January 23, 2023

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

RE: Monthly Ambient Air Monitoring Report
December 2022
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 (Consultant), for the reporting period of December 2022, to Alberta Environment and Parks (AEP). 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 Environmental Protection and Enhancement Act (EPEA) Approval, Approval No. 10348-03-00 (Approval). As part of the Approval requirements, the Facility submitted a proposal for a New Ambient Air Monitoring Program, which was subsequently approved on June 24, 2009 by the AEP (formally AENV). Operating under the Approval and the approved proposal, Clean Harbors operates two ambient air monitoring stations: AEP Station ID 00010348-I-1 and AEP Station ID 00010348-C-1.

Included in this report are the following:

- Summary of the ambient air monitoring program for December 2022
- Summary of AMD Electronic Transfer System submittals
- Results for Particulate Matter $\leq$ 10 microns (PM_{10}) reported in $\mu g/m^3$
- Results for water-soluble cations; metal or anions if the PM_{10} results were >50 $\mu g/m^3$
- 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 Parks (AEP)
Monthly Ambient Air Monitoring Report
December 2022
Report Completed on January 23, 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

Appendices

1. Introduction

The Facility operates two ambient air monitoring stations to assess ambient air quality at and around the Facility. One intermittent monitoring station, known as the Ryley Lift Station (AEP Station ID 00010348-I-1), is located on Secondary Road 854, approximately 350 metres southeast of the Facility. At this location, samples are collected and analyzed for the following: particulate matter less than or equal to 10 micrometers (µm) in diameter (PM_{10}), volatile organic compounds (VOCs), and total non-methane organic compounds (TNMOC). Additionally, PM_{10} samples that exceed 50 micrograms per cubic metre (50 $\mu g/m^3$) are analyzed for a target list of metals, anions, and cations. Sampling is conducted every 12 days as required by the Facility's Approval.

The second station, located at the Facility (AEP Station ID 00010348-C-1), is a continuous meteorological station that collects wind speed and wind direction data.

All sampling and monitoring is conducted in accordance with the Facility's Approval 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.

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 December 2022.

Activity	*Completed (Y/N)*	*Date(s)*
Wind Speed/Direction Sensor Calibration	N	March 18, 2022 (1)
Changes to the Wind Speed/Direction Sensor	N	-
PM_{10} Sampling Station Calibration	Y	December 9, 2022
Changes to the PM_{10} Sampling Station	N	-
PM_{10} Samples Collected	Y	December 1, 2022 December 13, 2022 December 25, 2022
VOC and TNMOC Samples Collected	Y	December 1, 2022 December 13, 2022 December 25, 2022
Metal Analysis Conducted	N	-
Maintenance Activities	Y	December 1, 2022 December 9, 2022 December 13, 2022 December 25, 2022
Dust Suppression Activities	N	-

Note: (1) The wind speed/direction sensor was checked for calibration on March 18, 2022 and was shown to be within the allowable tolerances and was then re-installed after calibration.

3. Summary of Electronic Transfer System (ETS) Submittals

In addition to the December 2022 monthly report, the following summarized items were submitted to the ETS:

3.1 AMD XML Schema

An XML formatted Schema file was submitted to the AEP via the ETS portal. The XML Schema file contains the results from AEP Station ID 00010348-I-1 and AEP Station ID 00010348-C-1.

3.2 Ambient Air Monitoring Program Laboratory Reports

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

3.3 Ambient Air Monitoring Program Calibration Reports

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

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

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

The 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 December 2022.

4.2 PM_{10} Sampling Station (AEP Station ID 00010348-I-1)

Maintenance activities for the Partisol Federal Reference Method PM_{10} Sampler included inlet cleaning and leak checks that were conducted before each sampling event in December 2022. The pre-sampling maintenance activities are recorded in the field sampling sheets provided in Appendix B.

5. Ambient Air Monitoring Results

The following section presents the results from the ambient air monitoring program for AEP Station ID 00010348-C-1 and AEP Station ID 00010348-I-1 conducted in December 2022. Where applicable, comparisons were made to Alberta Ambient Air Quality Objectives (AAAQO) for parameters that had 24-hour average objectives. These parameters include o,m,p-xylene, hexane,

and toluene. For all other parameters, AAAQO have not been established or the limits have averaging periods other than 24-hours.

5.1 Meteorological Data for Wind Speed and Direction (AEP Station ID 00010348-C-1)

In accordance with the Approval and the AMD, the Facility is required to collect wind speed and directional data continuously when operations are occurring on site. Table 1 presents the hourly and 24-hour average wind speeds for December 2022. Table 2 presents the hourly and 24-hour average wind direction data (degrees from north) for December 2022. Table 3 presents the Wind Class Frequency Distribution for December 2022. Appendix C provides a graphical representation of the Wind Class Frequency Distribution and the Wind Roses based on Tables 1, 2 and 3.

5.1.1 Data Verification and Validation and Uptime

Based on the verification and validation process conducted for the meteorological data that was collected in December 2022, it was determined that 100 percent of the data is valid, which represents 100 percent uptime of the meteorological station. This is above the 90 percent uptime limit required for compliance, as per the Approval.

5.2 PM_{10} Concentrations (AEP Station ID 00010348-I-1)

Table 4 presents the results of the sampling conducted for PM_{10}. Appendix B provides the field sheets completed for each sampling event. Appendix D provides the chain of custody forms and laboratory analytical reports.

AAAQO are specified for total suspended particulates (TSP) at 100 µg/m^3 and $PM_{2.5}$ 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. In accordance with the Facility's Approval, PM_{10} samples that exceed 50 µg/m^3 are analyzed for a target list of metals, anions, and cations.

5.3 Metal Concentrations

All of the PM_{10} samples collected in December 2022 were below 50 µg/m^3 and as such analysis for metals, anions, and cations was not conducted on those samples.

5.4 VOC and TNMOC Concentrations

Table 5 presents the VOC and TNMOC concentrations measured in December 2022. There are three VOC parameters that have corresponding AAAQO with 24-hour averaging periods including o,p,m-xylene, hexane and toluene. There were no exceedances for these parameters in December 2022. 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 Dust Suppression

There were no dust suppression activities, which include using leachate spread on the surface of the active landfill, conducted during December 2022.

6. Conclusions

The following summarizes the Ambient Air Monitoring Program that was conducted in December 2022.

1 The PM_{10} concentrations measured on December 1, December 13, and December 25, 2022 were 1.705 µg/m^3, 18.031 µg/m^3, and 6.836 µg/m^3, respectively.

2 Based on the ambient air monitoring results, 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 December 2022.

3 During December 2022, the wind station operated at 100 percent uptime. Based on the data verification and validation