure (mm Hg):	693	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:	Partly Cloudy
Describe facility operations that may affect sampling event:	None
Comments:	

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	C1165523		
PO Number:	232150		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 833		
Sample Date:	23/03/25	yy/mm/dd	
Shipping Date to Laboratory:	23/03/28		
PM10 Analysis Trigger Weight (mg):	1.22	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/03/25		
Sampling Start Time:	00:00		
Current Instrument Date:	23/03/21		
Current Instrument Time:	12:32		
Ambient Temperature °C:	-1.6		
Barometric Pressure (mm Hg):	700		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Partly Cloudy		
Weather Conditions set up:	Partly Cloudy		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/03/26		
Sampling End Time:	00:00		
Current Instrument Date:	23/03/27		
Current Instrument Time:	14:22		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	24.4		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	-3.5		
Barometric Pressure (mm Hg) :	709		
Sample Filter Temperature °C :	-1.4		
Flow Rate Coefficient of Variation (%CV):	0		
Weather Conditions :	Sunny		
Leak Check:	Pass	(Pass/Fail)	
FIELD BLANK		(Once every quarter)	
Was a field blank collected	No	(Yes/No)	
Filter ID:			
Filter Batch Number:			
Current Instrument Date:			
Current Instrument Time:			
C) OBSERVATIONS			
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No		
Describe facility operations that may affect sampling event:			
Comments:			

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

1. SAMPLING INFORMATION

Sample ID	Test #833					
Lab Filter ID	HV-22-12-20					
Start Sampling	3 mm	25 dd	0 hr	2023		
Stop Sampling	3 mm	26 dd	0 hr	2023		
Timer Initial:	321.65					
Timer Final:	345.34					
	23.69					
Total Sampling Time	23 hr		41 min		1421	minutes
Average Flow Rate	cfm					
Actual m3/min	1.227					
Air Volume	1744.1 cubic metres					
Net TSP Weight	g					
TSP Concentration	mg/m3					
TSP Analysis Trigger Weight	87.2 mg		weight which TSP conc. > 50 µg/m^3			

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	10-Mar-23

3. GUIDELINES

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

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 833	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 833	
Sample Date:	23/03/25	yy/mm/dd
Shipping Date to Laboratory:	23/03/28	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	31820	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/03/21	23/03/27
Ambient Temperature °C (inside shed):	22.1	18.4
Barometric Pressure (mm Hg):	700	709
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:	Partly Cloudy
Describe facility operations that may affect sampling event:	None
Comments:	

FIELD SHEET			
PM_{10} (Partisol Monitoring Unit)			
CLEAN HARBORS CANADA INC			
RYLEY, ALBERTA			
A) GENERAL INFORMATION			
Filter ID:	C9700056		
PO Number:	232150		
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905		
Test number :	Particulate Test 834		
Sample Date:	23/03/31	yy/mm/dd	
Shipping Date to Laboratory:	23/04/04		
PM10 Analysis Trigger Weight (mg):	1.22	weight which PM10 conc. > 50 µg/m^3	
B) SAMPLING INFORMATION			
SAMPLE START			
Sampling Start Date:	23/03/31		
Sampling Start Time:	00:00		
Current Instrument Date:	23/03/27		
Current Instrument Time:	14:29		
Ambient Temperature °C:	-4.0		
Barometric Pressure (mm Hg):	709		
Leak Check:	Pass	(Pass/Fail)	
Clean PM10 Inlet:	Yes	(Yes/No)	
Weather Conditions Sampling date :	Scattered Clouds		
Weather Conditions set up:	Partly Cloudy		
SAMPLE RETRIEVAL			
Sampled by	T. Webb		
Sampling End Date:	23/04/01		
Sampling End Time:	00:00		
Current Instrument Date:	23/04/03		
Current Instrument Time:	14:19		
Run Status:	OK	(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24		
Volume Sampled (m^3):	24.3		
Average Flow Rate (L/min):	16.7 L/min		
AmbT °C :	1.9		
Barometric Pressure (mm Hg) :	700		
Sample Filter Temperature °C :	3.0		
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 834	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T.Webb	
Sampler Name:	Test 834	
Sample Date:	23/03/31	yy/mm/dd
Shipping Date to Laboratory:	23/04/04	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32260	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	23/03/27	23/04/03
Ambient Temperature °C (inside shed):	18.4	16.8
Barometric Pressure (mm Hg):	709	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 #834						
Lab Filter ID	HV-23-03-02						
Start Sampling	3 mm	31 dd	0 hr	2023			
Stop Sampling	4 mm	1 dd	0 hr	2023			
Timer Initial:	345.34						
Timer Final:	369.31						
	23.97						
Total Sampling Time	23	hr	58	min	1438	minutes	
Average Flow Rate		cfm					
Actual m3/min	1.227						
Air Volume	1764.7	cubic metres					
Net TSP Weight		g					
TSP Concentration		mg/m3					
TSP Analysis Trigger Weight	88.2	mg	weight which TSP conc. > 50 µg/m^3				

3. OBSERVATIONS

Comments:

Instrument Last Calibrated:	10-Mar-23

3. GUIDELINES

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

Sample was collected in accordance with the above guidelines.

Sampler's Signature: _____

Comments: _____

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

1. SAMPLING INFORMATION

Sample ID	Facility Test # 100			
Lab Filter ID	HV-22-12-15			
Start Sampling	3 mm	1 dd	15 hr	2023
Stop Sampling	4 mm	1 dd	12 hr	2023
Timer Initial:	2415.5			
Timer Final:	2442.36			
Total Sampling Time	26 hr	52 min		1612
Average Flow Rate	cfm			
Actual m3/min	1.229			
Air Volume	1981.1 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			

2. SAMPLING INFORMATION

Sample ID	School Test # 100			
Lab Filter ID	HV-22-12-16			
Start Sampling	3 mm	1 dd	15 hr	2023
Stop Sampling	4 mm	1 dd	12 hr	2023
Timer Initial:	2997.05			
Timer Final:	3014.85			
Total Sampling Time	17 hr	48 min		1068
Average Flow Rate	cfm			
Actual m3/min	1.232			
Air Volume	1315.8 cubic metres			
Net TSP Weight	g			
TSP Concentration	mg/m3			

3. OBSERVATIONS

Comments:

Instrument Last Calibrated: 10-Mar-23

3. GUIDELINES

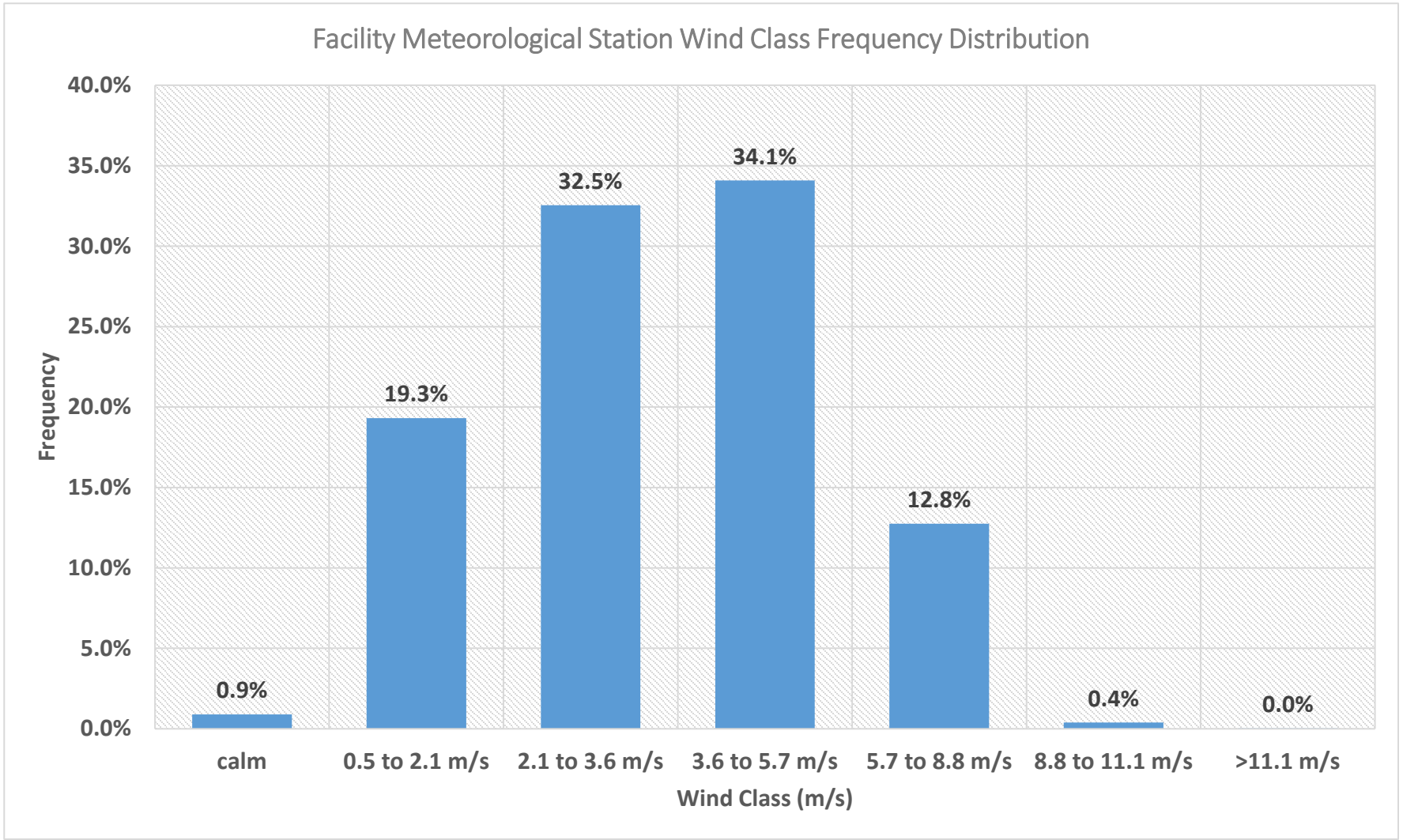
- Faceplate must be handtight.
- Flow rate must be ±10 percent of established flow rate.
- Faceplate gasket must be in good condition.
- Rotameter must be free of foreign material.
- Rotameter operation must be stable.
- Sampler motor brushes must be changed every 400 hours of operation.

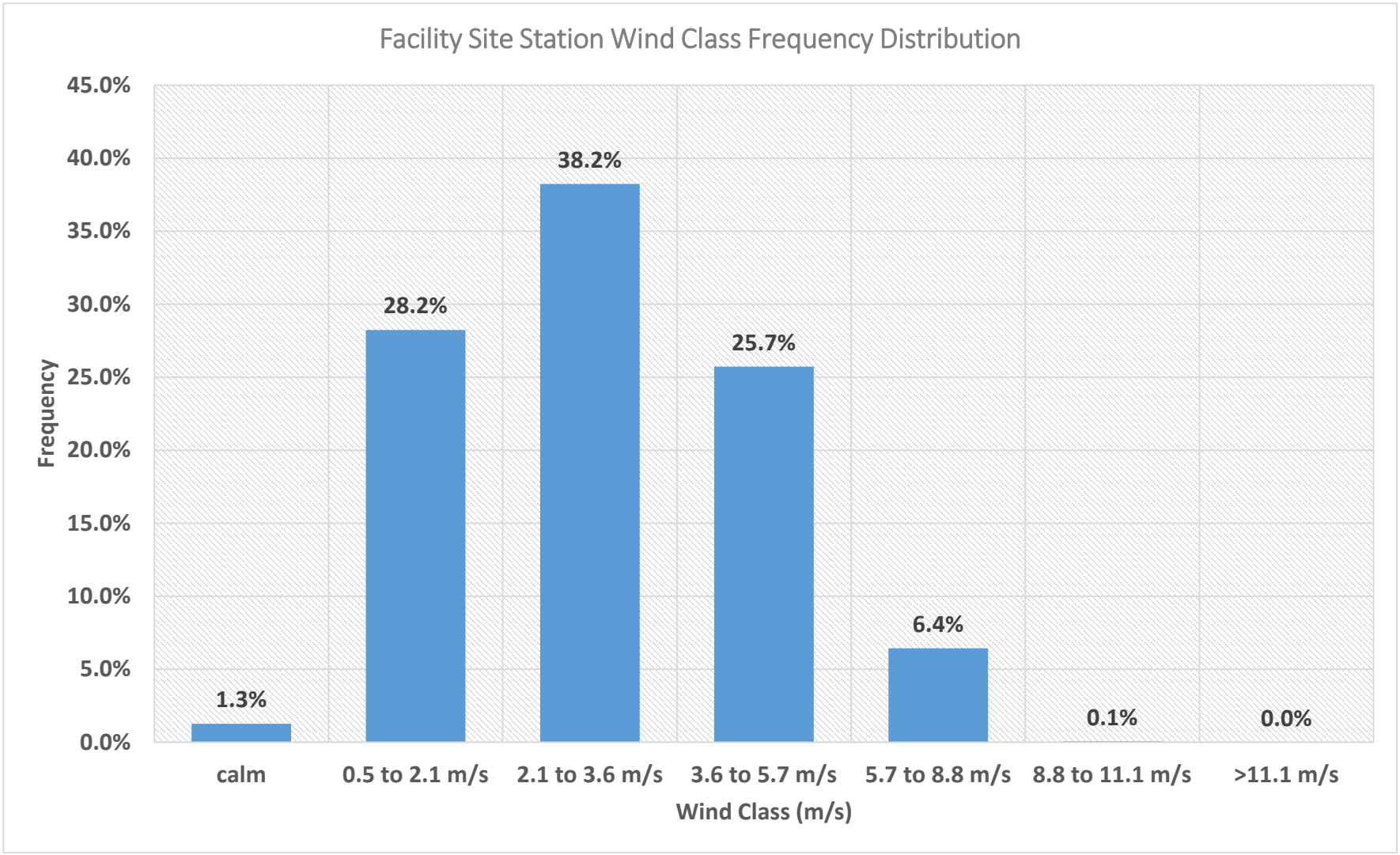
Sample was collected in accordance with the above guidelines.

Sampler's Signature: Stan Yuska

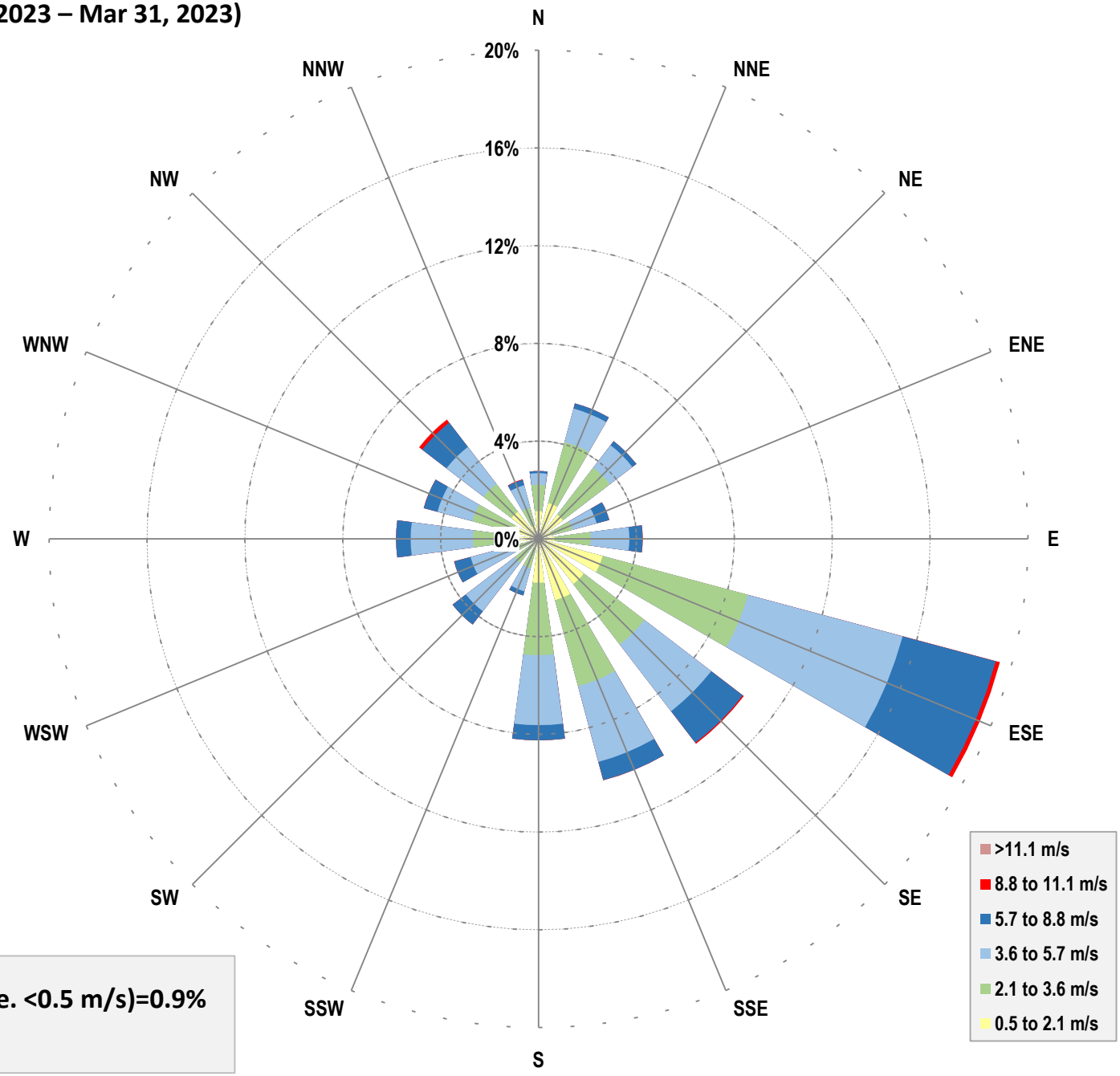
Comments:

Appendix C
Wind Class Frequency Distribution Graphs and Wind Rose


Facility Meteorological Station Wind Class Frequency Distribution
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Frequency
0.9%
19.3%
32.5%
34.1%
12.8%
0.4%
0.0%
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)

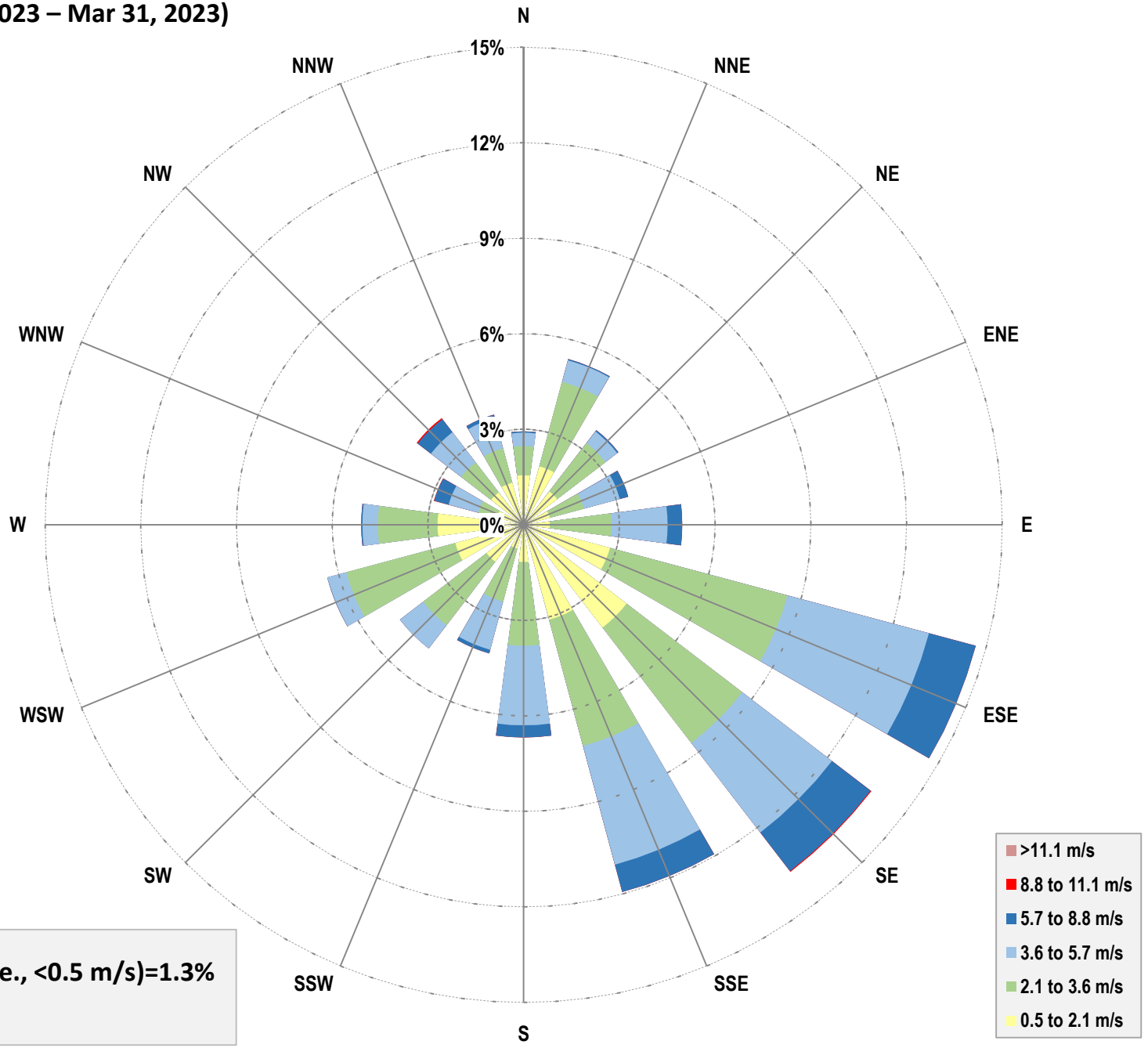

Facility Site Station Wind Class Frequency Distribution
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Frequency
1.3%
28.2%
38.2%
25.7%
6.4%
0.1%
0.0%
calm
0.5 to 2.1 m/s
2.1 to 3.6 m/s
3.6 to 5.7 m/s
5.7 to 8.8 m/s
8.8 to 11.1 m/s
>11.1 m/s
Wind Class (m/s)

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



calms (i.e. <0.5 m/s)=0.9%

Clean Harbors Facility Site Station
(Mar 1, 2023 – Mar 31, 2023)



calms (i.e., <0.5 m/s)=1.3%

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 # 100 HVF-22-12-15
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 01-Mar-23 0:00
DATE RECEIVED: 05-Apr-23
REPORT CREATED: 25-Apr-23
REPORT NUMBER: 23040015
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040015-001	Antimony		378	ng/Filter	0.30	AC-021	21-Apr-23
23040015-001	Arsenic		687	ng/Filter	0.30	AC-021	21-Apr-23
23040015-001	Barium	K, T, U	< 300	ng/Filter	300	AC-021	21-Apr-23
23040015-001	Beryllium		86.3	ng/Filter	0.60	AC-021	21-Apr-23
23040015-001	Boron		6050000	ng/Filter	600	AC-021	21-Apr-23
23040015-001	Cadmium		544	ng/Filter	0.80	AC-021	21-Apr-23
23040015-001	Chromium		8140	ng/Filter	20	AC-021	21-Apr-23
23040015-001	Cobalt		1070	ng/Filter	0.50	AC-021	21-Apr-23
23040015-001	Copper		157000	ng/Filter	20	AC-021	21-Apr-23
23040015-001	Iron		2380000	ng/Filter	80	AC-021	21-Apr-23
23040015-001	Lead		9470	ng/Filter	0.70	AC-021	21-Apr-23
23040015-001	Mercury		10.9	ng/Filter	0.70	AC-021	21-Apr-23
23040015-001	Nickel		9080	ng/Filter	5.0	AC-021	21-Apr-23
23040015-001	Selenium		563	ng/Filter	4.0	AC-021	21-Apr-23
23040015-001	Silver		112	ng/Filter	0.50	AC-021	21-Apr-23
23040015-001	Thallium		8.53	ng/Filter	0.20	AC-021	21-Apr-23
23040015-001	Uranium		46.7	ng/Filter	0.200	AC-021	21-Apr-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: April 25, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Ryley Facility Test # 100 HVF-22-12-15		Air Filter	01-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23040015 **REPORT CREATED:** 25-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040015-001	Vanadium		12700	ng/Filter	0.40	AC-021	21-Apr-23
23040015-001	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	21-Apr-23
23040015-001	Zirconium	K, T, U	< 1.0	ng/Filter	1.0	AC-021	21-Apr-23
23040015-001	Particulate Weight		123	mg	0.1	Research	14-Apr-23

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

Date: April 25, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
Ryley School Test # 100 HVF-22-12-16		Air Filter	01-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23040015 **REPORT CREATED:** 25-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040015-002	Antimony		165	ng/Filter	0.30	AC-021	21-Apr-23
23040015-002	Arsenic		121	ng/Filter	0.30	AC-021	21-Apr-23
23040015-002	Barium	K, T, U	< 300	ng/Filter	300	AC-021	21-Apr-23
23040015-002	Beryllium		51.0	ng/Filter	0.60	AC-021	21-Apr-23
23040015-002	Boron		3460000	ng/Filter	600	AC-021	21-Apr-23
23040015-002	Cadmium		285	ng/Filter	0.80	AC-021	21-Apr-23
23040015-002	Chromium		2340	ng/Filter	20	AC-021	21-Apr-23
23040015-002	Cobalt		404	ng/Filter	0.50	AC-021	21-Apr-23
23040015-002	Copper		314000	ng/Filter	20	AC-021	21-Apr-23
23040015-002	Iron		814000	ng/Filter	80	AC-021	21-Apr-23
23040015-002	Lead		2350	ng/Filter	0.70	AC-021	21-Apr-23
23040015-002	Mercury	K, T, U	< 0.70	ng/Filter	0.70	AC-021	21-Apr-23
23040015-002	Nickel		2490	ng/Filter	5.0	AC-021	21-Apr-23
23040015-002	Selenium		68.4	ng/Filter	4.0	AC-021	21-Apr-23
23040015-002	Silver		150	ng/Filter	0.50	AC-021	21-Apr-23
23040015-002	Thallium	K, T, U	< 0.20	ng/Filter	0.20	AC-021	21-Apr-23
23040015-002	Uranium		14.4	ng/Filter	0.200	AC-021	21-Apr-23
23040015-002	Vanadium		2090	ng/Filter	0.40	AC-021	21-Apr-23
23040015-002	Zinc	K, T, U	< 1000	ng/Filter	1000	AC-021	21-Apr-23
23040015-002	Zirconium	K, T, U	< 1.0	ng/Filter	1.0	AC-021	21-Apr-23
23040015-002	Particulate Weight		39.5	mg	0.1	Research	14-Apr-23

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

Revision History

Order ID	Ver	Date	Reason
23040015	01	25-Apr-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

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

23040015

Send results to Stan Yuha. Send invoice to Robbi Gooding. 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: Robbi Gooding
PO Box 390
2 km N of Hwy 14 on Sec Road 854 50114 RR 173
Ryley
AB T0B 4A0

CLIENT SAMPLE ID: HI-VOL Test # 829 - Filter # HV-22-12-12

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 01-Mar-23 0:00

DATE RECEIVED: 06-Mar-23

REPORT CREATED: 15-Mar-23

REPORT NUMBER: 23030035

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030035-003	Particulate Weight		38.2	mg	0.1	Research	13-Mar-23

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

Date: March 15, 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
PM10 Test # 829 - Filter # C1165502		Air Filter	01-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030035 **REPORT CREATED:** 15-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030035-002	Particulate Weight		0.219	mg	0.004	AC-029	08-Mar-23

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

Date: March 15, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 829	28938	Ambient Air	01-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030035 **REPORT CREATED:** 15-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030035-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	06-Mar-23
23030035-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Mar-23
23030035-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Mar-23
23030035-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	07-Mar-23
23030035-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	07-Mar-23
23030035-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	2-Methylpentane	I	0.07	ppbv	0.03	AC-058	07-Mar-23
23030035-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	3-Methylpentane	I	0.04	ppbv	0.03	AC-058	07-Mar-23
23030035-001	Benzene	I	0.06	ppbv	0.05	AC-058	07-Mar-23
23030035-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23

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

Date: March 15, 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 # 829	28938	Ambient Air	01-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030035 **REPORT CREATED:** 15-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030035-001	Isobutane		0.97	ppbv	0.05	AC-058	07-Mar-23
23030035-001	Isopentane		0.72	ppbv	0.07	AC-058	07-Mar-23
23030035-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Mar-23
23030035-001	n-Butane		1.64	ppbv	0.03	AC-058	07-Mar-23
23030035-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Mar-23
23030035-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Mar-23
23030035-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	n-Hexane	I	0.08	ppbv	0.05	AC-058	07-Mar-23
23030035-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	n-Pentane		0.50	ppbv	0.07	AC-058	07-Mar-23
23030035-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Mar-23
23030035-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	07-Mar-23
23030035-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23
23030035-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Mar-23
23030035-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23

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

Date: March 15, 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 # 829	28938	Ambient Air	01-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030035 **REPORT CREATED:** 15-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030035-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Mar-23
23030035-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Mar-23

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

Date: March 15, 2023

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

Revision History

Order ID	Ver	Date	Reason
23030035	01	15-Mar-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

23030035

Test # 829. Send results to Stan Yuha. Send invoice to Stephanie Dennis.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: HI-VOL Test # 830 - Filter # HV-22-12-08

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 07-Mar-23 0:00

DATE RECEIVED: 10-Mar-23

REPORT CREATED: 23-Mar-23

REPORT NUMBER: 23030089

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030089-003	Particulate Weight		25.4	mg	0.1	Research	15-Mar-23

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

Date: March 23, 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
PM10 Quarter 1 Field Blank - Filter C1167718		Air Filter	08-Mar-23 13:45

DESCRIPTION:

REPORT NUMBER: 23030089 **REPORT CREATED:** 23-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030089-004	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	13-Mar-23

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

Date: March 23, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 830 - Filter # C1167719		Air Filter	07-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030089 **REPORT CREATED:** 23-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030089-002	Particulate Weight		0.143	mg	0.004	AC-029	13-Mar-23

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

Date: March 23, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 830	29035	Ambient Air	07-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030089 **REPORT CREATED:** 23-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030089-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	10-Mar-23
23030089-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	10-Mar-23
23030089-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	10-Mar-23
23030089-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	10-Mar-23
23030089-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	10-Mar-23
23030089-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	2-Methylpentane	I	0.05	ppbv	0.03	AC-058	10-Mar-23
23030089-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	3-Methylpentane	I	0.04	ppbv	0.03	AC-058	10-Mar-23
23030089-001	Benzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23

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

Date: March 23, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 830	29035	Ambient Air	07-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030089 **REPORT CREATED:** 23-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030089-001	Isobutane		0.85	ppbv	0.05	AC-058	10-Mar-23
23030089-001	Isopentane		0.58	ppbv	0.06	AC-058	10-Mar-23
23030089-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	m,p-Xylene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	10-Mar-23
23030089-001	n-Butane		1.47	ppbv	0.03	AC-058	10-Mar-23
23030089-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	10-Mar-23
23030089-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Mar-23
23030089-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	n-Hexane	I	0.10	ppbv	0.05	AC-058	10-Mar-23
23030089-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	n-Pentane		0.33	ppbv	0.06	AC-058	10-Mar-23
23030089-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	10-Mar-23
23030089-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	10-Mar-23
23030089-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23
23030089-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Mar-23
23030089-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23

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

Date: March 23, 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 # 830	29035	Ambient Air	07-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030089 **REPORT CREATED:** 23-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030089-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Mar-23
23030089-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Mar-23

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

Date: March 23, 2023

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

Revision History

Order ID	Ver	Date	Reason
23030089	01	23-Mar-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

23030089

Test # 830. Send results to Stan Yuha. Send invoice to Stephanie Dennis.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: HI-VOL Test # 831 - Filter # HV-22-12-11

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 13-Mar-23 0:00

DATE RECEIVED: 16-Mar-23

REPORT CREATED: 13-Apr-23

REPORT NUMBER: 23030131

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030131-003	Particulate Weight		23.0	mg	0.1	Research	28-Mar-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: April 13, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 831 - Filter # C1165521		Air Filter	13-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030131 **REPORT CREATED:** 13-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030131-002	Particulate Weight		0.118	mg	0.004	AC-029	20-Mar-23

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

Date: April 13, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 831	32264	Ambient Air	13-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030131 **REPORT CREATED:** 13-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030131-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	24-Mar-23
23030131-001	1,2,3-Trimethylbenzene	I	0.13	ppbv	0.08	AC-058	28-Mar-23
23030131-001	1,2,4-Trimethylbenzene	I	0.11	ppbv	0.05	AC-058	28-Mar-23
23030131-001	1,3,5-Trimethylbenzene	I	0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	28-Mar-23
23030131-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	28-Mar-23
23030131-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	28-Mar-23
23030131-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	2-Methylpentane	I	0.09	ppbv	0.03	AC-058	28-Mar-23
23030131-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	3-Methylpentane	I	0.07	ppbv	0.03	AC-058	28-Mar-23
23030131-001	Benzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Mar-23
23030131-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23

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 # 831	32264	Ambient Air	13-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030131 **REPORT CREATED:** 13-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030131-001	Isobutane		0.77	ppbv	0.05	AC-058	28-Mar-23
23030131-001	Isopentane		0.66	ppbv	0.07	AC-058	28-Mar-23
23030131-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Mar-23
23030131-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Mar-23
23030131-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	Methylcyclohexane	I	0.06	ppbv	0.03	AC-058	28-Mar-23
23030131-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	28-Mar-23
23030131-001	n-Butane		1.18	ppbv	0.03	AC-058	28-Mar-23
23030131-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	28-Mar-23
23030131-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Mar-23
23030131-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Mar-23
23030131-001	n-Hexane	I	0.12	ppbv	0.05	AC-058	28-Mar-23
23030131-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	n-Pentane		0.51	ppbv	0.07	AC-058	28-Mar-23
23030131-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	28-Mar-23
23030131-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	28-Mar-23
23030131-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Mar-23
23030131-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23
23030131-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Mar-23
23030131-001	Styrene	I	0.11	ppbv	0.07	AC-058	28-Mar-23
23030131-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23

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

Date: April 13, 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 # 831	32264	Ambient Air	13-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030131 **REPORT CREATED:** 13-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030131-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Mar-23
23030131-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Mar-23

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

Date: April 13, 2023

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

Revision History

Order ID	Ver	Date	Reason
23030131	01	13-Apr-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

23030131

Test # 831. Send results to Stan Yuha. Send invoice to Stephanie Dennis.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: HI-VOL Test # 832 - Filter # HV-22-12-09

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 19-Mar-23 0:00

DATE RECEIVED: 24-Mar-23

REPORT CREATED: 14-Apr-23

REPORT NUMBER: 23030204

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030204-003	Particulate Weight		61.2	mg	0.1	Research	28-Mar-23

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

Date: April 14, 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
PM10 Test # 832 - Filter # C1165504		Air Filter	19-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030204 **REPORT CREATED:** 14-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030204-002	Particulate Weight		0.521	mg	0.004	AC-029	27-Mar-23

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

Date: April 14, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 832	32231	Ambient Air	19-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030204 **REPORT CREATED:** 14-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030204-001	Total Non-Methane Organic Carbon	K, T, U	< 0.09	ppmv	0.09	NA-028	03-Apr-23
23030204-001	1,2,3-Trimethylbenzene	I	0.13	ppbv	0.09	AC-058	29-Mar-23
23030204-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	29-Mar-23
23030204-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	29-Mar-23
23030204-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	29-Mar-23
23030204-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	2-Methylpentane	I	0.07	ppbv	0.03	AC-058	29-Mar-23
23030204-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	3-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	Benzene	I	0.10	ppbv	0.05	AC-058	29-Mar-23
23030204-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Mar-23
23030204-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23

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

Date: April 14, 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 # 832	32231	Ambient Air	19-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030204 **REPORT CREATED:** 14-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030204-001	Isobutane		0.96	ppbv	0.05	AC-058	29-Mar-23
23030204-001	Isopentane		0.43	ppbv	0.07	AC-058	29-Mar-23
23030204-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Mar-23
23030204-001	m,p-Xylene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Mar-23
23030204-001	m-Diethylbenzene	I	0.15	ppbv	0.03	AC-058	29-Mar-23
23030204-001	m-Ethyltoluene	I	0.06	ppbv	0.05	AC-058	29-Mar-23
23030204-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	Methylcyclopentane	K, T, U	< 0.09	ppbv	0.09	AC-058	29-Mar-23
23030204-001	n-Butane		1.15	ppbv	0.03	AC-058	29-Mar-23
23030204-001	n-Decane	I	0.14	ppbv	0.10	AC-058	29-Mar-23
23030204-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Mar-23
23030204-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Mar-23
23030204-001	n-Hexane	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23
23030204-001	n-Pentane		0.28	ppbv	0.07	AC-058	29-Mar-23
23030204-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	29-Mar-23
23030204-001	n-Undecane	K, T, U	< 0.9	ppbv	0.9	AC-058	29-Mar-23
23030204-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Mar-23
23030204-001	o-Ethyltoluene	I	0.05	ppbv	0.03	AC-058	29-Mar-23
23030204-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	p-Diethylbenzene	I	0.16	ppbv	0.03	AC-058	29-Mar-23
23030204-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Mar-23
23030204-001	Styrene	I	0.12	ppbv	0.07	AC-058	29-Mar-23
23030204-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23

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

Date: April 14, 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 # 832	32231	Ambient Air	19-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23030204 **REPORT CREATED:** 14-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23030204-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Mar-23
23030204-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Mar-23

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

Date: April 14, 2023

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

Revision History

Order ID	Ver	Date	Reason
23030204	01	14-Apr-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

23030204

Test # 832. Send results to Stan Yuha. Send invoice to Stephanie Dennis.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: HiVol Test #: 833, HV-22-12-20
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Hi-Vol Filter
DATE SAMPLED: 03-Apr-23
DATE RECEIVED: 03-Apr-23
REPORT CREATED: 24-Apr-23
REPORT NUMBER: 23040002
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040002-003	Particulate Weight		84.4	mg	0.1	Research	05-Apr-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: April 24, 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//

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test #: 833, C1165523		Air Filter	03-Apr-23

DESCRIPTION: PM10 Filter

REPORT NUMBER: 23040002 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040002-002	Particulate Weight		0.510	mg	0.004	AC-029	04-Apr-23

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

Date: April 24, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test #: 833	31820	Ambient Air	03-Apr-23

DESCRIPTION: Canister

REPORT NUMBER: 23040002 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040002-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	11-Apr-23
23040002-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	13-Apr-23
23040002-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	13-Apr-23
23040002-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	13-Apr-23
23040002-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.03	AC-058	13-Apr-23
23040002-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	13-Apr-23
23040002-001	2,3-Dimethylpentane	I	0.06	ppbv	0.03	AC-058	13-Apr-23
23040002-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	2-Methylhexane	I	0.06	ppbv	0.05	AC-058	13-Apr-23
23040002-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	3-Methylpentane	I	0.13	ppbv	0.03	AC-058	13-Apr-23
23040002-001	Benzene	I	0.29	ppbv	0.05	AC-058	13-Apr-23
23040002-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	Cyclohexane	I	0.16	ppbv	0.06	AC-058	13-Apr-23
23040002-001	Cyclopentane	I	0.05	ppbv	0.03	AC-058	13-Apr-23
23040002-001	Ethylbenzene		0.33	ppbv	0.05	AC-058	13-Apr-23

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

Date: April 24, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test #: 833	31820	Ambient Air	03-Apr-23

DESCRIPTION: Canister

REPORT NUMBER: 23040002 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040002-001	Isobutane		0.74	ppbv	0.05	AC-058	13-Apr-23
23040002-001	Isopentane		0.75	ppbv	0.06	AC-058	13-Apr-23
23040002-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040002-001	m,p-Xylene		1.10	ppbv	0.06	AC-058	13-Apr-23
23040002-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	Methylcyclohexane	I	0.15	ppbv	0.03	AC-058	13-Apr-23
23040002-001	Methylcyclopentane	I	0.14	ppbv	0.08	AC-058	13-Apr-23
23040002-001	n-Butane		1.41	ppbv	0.03	AC-058	13-Apr-23
23040002-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	13-Apr-23
23040002-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Apr-23
23040002-001	n-Heptane	I	0.17	ppbv	0.06	AC-058	13-Apr-23
23040002-001	n-Hexane	I	0.31	ppbv	0.05	AC-058	13-Apr-23
23040002-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	n-Pentane		0.62	ppbv	0.06	AC-058	13-Apr-23
23040002-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	13-Apr-23
23040002-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	13-Apr-23
23040002-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040002-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	o-Xylene		0.34	ppbv	0.05	AC-058	13-Apr-23
23040002-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040002-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040002-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040002-001	Toluene		1.50	ppbv	0.05	AC-058	13-Apr-23

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

Date: April 24, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test #: 833	31820	Ambient Air	03-Apr-23

DESCRIPTION: Canister

REPORT NUMBER: 23040002 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040002-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040002-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23

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

Date: April 24, 2023

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

Revision History

Order ID	Ver	Date	Reason
23040002	01	24-Apr-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

23040002

Project ID: Test # 833. Report also to Stan Yuha. Invoice also to Stephanie Dennis.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: HI-VOL Test # 834 - Filter # HV-23-03-02

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 31-Mar-23 0:00

DATE RECEIVED: 05-Apr-23

REPORT CREATED: 24-Apr-23

REPORT NUMBER: 23040016

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040016-003	Particulate Weight		54.1	mg	0.1	Research	14-Apr-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: April 24, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 834 - Filter # C9700056		Air Filter	31-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23040016 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040016-002	Particulate Weight		0.331	mg	0.004	AC-029	11-Apr-23

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

Date: April 24, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 834	32260	Ambient Air	31-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23040016 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040016-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	11-Apr-23
23040016-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	13-Apr-23
23040016-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Apr-23
23040016-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	13-Apr-23
23040016-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	13-Apr-23
23040016-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	3-Methylpentane	I	0.09	ppbv	0.03	AC-058	13-Apr-23
23040016-001	Benzene	I	0.11	ppbv	0.05	AC-058	13-Apr-23
23040016-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	Cyclohexane	I	0.09	ppbv	0.06	AC-058	13-Apr-23
23040016-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23

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

Date: April 24, 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 # 834	32260	Ambient Air	31-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23040016 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040016-001	Isobutane		0.97	ppbv	0.05	AC-058	13-Apr-23
23040016-001	Isopentane		0.59	ppbv	0.06	AC-058	13-Apr-23
23040016-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040016-001	m,p-Xylene	I	0.07	ppbv	0.06	AC-058	13-Apr-23
23040016-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	Methylcyclopentane	I	0.08	ppbv	0.08	AC-058	13-Apr-23
23040016-001	n-Butane		1.90	ppbv	0.03	AC-058	13-Apr-23
23040016-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Apr-23
23040016-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Apr-23
23040016-001	n-Heptane	I	0.08	ppbv	0.06	AC-058	13-Apr-23
23040016-001	n-Hexane	I	0.19	ppbv	0.05	AC-058	13-Apr-23
23040016-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	n-Pentane		0.50	ppbv	0.06	AC-058	13-Apr-23
23040016-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Apr-23
23040016-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	13-Apr-23
23040016-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040016-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23
23040016-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040016-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Apr-23
23040016-001	Toluene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23

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

Date: April 24, 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 # 834	32260	Ambient Air	31-Mar-23 0:00

DESCRIPTION:

REPORT NUMBER: 23040016 **REPORT CREATED:** 24-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040016-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Apr-23
23040016-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Apr-23

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

Date: April 24, 2023

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

Revision History

Order ID	Ver	Date	Reason
23040016	01	24-Apr-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

23040016

Test # 834. Send results to Stan Yuha. Send invoice to Stephanie Dennis.

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

Sample Comments

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

Result Comments

Note:

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

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

Sample ID: 23040015-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: Ryley Facility Test # 100 HVF-22-12-15

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): RECEIVED APR 05 2023
Rec'd By: _____

FOR AITF USE ONLY

Client details:
Contact: —
Company: —
Project ID: —
Address: —
—
—
Telephone: —
Email: —

CleanHarbors

Jorge A. Mendoza
Laboratory Manager

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

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

"People & Technology Creating a Safer, Cleaner Environment"

Special Instructions/Comments: **RUSH (Surcharge):** ☐

PO # 232824
Quote ID: QT140005

AITF Contact: _____ **Email:** _____
Tel: _____

Sample ID	Sample Source Description	Date/Time Sampled From/To		Analysis Requested
		Date (dd/mm/yy)	Time (24 Hr)	
Ryley Facility Test # 100	Filter Number # HV-22-12-15	1/03/23		Particulate weight ICP-MS analysis
		1/04/23	26.86 hrs	
Ryley School Test # 100	Filter Number # HV-22-12-16	1/03/23		Particulate weight ICP-MS analysis
		1/04/23	17.8 hrs	

Sample ID: 23030035-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 829

CHAIN OF CUSTODY FORM

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

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

Client Reporting Information

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

Client Billing Information

Contact:	Robbi Gooding, Stephanie Dennis
Phone:	780-663-3828
Email:	Gooding.Robbi@cleanharbors.com, Dennis.Stephanie@cleanharbors.com
Project ID:	Test 829
PO #:	0000232150

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): 1.25 mg

Trigger Weight for Analysis (HI-VOL): 88.6 mg

Date Received – Lab Use Only

RECEIVED
MAR 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
	VOCs and TNMOC Test Number: 829	Canister	28938	01/03/23	00:00	VOC PAMS & TNMOC
				02/03/23	00:00	
	PM10 Test Number: 829	PM10 filter	C1165502	01/03/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				02/03/23	00:00	
	HI-VOL Test Number: 829	HI-VOL Filter	HV-22-12-12	01/03/23	00:00	Particulate Weight (& metals if over trigger weight)*
				02/03/23	00:00	
					Total: 23.90 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 and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sample ID: 23030035-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 829

Sample ID: 23030035-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 829

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: Jan 5/23

Project: Clean Harbors

Prepared by: S Melenka

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1165502

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: 28938

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 15 2022

Evacuated: JAN 30 2023 Recertified: DEC 17 2023

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

Laboratory Contact Number: 780-632-8403

Sample ID: test 829

Sampled By: T. Webb.

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

Sample ID: 23030035-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 829

Sample ID: 23030089-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 830

HAIN OF CUSTODY FORM

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

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

Client Reporting Information

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

Client Billing Information

Contact:	Robbi Gooding, Stephanie Dennis
Phone:	780-663-3828
Email:	Gooding.Robbi@cleanharbors.com, Dennis.Stephanie@cleanharbors.com
Project ID:	Test 830
PO #:	0000232150

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): 1.30 mg

Trigger Weight for Analysis (HI-VOL): 88.4 mg

Date Received – Lab Use Only

RECEIVED
MAR 10 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: 830	Canister	29035	07/03/23	00:00	VOC PAMS & TNMOC
				08/03/23	00:00	
	PM10 Test Number: 830	PM10 filter	C1167719	07/03/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				08/03/23	00:00	
	HI-VOL Test Number: 830	HI-VOL Filter	HV-22-12-08	07/03/23	00:00	Particulate Weight (& metals if over trigger weight)*
				08/03/23	00:00	
					Total: 23.84hrs	
	PM10 Quarter 1 Field Blank	PM10 Filter	C1167718	08/03/23	13:45	FLT Particulate Weight

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 23030089-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test # 830 - Filter # C1167719

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: January 31/23

Project: Clean Harbors

Prepared by: [signature]

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1167719 Test 830

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

Sample ID: 23030089-003 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: HI-VOL Test # 830 - Filter # HV-22-12-0

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: January 31/23

Project: Clean Harbors

Prepared by: L Mulenda

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1167718 Str 1 Field blank

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: 29035

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JAN 0 6 2023

Evacuated: JAN 1 7 2023 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 830

Sampled By: T. Webb

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

KG

Sample ID: 23030089-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 830

{00004084:2}

TERMS AND CONDITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sample ID: 23030089-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 830

Sample ID: 23030131-001 **Priority:** Normal

AIN OF CUSTODY FORM

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

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

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 831

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Robbi Gooding, 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:	Gooding.Robbi@cleanharbors.com, 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 831	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000232150	

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): 1.26 mg

Trigger Weight for Analysis (HI-VOL): 86.9 mg

Date Received – Lab Use Only

RECEIVED
MAR 16 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: 831	Canister	32264	13/03/23	00:00	VOC PAMS & TNMOC
				14/03/23	00:00	
2	PM10 Test Number: 831	PM10 filter	C1165521	13/03/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				14/03/23	00:00	
3	HI-VOL Test Number: 831	HI-VOL Filter	HV-22-12-11	13/03/23	00:00	Particulate Weight (& metals if over trigger weight)*
				14/03/23	00:00	
					Total: 23.44hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 23030131-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 831

RECEIVED
MAR 16 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: January 31/23

Project: Clean Harbors

Prepared by: S Mulenka

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1165521 Test 830

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: 32264

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JAN 18 2023

Evacuated: JAN 24 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 831

Sampled By: T. Webb

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

Sample ID: 23030131-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 831

{00004084:2}

TERMS AND CONDITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sample ID: 23030131-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 831

Sample ID: 23030204-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 832

IAIN OF CUSTODY FORM

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

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

Client Reporting Information		Client Billing Information		Turnaround Time
Company:	Clean Harbors Canada, Inc	Contact:	Robbi Gooding, 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:	Gooding.Robbi@cleanharbors.com, 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 832	
Email:	Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #:	0000232150	

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): 1.21 mg

Trigger Weight for Analysis (HI-VOL): 89.3 mg

Date Received – Lab Use Only

RECEIVED
MAR 24 2023

Lab Sample No.	Client Sample ID	Sample Source/ Description	Canister Number/ Sampler ID	Date Sampled (dd/mm/yy) From / To	Time Sampled (24 hour) From / To	Analysis Requested
1	VOCs and TNMOC Test Number: 832	Canister	32231	19/03/23	00:00	VOC PAMS & TNMOC
				20/03/23	00:00	
2	PM10 Test Number: 832	PM10 filter	C1165504	19/03/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				20/03/23	00:00	
3	HI-VOL Test Number: 832	HI-VOL Filter	HV-22-12-09	19/03/23	00:00	Particulate Weight (& metals if over trigger weight)*
				20/03/23	00:00	
					Total: 24.08hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 23030204-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 832

RECEIVED
MAR 24 2023

Filter Shipping Record

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

Date: Jan 5/23

Project: Clean Harbors

Prepared by: S Melenka

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1165504 Test 832

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: 32231

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1524 on: JAN 18 2023

Evacuated: JAN 24 2023 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 832

Sampled By: T. Webb

Starting Vacuum: -27.1 "Hg

End Vacuum: KG -4 "Hg/psig

Sample ID: 23030204-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 832

{00004084;2}

TERMS AND CONDITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sample ID: 23030204-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 832

A SUBSID

Sample ID: 23040002-001 **Priority:** Normal STODY 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

Client Cust Samp ID: VOCs and TNMOC Test #: 833

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

Client Billing Information

Contact:	Robbi Gooding, Stephanie Dennis
Phone:	780-663-3828
Email:	Gooding.Robbi@cleanharbors.com, Dennis.Stephanie@cleanharbors.com
Project ID:	Test 833
PO #:	0000232150

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): 1.22 mg

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

Date Received – Lab Use Only

RECEIVED
APR 03 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: 833	Canister	31820	25/03/23	00:00	VOC PAMS & TNMOC
				26/03/23	00:00	
	PM10 Test Number: 833	PM10 filter	C1165523	25/03/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				26/03/23	00:00	
	HI-VOL Test Number: 833	HI-VOL Filter	HV-22-12-20	25/03/23	00:00	Particulate Weight (& metals if over trigger weight)*
				26/03/23	00:00	
					Total: 23.69 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 Alb... for any damage or loss to items during ... nd pay for any insurance it deems ne...

Sample ID: 23040002-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test #: 833

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.

RECEIVED
APR 03 20...

Sample ID: 23040002-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test #: 833

Filter Shipping Record

RECEIVED
APR 03 2023

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

Date: January 31/23

Project: Clean Harbors

Prepared by: [signature]

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C1165523 Test 833

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

Sample ID: 23040002-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test #: 833

InnoTech ALBERTA

Canister ID: 31820

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JAN 25 2023

Evacuated: FEB 08 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 833

Sampled By: T. Webb

Starting Vacuum: -27.1 "Hg

End Pressure: -4 "Hg/ psig

Sample ID: 23040016-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 834

HAIN OF CUSTODY FORM

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

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

Client Reporting Information

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

Client Billing Information

Contact: Robbi Gooding, Stephanie Dennis
Phone: 780-663-3828
Email: Gooding.Robbi@cleanharbors.com, Dennis.Stephanie@cleanharbors.com
Project ID: Test 834
PO #: 0000232150

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): 1.22 mg
Trigger Weight for Analysis (HI-VOL): 88.2 mg

Date Received – Lab Use Only

RECEIVED
APR 05 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: 834	Canister	32260	31/03/23	00:00	VOC PAMS & TNMOC
				01/04/23	00:00	
	PM10 Test Number: 834	PM10 filter	C9700056	31/03/23	00:00	FLT Particulate Weight (& metals if over trigger weight)*
				01/04/23	00:00	
	HI-VOL Test Number: 834	HI-VOL Filter	HV-23-03-02	31/03/23	00:00	Particulate Weight (& metals if over trigger weight)*
				01/04/23	00:00	
					Total: 23.97 hrs	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 23040016-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test # 834 - Filter # C9700056

Filter Shipping Record

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

Date: FEB 24/23

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9700056 test 834

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: 32260.

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JAN 27 2023

Evacuated: FEB 08 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 834

Sampled By: T. Webb

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

Sample ID: 23040016-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 834

{00004084;2}

TERMS AND CONDITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

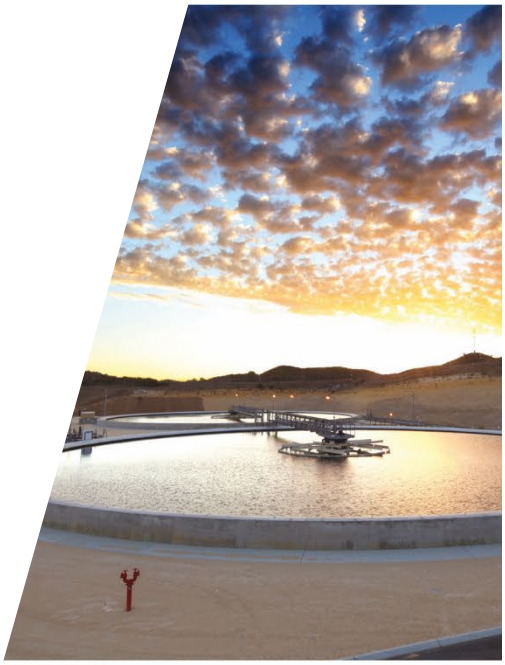
24.This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

Sample ID: 23040016-003 **Priority:** Normal

Customer ID: Clean Harbours

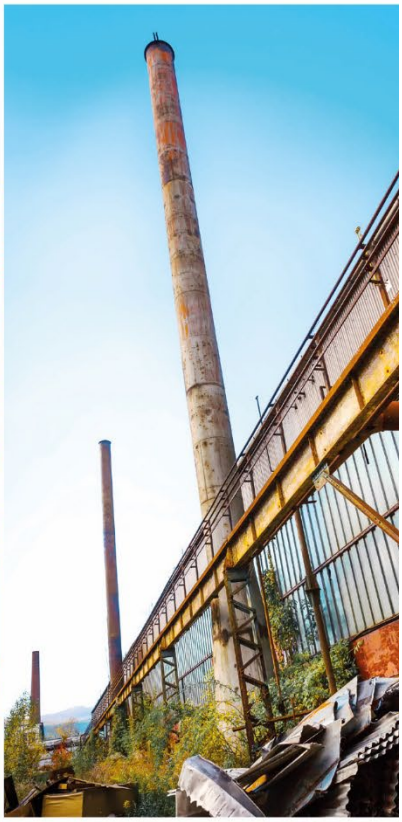
Cust Samp ID: HI-VOL Test # 834 - Filter # HV-23-03-0;

Appendix E
March Quarterly Audit



Quarterly Audit Partisol FRM Model 2000

Clean Harbors
50114 Range Rd. 173
Ryley, Alberta T0B 4A0
Quarterly Audit Date: March 10, 2023



Clean Harbors

Table of Contents

Table Index

Appendix Index

1. Introduction

GHD Limited (GHD) was retained by Clean Harbors to conduct a Quarterly Audit at 50114 Range Road 173 Ryley, Alberta (Facility) on March 10, 2023. The Quarterly Audit was conducted on the Partisol FRM 2000 Particulate Matter less than 10 microns (PM_{10}) Sampler (Partisol Sampler), located at the Ryley Lift Station, Secondary Road 854, approximately 350 metres southeast of the Facility (53°17'52.66"N and 112°24'57.87"W).

2. Audit Procedure

The Partisol Sampler was audited in accordance with the instrument manual and the Alberta Air Monitoring Directive, 2016 (AMD). Siting location, ambient pressure, ambient temperature, filter temperature, leakage rate and flow rate were audited, as well as overall instrument condition to ensure compliance with the instrument manual and the AMD. Below is a summary of the tasks performed on the Partisol Sampler:

- Siting Location Audit
- Ambient Pressure Audit
- Ambient Temperature Audit
- Filter Temperature Audit
- Leakage Rate Audit
- Flow Rate Audit
- Instrument Condition and Recommendations

GHD verified all of these parameters using calibrated reference instruments. GHD reference instruments either have National Institute of Standards and Technology (NIST) Traceable Certifications, current manufacturer certification, or were verified by a primary standard. The GHD quarterly audit field form can be found in Appendix A. All calibrations and certifications can be found in Appendix B.

3. Audit Results

3.1 Siting Location Audit Results (AEP Station ID 00010348-I-1)

The siting location of the Partisol Sampler meets the requirements of Chapter 3, of the AMD. Table 3.1 of this report compares the AMD Siting Requirements for Intermittent Samplers versus the current Partisol sampler location.

- The current coordinates of the Partisol Sampler are 53°17'52.66"N and 112°24'57.87"W.
- The distance from the nearest roadway is 21 m.

Table 3.1 AMD Requirements vs. Current Partisol Sampler Location

Site Characteristics	AMD Requirements	Current Location	Specification
Sampler Inlet-height above ground (abg)	Minimum 2 m, Maximum 15 m	Meets Requirement	4.63 m abg
Other Requirements	a. Distance from an obstacle greater than 2.5 times the height of the obstacle above the sampler.	Meets Requirement	>2.5 times
	b. At least 2 m from any other samplers or inlets with flow rates greater than 200 litres (L) per minute,	Meets Requirement	None
	Or at least 1 m apart from any other samplers or inlets with flow rates less than or equal of 200 L per minute.	Meets Requirement	None
	c. Unrestricted air flow in three to four wind quadrants.	Meets Requirement	4/4 Unrestricted Quadrants

3.2 Pressure and Temperature Audit Results (AEP Station ID 00010348-I-1)

The pressure and temperature audit results of the Partisol Sampler meet the requirements of Chapter 4, of the AMD. Table 3.2 of this report compares the reference results versus the Partisol Sampler readings.

Table 3.2 Reference Results vs. Partisol Sampler Readings

Parameter	Partisol	Reference	Difference	Limit	Pass/Fail
Ambient Temperature (°C)	-9.40	-8.53	0.9	±2°C	Pass
Barometric Pressure (mmHg)	699.0	697.6	1.4	±10 mmHg	Pass
Filter Temperature (°C)	-6.80	-6.97	0.2	±2°C	Pass
Flow (L/min	16.7	16.4	0.3	±1.0 L/min	Pass

3.3 Leak Check Results (AEP Station ID 00010348-I-1)

3.3.1 Automatic Leak Check

The Partisol firmware performs leak checks in automatic mode and indicates either a "pass" or "fail" based on a pressure drop threshold of 127 mmHg per minute. The Partisol Sampler passed the requirements outlined in the service manual with a pressure drop of 15 mmHg per minute during the audit.

3.3.2 External Manual Leak Check

GHD also performs an external manual leak check on the Partisol Sampler as part of the quarterly audit. The external manual leak check measures the pressure drop on a vacuum gauge located on

the sampler. The pressure drop may not exceed more than 8.5 inHg (216 mmHg) over a 30-second span. The Partisol Sampler passed the requirements of the service manual with a pressure drop of 1.00 inHg in a 30-second span.

3.4 Flow Audit (AEP Station ID 00010348-I-1)

The flow audit results of the Partisol Sampler meet the requirements of Chapter 4 of the AMD, refer to Table 3.2.

3.5 Instrument Condition and Recommendations (AEP Station ID 00010348-I-1)

The Partisol Sampler was visually and functionally inspected on the audit day. Audit recommendations and instrument conditions are listed below:

- Liquid crystal display screen is functioning.
- Filter exchange cabinet has been cleaned.
- Ventilation fan filters are clean.
- Filter exchange mechanism is operating normally.
- Filter v-seals are in good condition.
- Ambient temperature and pressure sensor wires in good condition.
- Main power connection wire in good condition.

3.5.1 Recommendations

GHD recommends opening and cleaning PM_{10} sampling inlet prior to next sampling event.

Appendices

Appendix A
Quarterly Audit Form

GHD Quarterly Audit Form

Date	3/10/2023	Weather Cond.:	Cloudy and Snowy
Owner	Clean Harbors	Start Time:	11:55:00 AM
Station Name	Ryley Lift Station	End Time:	12:10:00 PM
Parameter	PM_{10}	Performed By:	S. Davey and P. Shariaty

Partisol FRM Model 2000 Identification		**Sampler Data**	
Make/Model:	R & P Partisol FRM 2000	Temperature:	-9.4 °C
Unit ID:	Ryley Lift Station	Pressure:	699 mm Hg
S/N:	200FB209860905	Flow Set Point:	16.7 L/min

GHD Reference Standards

	Flow	Pressure	Temperature	Manometer
Make:	AirMetrics	TSI	Fluke	Dwyer
Model:	FRM	9555-X / 960	1551A Ex	475-0-FM
Serial Number:	FRM1218	9555X1002005	3520009	N/A
Calibration Date:	5/17/2016	12/20/2022	3/3/2022	12/1/2022

Audit Data

	Sampler Data	Reference Data	Difference	Pass/Fail	Units
Ambient Temperature (+/- 2 °C)	-9.40	-8.53	0.9	Pass	°C
Barometric Pressure (+/- 10 mmHg)	699.00	697.56	1.4	Pass	mmHg
Filter Temperature (+/- 2 °C)	-6.80	-6.97	0.2	Pass	°C
Flow (+/- 1.0 Litres/min)	16.70	16.40	0.3	Pass	Litres/min

Leak Check

Manual Check (-8.5 inHg)

Initial Pressure	Final Pressure	Pressure Drop	Pass/Fail	Units
-14.00	-13.00	-1.00	Pass	inHG

Automatic Check (-127 mmHg)

Leak check was performed in automatic mode, sampler indicated:	15 mmHg/min	Pass	mmHg/min

As Found/As Left	**Yes/No**	**As Found**	**As Left**	**Pass/Fail**
Did the ambient temperature require adjustment?	No	-9.4	-9.4	Pass
Did the barometric pressure require adjustment?	No	699	699	Pass
Did the filter temperature require adjustment?	No	-6.8	-6.8	Pass
Did the flow audit require adjustment?	No	16.7	16.7	Pass

Comments

Flow Equation

Set Point (lpm)	Actual Flow *(Qact)* (lpm)	Absolute Difference (lpm)	Pass/Fail (± 1 lpm)			
				Manometer *(DH)*	4.72 "H2O	
				Actual Temp *(Tact)*	264.62 °K	-8.5°C
				Actual Pres *(Pact)*	0.930 bar	
16.7	16.4	0.3	Pass	Actual Pres *(Pact)*	27.46 inHg	

FTS Linear Regression Constants

(mflo) = 0.4452

(bflo) = 0.4430

$$Qact = mflo \times \frac{\sqrt{\Delta H \times Tact}}{Pact} + bflo$$

Appendix B
Calibration Certificates

ITM INSTRUMENTS INC.

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1
Tel: (905) 952-3750
Fax: (905) 952-3751

MONTRÉAL
20800 Boul. Industriel
Ste-Anne-de-Bellevue, QC H9X 0A1
Tel: (514) 457-7280
Fax: (514) 457-4329

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3
Tel: (403) 272-9332
Fax: (403) 248-5194

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4
Tel: (604) 254-9622
Fax: (604) 254-3123

www.itm.com - information@itm.com

Calibration Certificate

Customer: *GHD Ltd.*

Certificate: C479807-00-01

Unit Identification

Manufacturer: **Fluke**
Model: **1551A Ex**
Description: **Stik Thermometer**
Serial: **3520009**
Unit ID: **THM-CAL-001**

Calibration Date

Calibration Date: **3-Mar-2022**
Due Date: **3-Mar-2023**

Calibration Conditions

Temperature: **22.8°C**
Humidity: **20 %**
Barometric Pressure: **N/A**

General Information

Remark:**N/A**

Standards Used

Unit ID	Manufacturer	Model	Cal Date	Due Date
CAL0124	Hart Scientific	1502A	20-Jun-2021	20-Jun-2022
CAL0125	Hart Scientific	5614	27-Feb-2020	27-Feb-2022
CAL0223	Ametek	RTC-158B	9-Nov-2021	9-Nov-2022

The calibration was performed using measurement standards traceable to the National Measurement Institute Standards (NMIS) part of the National Research Council of Canada (NRC) or the National Institute of Standards and Technology (NIST), or to accepted instrinsic standards or measurement, or is derived by ratio type self-calibration techniques. Measurement uncertainties given in this report are based on a coverage factor of k=2 corresponding to a confidence level of approximately 95%.

Calibrated by: ***D. Gano***

Approved by:

ITM INSTRUMENTS INC.

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1
Tel: (905) 952-3750
Fax: (905) 952-3751

MONTRÉAL
20800 Boul. Industriel
Ste-Anne-de-Bellevue, QC H9X 0A1
Tel: (514) 457-7280
Fax: (514) 457-4329

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3
Tel: (403) 272-9332
Fax: (403) 248-5194

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4
Tel: (604) 254-9622
Fax: (604) 254-3123

www.itm.com - information@itm.com

Test Results
Procedure: **Fluke Stik Thermometer /RTC-158B,1502,PRT** Rev: **1.0**
Data Type: **As Found** Results: **Pass**

Test Description	True Value	Reading	Lower Limit	Upper Limit	Test Status	Exp Uncert
0.020 °C		0.00 °C	-0.03 °C	0.07 °C	Pass	8.3e-003 °C
24.979 °C		24.98 °C	24.93 °C	25.03 °C	Pass	8.8e-003 °C
100.023 °C		100.02 °C	99.97 °C	100.07 °C	Pass	1.0e-002 °C
150.125 °C		150.09 °C	150.07 °C	150.18 °C	Pass	1.2e-002 °C

NIST Traceable Transfer Standard Calibration

Calibration Date:	05/17/2016		Orifice #	FRM1218-	By:
Ambient Temp, °K:	295.5		Pri Std #	LFE774300	
Amb Press, Atm:	1.0000		Manometer #	FRM1218	Chk:

Std ΔH (inH_2O)	Manometer ΔH (inH_2O)	Actual Flow (alpm)	Calc Flow (alpm)	Difference* (%diff)
6.67	6.67	20.179	20.209	-0.15
5.86	5.86	18.988	18.970	0.09
5.10	5.10	17.733	17.727	0.03
4.39	4.39	16.490	16.479	0.07
3.73	3.73	15.233	15.224	0.06
3.12	3.12	13.964	13.962	0.02
2.56	2.56	12.683	12.688	-0.04
2.05	2.05	11.390	11.401	-0.10

Manometer ΔH vs Act Flow
Linear Regression Results:

m_{flo} =	**0.4452**
b_{flo} =	**0.4430**
r^2 =	**1.0000**

* all points must be within ± 2%

The MiniFlo calibration is performed with an NIST-traceable standard. Each unit has a unique pair of calibration constants derived from the calibration which are used to calculate the actual air flow rate at all ambient conditions. The unit's calibration should be recertified annually.

The actual flow rate is a function of the pressure drop across the device, the ambient temperature, and the ambient pressure. The relationship of these variables and the unique calibration constants ("m" and "b") for each device is presented in the following equation (Eq.A):

$$Q_{act} = m_{flo} \times \sqrt{\frac{\Delta H \times T_{act}}{P_{act}}} + b_{flo}$$

Q_{act} = actual flowrate, liters per min
ΔH = manometer reading, inches of water
T_{act} = ambient temperature, °K
P_{act} = ambient pressure, atmospheres

CAUTION: The weather service, most airports, etc, reduce the atmospheric pressure to a common reference (sea level). The equation above requires the atmospheric pressure at the location where the MiniFlo is being used.

The equation below may be used to estimate the ambient atmospheric pressure at any elevation if the sea level pressure is known.

$$P_{act} = P_{sea} \times \left(1 - \frac{E}{145300}\right)^{5.25}$$

P_{act} = Ambient Atmospheric Pressure
P_{sea} = Sea Level Atmospheric Pressure
E = Site elevation, feet

Airmetrics
1940 Don St., Suite 300
Springfield, OR 97477
(541) 683-5420

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Calibration Certificate

Customer: *GHD Ltd.*

Certificate: C542161-00-01

Unit Identification

Manufacturer: **Dwyer**
Model: **475-0-FM**
Description: **Digital Manometer**
Serial: **N/A**
Unit ID: **MAN-CAL-001**

Calibration Date

Calibration Date: **1-Dec-2022**
Due Date: **1-Dec-2023**

Calibration Conditions

Temperature: **21.7°C**
Humidity: **15 %**
Barometric Pressure: **N/A**

General Information

Remark:**N/A**

Standards Used

Unit ID	Manufacturer	Model	Cal Date	Due Date
CAL0224	Fluke	750P01	12-Sep-2022	12-Mar-2023

The calibration was performed using measurement standards traceable to the National Measurement Institute Standards (NMIS) part of the National Research Council of Canada (NRC) or the National Institute of Standards and Technology (NIST), or to accepted instrinsic standards or measurement, or is derived by ratio type self-calibration techniques. Measurement uncertainties given in this report are based on a coverage factor of k=2 corresponding to a confidence level of approximately 95%.

Calibrated by: *D. Gano*

Approved by:

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Test Results
Procedure: **Pressure Gauge 10.00 IN.W.C 0.5% FS /750P01** Rev: **1.1**
Data Type: **As Found** Results: **Pass**

Test Description	True Value	Reading	Lower Limit	Upper Limit	Test Status	Exp Uncert
Tolerance used (additive if more than one listed): 0.5% of full scale						
UUT is set to the nominal value, Reading is the actual pressure read by the system instrument.						
1.000 inH2O		1.003 inH2O	0.950 inH2O	1.050 inH2O	Pass	1.6e-002 inH2O
2.000 inH2O		1.983 inH2O	1.950 inH2O	2.050 inH2O	Pass	1.6e-002 inH2O
4.000 inH2O		3.982 inH2O	3.950 inH2O	4.050 inH2O	Pass	1.6e-002 inH2O
6.000 inH2O		5.978 inH2O	5.950 inH2O	6.050 inH2O	Pass	1.6e-002 inH2O
8.000 inH2O		7.969 inH2O	7.950 inH2O	8.050 inH2O	Pass	1.6e-002 inH2O
10.000 inH2O		9.974 inH2O	9.950 inH2O	10.050 inH2O	Pass	1.6e-002 inH2O

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Calibration Certificate

Customer: *GHD LTD*

Certificate: C542157-00-01

Unit Identification

Manufacturer: **TSI**
Model: **9555-X / 960**
Description: **VelociCalc**

Serial: **9555X1002005**
Unit ID: **VEL-CAL-002**

Calibration Date

Calibration Date: **20-Dec-2022**

Due Date: **20-Dec-2023**

Calibration Conditions

Temperature: **22.5°C**
Humidity: **34.8 %**
Barometric Pressure: **103.0kPa**

General Information

Remark:**N/A**

Standards Used

Unit ID	Manufacturer	Model	Cal Date	Due Date
M-012	Airflow Development	83FSL	********** No Calibration Required **********	
M-110	Love Controls	HM3531DLF600	11-Oct-2022	11-Oct-2023
M-115	Rotronic	M22W	10-Jul-2022	10-Jul-2023
M-130	Fluke	1552A	13-May-2022	13-May-2023

The calibration was performed using measurement standards traceable to the National Measurement Institute Standards (NMIS) part of the National Research Council of Canada (NRC) or the National Institute of Standards and Technology (NIST), or to accepted instrinsic standards or measurement, or is derived by ratio type self-calibration techniques. Measurement uncertainties given in this report are based on a coverage factor of k=2 corresponding to a confidence level of approximately 95%.

Calibrated by: ***R. Chaaya***

Approved by:

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Test Results
Procedure: **TSI 9555-P C/W 964 Probe** Rev: **2**
Data Type: **As Found** Results: **Pass**

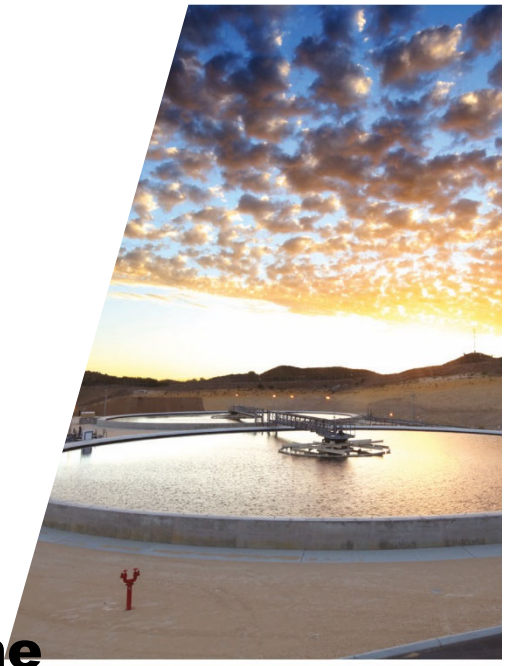
Test Description	True Value	Reading	Lower Limit	Upper Limit	Test Status	Exp Uncert
TEMPERATURE TEST ACCURACY °C						
0.0 °C		0.1 °C	-0.3 °C	0.3 °C	Pass	1.2e-001 °C
25.0 °C		24.9 °C	24.7 °C	25.3 °C	Pass	1.2e-001 °C
60.0 °C		60.0 °C	59.7 °C	60.3 °C	Pass	1.2e-001 °C
VELOCITY TEST ACCURACY ft/min						
100 ft/min		99 ft/min	97 ft/min	103 ft/min	Pass	5.8e-001 t/min
200 ft/min		201 ft/min	194 ft/min	206 ft/min	Pass	5.8e-001 t/min
300 ft/min		303 ft/min	291 ft/min	309 ft/min	Pass	5.8e-001 t/min
400 ft/min		402 ft/min	388 ft/min	412 ft/min	Pass	5.8e-001 t/min
500 ft/min		496 ft/min	485 ft/min	515 ft/min	Pass	5.8e-001 t/min
750 ft/min		754 ft/min	727 ft/min	773 ft/min	Pass	5.8e-001 t/min
1000 ft/min		993 ft/min	970 ft/min	1030 ft/min	Pass	5.8e-001 t/min
1500 ft/min		1507 ft/min	1455 ft/min	1545 ft/min	Pass	5.8e-001 t/min
2000 ft/min		2018 ft/min	1939 ft/min	2061 ft/min	Pass	5.8e-001 t/min
3000 ft/min		3005 ft/min	2910 ft/min	3090 ft/min	Pass	5.8e-001 t/min
4000 ft/min		3986 ft/min	3880 ft/min	4120 ft/min	Pass	5.8e-001 t/min
5000 ft/min		5011 ft/min	4850 ft/min	5150 ft/min	Pass	5.8e-001 t/min

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

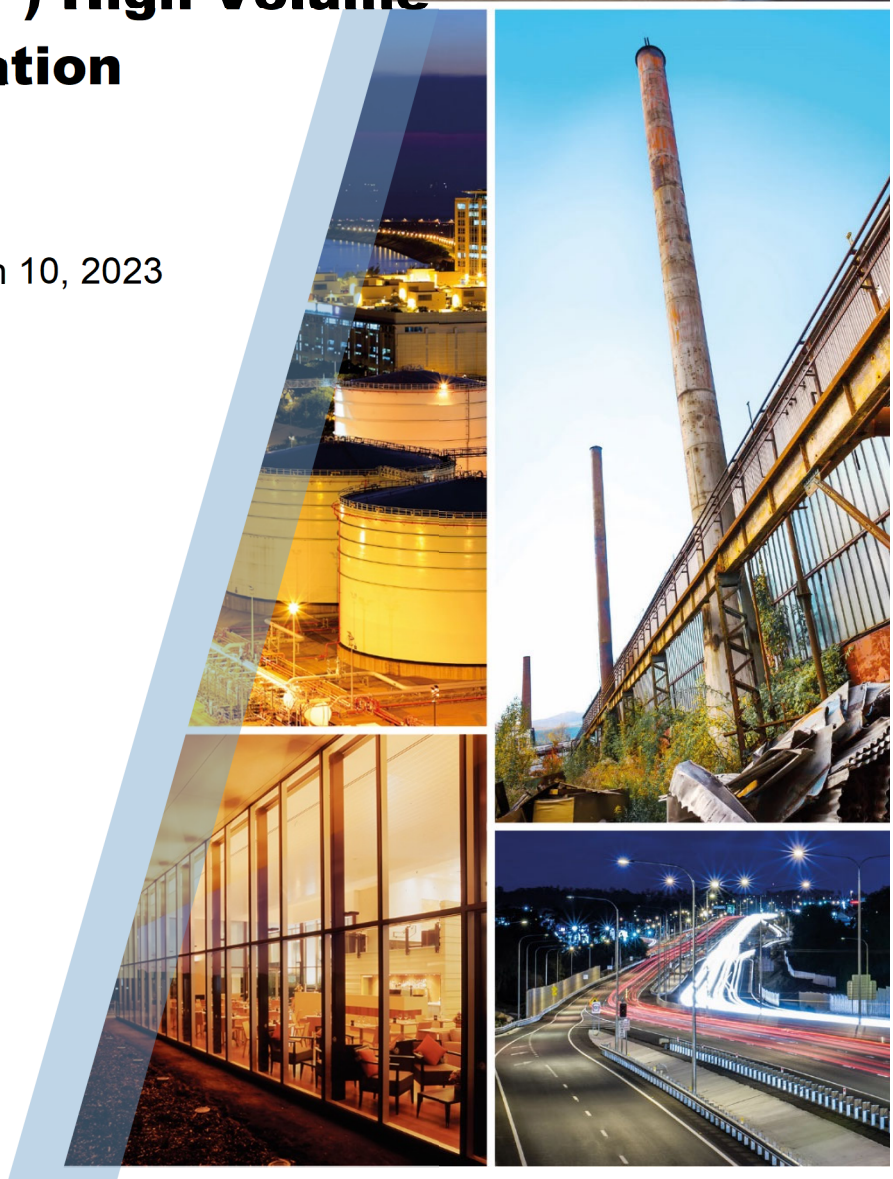
Pooya Shariaty
Pooya.Shariaty@ghd.com
403.538.7479

www.ghd.com



Quarterly Total Suspended Particulate (TSP) High Volume Sampler Calibration

Clean Harbors
50114 Range RD. 173
Ryley, Alberta T0B 4A0
Quarterly Audit Date: March 10, 2023



Clean Harbors

Table of Contents

Table Index

Appendix Index

1. Introduction

GHD Limited (GHD) was retained by Clean Harbors to conduct a Quarterly Total Suspended Particulate (TSP) High Volume Calibration Audit at 50114 Range Road 173 Ryley, Alberta (Facility), 5211 - 52 Ave, Ryley, Alberta (School), and Secondary Road 854, approximately 350 metres southeast of the Facility (Lift Station) on March 10, 2023. The Quarterly Audit was conducted on three Tisch TSP High Volume Samplers (Hi-Vol Samplers). The Facility Site Station Sampler is located against the Facility perimeter fence, north of the vehicle staging road (53°18'13.11"N and 112°25'5.81"W). The Ryley School Station Sampler is located on the roof of the Ryley School (53°17'28.99"N and 112°25'55.81"W). The Highway 854 Lift Station (AEPA Station ID 00010348-I-1) Sampler is located at the Ryley Lift Station, Secondary Road 854, approximately 350 metres southeast of the Facility (53°17'52.66"N and 112°24'57.87"W).

2. Audit Procedure

The TSP Samplers were audited in accordance with the instrument manual, the Clean Harbors Ryley Enhanced Ambient Air Quality Monitoring Program (AQMP) and the Alberta Air Monitoring Directive, 2016 (AMD). The AQMP requires that the calibration of equipment be completed on a quarterly basis. GHD performed a siting location audit, leak audit, 5-point flow calibration audit and evaluation of instrumentation and provided recommendations.

Below is a summary of the tasks performed on each Sampler:

- Siting Location Audit
- Leak Audit
- 5-Point Flow Rate Audit
- Instrument Condition and Recommendations

GHD verified all of these parameters using calibrated reference instruments. GHD reference instruments either have National Institute of Standards and Technology (NIST) Traceable Certifications, current manufacturer certification, or were verified by a primary standard. The GHD quarterly audit field forms can be found in Appendix A. All calibrations and certifications can be found in Appendix B.

3. Audit Results

3.1 Siting Location Audit Results

The siting locations of the Hi-Vol Samplers meet the requirements of Chapter 3, Page 8, Table 5 of the AMD. Table 3.1 of this report compares the AMD Siting Requirements for Intermittent Samplers versus the Sampler locations.

Facility Site Station

- The current coordinates of the Facility Sampler is 53°18'13.11"N and 112°25'5.81"W.
- The distance from the nearest roadway is ~10 metres (m).

Ryley School Station

- The current coordinates of the School Sampler are 53°17'28.99"N and 112°25'55.81"W.
- The distance from the nearest roadway is ~5 m.

Highway 854 Lift Station

- The current coordinates of the List Station Sampler are 53°17'52.66"N and 112°24'57.87"W.
- The distance from the nearest roadway is ~5 m.

Table 3.1 AMD Requirements vs. Facility Site Station Location

Site Characteristics	AMD Requirements	Current Location	Specification
Sampler Inlet-height above ground (abg)	Minimum 2 m, Maximum 15 m	Meets Requirement	4 m abg
Other Requirements	a. Distance from an obstacle greater than 2.5 times the height of the obstacle above the sampler.	Meets Requirement	>2.5 times
	b. At least 2 m from any other samplers or inlets with flow rates greater than 200 litres (L) per minute.	Meets Requirement	None
	or at least 1 m apart from any other samplers or inlets with flow rates less than or equal of 200 L per minute	Meets Requirement	None
	c. Unrestricted air flow in three to four wind quadrants.	Meets Requirement	Three to four Unrestricted Quadrants

Table 3.2 AMD Requirements vs. Ryley School Station Location

Site Characteristics	AMD Requirements	Current Location	Specification
Sampler Inlet-height above ground (abg)	Minimum 2 m, Maximum 15 m	Meets Requirement	4 m abg
Other Requirements	a. Distance from an obstacle greater than 2.5 times the height of the obstacle above the sampler.	Meets Requirement	>2.5 times
	b. At least 2 m from any other samplers or inlets with flow rates greater than 200 litres (L) per minute.	Meets Requirement	None
	or at least 1 m apart from any other samplers or inlets	Meets Requirement	None

Table 3.2 AMD Requirements vs. Ryley School Station Location

Site Characteristics	AMD Requirements	Current Location	Specification
	with flow rates less than or equal of 200 L per minute		
	c. Unrestricted air flow in three to four wind quadrants.	Meets Requirement	4/4 Unrestricted Quadrants

Table 3.3 AMD Requirements vs. Highway 854 Lift Station Location

Site Characteristics	AMD Requirements	Current Location	Specification
Sampler Inlet-height above ground (abg)	Minimum 2 m, Maximum 15 m	Meets Requirement	4 m abg
Other Requirements	a. Distance from an obstacle greater than 2.5 times the height of the obstacle above the sampler.	Meets Requirement	>2.5 times
	b. At least 2 m from any other samplers or inlets with flow rates greater than 200 litres (L) per minute.	Meets Requirement	None
	or at least 1 m apart from any other samplers or inlets with flow rates less than or equal of 200 L per minute	Meets Requirement	None
	c. Unrestricted air flow in three to four wind quadrants.	Meets Requirement	4/4 Unrestricted Quadrants

3.2 Leak Check Procedure

GHD performed a leak rate pre-inspection of each Sampler by making sure all gaskets were in place and in good condition, all connections are secure and not over tightened and inspected for damaged components. The leak rate audit was conducted by installing the calibrator orifice plate and warming up the sampler to normal operating temperature. The orifice plate holes and pressure tap holes were then covered for 30 seconds. Leakage was determined by listening for a "high-pitched squealing" sound made by escaping air.

3.2.1 Leak Check Results

Facility Site Station

The Facility Site Station Sampler passed the requirements of manufacturer's requirement for Leak Rate Audit.

Ryley School Station

The Ryley School Station Sampler passed the requirements of manufacturer's requirement for Leak Rate Audit.

Highway 854 Lift Station

The Lift Station Sampler passed the requirements of manufacturer's requirement for Leak Rate Audit.

3.3 Flow Audit Results

The 5-point flow audit was completed in accordance with the AQMP, the AMD and procedures outlined in the manufacturer's manual. The Facility Sampler, School Sampler, and Lift Station Sampler field audit forms are provided in Appendix A.

Facility Site Station

The Facility Site Station Sampler passed the 10 percent tolerance at 40 cubic feet per minute (CFM) as specified in the AQMP.

Ryley School Station

The Ryley School Station Sampler passed the 10 percent tolerance at 40 cubic feet per minute (CFM) as specified in the AQMP.

Highway 854 Lift Station

The Lift Station Sampler passed the 10 percent tolerance at 40 cubic feet per minute (CFM) as specified in the AQMP.

3.4 Instrument Condition and Recommendations

The Facility Site Sampler, Ryley School Sampler, and Lift Station Sampler were visually and functionally inspected on the audit day. Audit recommendations are listed below:

- The high volume motors were inspected at both locations, they were in good working condition when GHD arrived on site.
- Sample filter pans were cleaned.
- Pressure tap tubing in fair condition.
- All seals, gaskets and fittings are in good condition (no action required).
- Filter holder and screen in good condition (no action required).
- Main power connection wire in good condition (no action required).

All of Which is Respectfully Submitted,

GHD

Pooya Shariaty, Ph.D, M.Eng

Appendices

Appendix A
Quarterly Audit Forms

Site and Calibration Information

Site		Calibration Orifice	
Location:	Facility Sampler	**Make:**	Tisch Environmental
Date:	Mar 10, 2023	**Model:**	TE-5028A
Tech.:	S. Davey & P. Shariaty	**Serial:**	1203
Sampler:	TE-5170V	**Qa Slope (m):**	0.97323
Serial #:	P8580 TSP VFC	**Qa Int (b):**	-0.01459
VFC G-Factor:	0.0909523500	**Calibration due date:**	02/20/24

Ambient Conditions

Temp (deg F):	14.50		
Ta (deg K):	263	**Barometric Press (in Hg):**	27.46
Ta (deg C):	-9.7	**Pa (mm Hg):**	697.5

Calibration Information

Run Number	Orifice "H2O	Qa m3/min	Sampler "H2O	Pf mm Hg	Po/Pa	Calculated m3/min	% of Diff
1	3.45	1.188	6.03	11.254	0.984	1.219	2.69
2	3.33	1.167	7.05	13.157	0.981	1.216	4.20
3	3.24	1.151	8.28	15.453	0.978	1.211	5.21
4	3.21	1.146	9.75	18.196	0.974	1.206	5.24
5	3.12	1.130	10.32	19.260	0.972	1.204	6.55

Calculate Total Air Volume Using G-Factor

Enter Average Temperature During Sampling Duration (Deg F)	14.50
Average Temperature During Sampling Duration (Deg K)	263.28
Enter Average Barometric Pressure During Sampling Duration (In Hg)	27.46
Average Barometric Pressure During Sampling (mm Hg)	697.48
Enter Clean Filter Sampler Inches of Water	3.45
Enter Dirty Filter Sampler Inches of Water	3.12
Average Filter Sampler (mm Hg)	6.13
Enter Total Runtime in Hours (xx.xx)	0.25
Po/Pa :	0.991
Calculated Flow Rate (m3/min):	1.229
Total Flow (m3):	18.43

Calculations

Calibrator Flow (Qa) = 1/Slope*(SQRT(H20*(Ta/Pa))-Intercept)

Pressure Ratio (Po/Pa) = 1-Pf/Pa

% Difference = (Look Up Flow-Calibrator Flow)/Calibrator Flow*100

NOTE: Ensure calibration orifice has been certified within 12 months of use

Site and Calibration Information

Site		Calibration Orifice	
Location:	Ryley School Sampler	**Make:**	Tisch Environmental
Date:	Mar 10, 2023	**Model:**	TE-5028A
Tech.:	S. Davey & P. Shariaty	**Serial:**	1203
Sampler:	TE-5170V	**Qa Slope (m):**	0.97323
Serial #:	P8581 TSP VFC	**Qa Int (b):**	-0.01459
VFC G-Factor:	0.0906771980	**Calibration due date:**	02/20/24

Ambient Conditions

Temp (deg F):	17.1		
Ta (deg K):	265	**Barometric Press (in Hg):**	27.46
Ta (deg C):	-8.3	**Pa (mm Hg):**	697.5

Calibration Information

Run Number	Orifice "H2O	Qa m3/min	Sampler "H2O	Pf mm Hg	Po/Pa	Calculated m3/min	% of Diff
1	3.28	1.161	6.01	11.216	0.984	1.222	5.25
2	3.12	1.133	8.21	15.322	0.978	1.214	7.15
3	2.98	1.108	9.82	18.327	0.974	1.209	9.12
4	2.97	1.106	9.49	17.711	0.975	1.210	9.40
5	2.86	1.086	10.60	19.783	0.972	1.206	11.05

Calculate Total Air Volume Using G-Factor

Enter Average Temperature During Sampling Duration (Deg F)	17.13
Average Temperature During Sampling Duration (Deg K)	264.74
Enter Average Barometric Pressure During Sampling Duration (In Hg)	27.46
Average Barometric Pressure During Sampling (mm Hg)	697.48
Enter Clean Filter Sampler Inches of Water	3.28
Enter Dirty Filter Sampler Inches of Water	2.86
Average Filter Sampler (mm Hg)	5.73
Enter Total Runtime in Hours (xx.xx)	0.25
Po/Pa :	0.992
Calculated Flow Rate (m3/min):	1.232
Total Flow (m3):	18.48

Calculations

Calibrator Flow (Qa) = 1/Slope*(SQRT(H20*(Ta/Pa))-Intercept)

Pressure Ratio (Po/Pa) = 1-Pf/Pa

% Difference = (Look Up Flow-Calibrator Flow)/Calibrator Flow*100

NOTE: Ensure calibration orifice has been certified within 12 months of use

Site and Calibration Information

Site		Calibration Orifice	
Location:	Lift Station Sampler	**Make:**	Tisch Environmental
Date:	Mar 10, 2023	**Model:**	TE-5028A
Tech.:	S. Davey & P. Shariaty	**Serial:**	1203
Sampler:	TE-5170V	**Qa Slope (m):**	0.97323
Serial #:	P11162 TSP VFC	**Qa Int (b):**	-0.01459
VFC G-Factor:	0.0864333900	**Calibration due date:**	02/20/24

Ambient Conditions

Temp (deg F):	17.65		
Ta (deg K):	265	**Barometric Press (in Hg):**	27.49
Ta (deg C):	-8.0	**Pa (mm Hg):**	698.2

Calibration Information

Run Number	Orifice "H2O	Qa m3/min	Sampler "H2O	Pf mm Hg	Po/Pa	Calculated m3/min	% of Diff
1	3.46	1.193	6.05	11.291	0.984	1.218	2.10
2	3.39	1.181	6.81	12.709	0.982	1.215	2.88
3	3.32	1.168	7.42	13.848	0.980	1.213	3.77
4	3.25	1.156	8.79	16.405	0.977	1.208	4.50
5	3.21	1.149	10.26	19.148	0.973	1.203	4.70

Calculate Total Air Volume Using G-Factor

Enter Average Temperature During Sampling Duration (Deg F)	17.65
Average Temperature During Sampling Duration (Deg K)	265.03
Enter Average Barometric Pressure During Sampling Duration (In Hg)	27.49
Average Barometric Pressure During Sampling (mm Hg)	698.25
Enter Clean Filter Sampler Inches of Water	3.46
Enter Dirty Filter Sampler Inches of Water	3.21
Average Filter Sampler (mm Hg)	6.22
Enter Total Runtime in Hours (xx.xx)	0.25
Po/Pa :	0.991
Calculated Flow Rate (m3/min):	1.227
Total Flow (m3):	18.41

Calculations

Calibrator Flow (Qa) = 1/Slope*(SQRT(H20*(Ta/Pa))-Intercept)

Pressure Ratio (Po/Pa) = 1-Pf/Pa

% Difference = (Look Up Flow-Calibrator Flow)/Calibrator Flow*100

NOTE: Ensure calibration orifice has been certified within 12 months of use

Appendix B
Calibration Certificates

ITM INSTRUMENTS INC.

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1
Tel: (905) 952-3750
Fax: (905) 952-3751

MONTRÉAL
20800 Boul. Industriel
Ste-Anne-de-Bellevue, QC H9X 0A1
Tel: (514) 457-7280
Fax: (514) 457-4329

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3
Tel: (403) 272-9332
Fax: (403) 248-5194

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4
Tel: (604) 254-9622
Fax: (604) 254-3123

www.itm.com - information@itm.com

Calibration Certificate

Customer: *GHD Ltd.*

Certificate: C479807-00-01

Unit Identification

Manufacturer: **Fluke**
Model: **1551A Ex**
Description: **Stik Thermometer**
Serial: **3520009**
Unit ID: **THM-CAL-001**

Calibration Date

Calibration Date: **3-Mar-2022**
Due Date: **3-Mar-2023**

Calibration Conditions

Temperature: **22.8°C**
Humidity: **20 %**
Barometric Pressure: **N/A**

General Information

Remark:**N/A**

Standards Used

Unit ID	Manufacturer	Model	Cal Date	Due Date
CAL0124	Hart Scientific	1502A	20-Jun-2021	20-Jun-2022
CAL0125	Hart Scientific	5614	27-Feb-2020	27-Feb-2022
CAL0223	Ametek	RTC-158B	9-Nov-2021	9-Nov-2022

The calibration was performed using measurement standards traceable to the National Measurement Institute Standards (NMIS) part of the National Research Council of Canada (NRC) or the National Institute of Standards and Technology (NIST), or to accepted instrinsic standards or measurement, or is derived by ratio type self-calibration techniques. Measurement uncertainties given in this report are based on a coverage factor of k=2 corresponding to a confidence level of approximately 95%.

Calibrated by: ***D. Gano***

Approved by:

ITM INSTRUMENTS INC.

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1
Tel: (905) 952-3750
Fax: (905) 952-3751

MONTRÉAL
20800 Boul. Industriel
Ste-Anne-de-Bellevue, QC H9X 0A1
Tel: (514) 457-7280
Fax: (514) 457-4329

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3
Tel: (403) 272-9332
Fax: (403) 248-5194

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4
Tel: (604) 254-9622
Fax: (604) 254-3123

www.itm.com - information@itm.com

Test Results
Procedure: **Fluke Stik Thermometer /RTC-158B,1502,PRT** Rev: **1.0**
Data Type: **As Found** Results: **Pass**

Test Description	True Value	Reading	Lower Limit	Upper Limit	Test Status	Exp Uncert
0.020 °C		0.00 °C	-0.03 °C	0.07 °C	Pass	8.3e-003 °C
24.979 °C		24.98 °C	24.93 °C	25.03 °C	Pass	8.8e-003 °C
100.023 °C		100.02 °C	99.97 °C	100.07 °C	Pass	1.0e-002 °C
150.125 °C		150.09 °C	150.07 °C	150.18 °C	Pass	1.2e-002 °C

TISCH Environmental

RECALIBRATION DUE DATE:
February 20, 2024

Certificate of Calibration

Calibration Certification Information

Cal. Date:	February 20, 2023	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 741.17	mm Hg
Calibration Model #:	TE-5028A	**Calibrator S/N:** **1203**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.2300	4.3	1.50
2	3	4	1	0.9590	7.1	2.50
3	5	6	1	0.8670	8.5	3.00
4	7	8	1	0.8040	9.9	3.50
5	9	10	1	0.6110	17.0	6.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9828	0.7990	1.2177	0.9942	0.8083	0.7714
0.9790	1.0209	1.5720	0.9904	1.0328	0.9958
0.9772	1.1271	1.7221	0.9885	1.1402	1.0909
0.9753	1.2130	1.8600	0.9866	1.2272	1.1783
0.9658	1.5807	2.4354	0.9771	1.5991	1.5427
QSTD	**m=**	**1.55422**	**QA**	**m=**	**0.97323**
	b=	**-0.02303**		**b=**	**-0.01459**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd=	$1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$	**Qa=**	$1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30.

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Calibration Certificate

Customer: *GHD Ltd.*

Certificate: C542161-00-01

Unit Identification

Manufacturer: **Dwyer**
Model: **475-0-FM**
Description: **Digital Manometer**
Serial: **N/A**
Unit ID: **MAN-CAL-001**

Calibration Date

Calibration Date: **1-Dec-2022**
Due Date: **1-Dec-2023**

Calibration Conditions

Temperature: **21.7°C**
Humidity: **15 %**
Barometric Pressure: **N/A**

General Information

Remark:**N/A**

Standards Used

Unit ID	Manufacturer	Model	Cal Date	Due Date
CAL0224	Fluke	750P01	12-Sep-2022	12-Mar-2023

The calibration was performed using measurement standards traceable to the National Measurement Institute Standards (NMIS) part of the National Research Council of Canada (NRC) or the National Institute of Standards and Technology (NIST), or to accepted instrinsic standards or measurement, or is derived by ratio type self-calibration techniques. Measurement uncertainties given in this report are based on a coverage factor of k=2 corresponding to a confidence level of approximately 95%.

Calibrated by: *D. Gano*

Approved by:

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Test Results
Procedure: **Pressure Gauge 10.00 IN.W.C 0.5% FS /750P01** Rev: **1.1**
Data Type: **As Found** Results: **Pass**

Test Description	True Value	Reading	Lower Limit	Upper Limit	Test Status	Exp Uncert
Tolerance used (additive if more than one listed): 0.5% of full scale						
UUT is set to the nominal value, Reading is the actual pressure read by the system instrument.						
1.000 inH2O		1.003 inH2O	0.950 inH2O	1.050 inH2O	Pass	1.6e-002 inH2O
2.000 inH2O		1.983 inH2O	1.950 inH2O	2.050 inH2O	Pass	1.6e-002 inH2O
4.000 inH2O		3.982 inH2O	3.950 inH2O	4.050 inH2O	Pass	1.6e-002 inH2O
6.000 inH2O		5.978 inH2O	5.950 inH2O	6.050 inH2O	Pass	1.6e-002 inH2O
8.000 inH2O		7.969 inH2O	7.950 inH2O	8.050 inH2O	Pass	1.6e-002 inH2O
10.000 inH2O		9.974 inH2O	9.950 inH2O	10.050 inH2O	Pass	1.6e-002 inH2O

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Calibration Certificate

Customer: *GHD LTD*

Certificate: C542157-00-01

Unit Identification

Manufacturer: **TSI**
Model: **9555-X / 960**
Description: **VelociCalc**

Serial: **9555X1002005**
Unit ID: **VEL-CAL-002**

Calibration Date

Calibration Date: **20-Dec-2022**

Due Date: **20-Dec-2023**

Calibration Conditions

Temperature: **22.5°C**
Humidity: **34.8 %**
Barometric Pressure: **103.0kPa**

General Information

Remark:**N/A**

Standards Used

Unit ID	Manufacturer	Model	Cal Date	Due Date
M-012	Airflow Development	83FSL	********** No Calibration Required **********	
M-110	Love Controls	HM3531DLF600	11-Oct-2022	11-Oct-2023
M-115	Rotronic	M22W	10-Jul-2022	10-Jul-2023
M-130	Fluke	1552A	13-May-2022	13-May-2023

The calibration was performed using measurement standards traceable to the National Measurement Institute Standards (NMIS) part of the National Research Council of Canada (NRC) or the National Institute of Standards and Technology (NIST), or to accepted instrinsic standards or measurement, or is derived by ratio type self-calibration techniques. Measurement uncertainties given in this report are based on a coverage factor of k=2 corresponding to a confidence level of approximately 95%.

Calibrated by: ***R. Chaaya***

Approved by:

ITM INSTRUMENTS INC

MONTRÉAL
20800 Boul. Industriel,
Ste-Anne-de-Bellevue, QC H9X 0A1

TORONTO
16975 Leslie Street
Newmarket, ON L3Y 9A1

REGINA
#D, 288 Hodsman Road
Regina, SK S4N 5X4

CALGARY
#209, 4615 112 Ave SE
Calgary, AB T2C 5J3

VANCOUVER
1282 Cliveden Av
Delta, BC V3M 6G4

www.itm.com
information@itm.com
1.800.561.8187

Test Results
Procedure: **TSI 9555-P C/W 964 Probe** Rev: **2**
Data Type: **As Found** Results: **Pass**

Test Description	True Value	Reading	Lower Limit	Upper Limit	Test Status	Exp Uncert
TEMPERATURE TEST ACCURACY °C						
0.0 °C		0.1 °C	-0.3 °C	0.3 °C	Pass	1.2e-001 °C
25.0 °C		24.9 °C	24.7 °C	25.3 °C	Pass	1.2e-001 °C
60.0 °C		60.0 °C	59.7 °C	60.3 °C	Pass	1.2e-001 °C
VELOCITY TEST ACCURACY ft/min						
100 ft/min		99 ft/min	97 ft/min	103 ft/min	Pass	5.8e-001 t/min
200 ft/min		201 ft/min	194 ft/min	206 ft/min	Pass	5.8e-001 t/min
300 ft/min		303 ft/min	291 ft/min	309 ft/min	Pass	5.8e-001 t/min
400 ft/min		402 ft/min	388 ft/min	412 ft/min	Pass	5.8e-001 t/min
500 ft/min		496 ft/min	485 ft/min	515 ft/min	Pass	5.8e-001 t/min
750 ft/min		754 ft/min	727 ft/min	773 ft/min	Pass	5.8e-001 t/min
1000 ft/min		993 ft/min	970 ft/min	1030 ft/min	Pass	5.8e-001 t/min
1500 ft/min		1507 ft/min	1455 ft/min	1545 ft/min	Pass	5.8e-001 t/min
2000 ft/min		2018 ft/min	1939 ft/min	2061 ft/min	Pass	5.8e-001 t/min
3000 ft/min		3005 ft/min	2910 ft/min	3090 ft/min	Pass	5.8e-001 t/min
4000 ft/min		3986 ft/min	3880 ft/min	4120 ft/min	Pass	5.8e-001 t/min
5000 ft/min		5011 ft/min	4850 ft/min	5150 ft/min	Pass	5.8e-001 t/min

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Pooya Shariaty
Pooya.Shariaty@ghd.com
403.538.7479

www.ghd.com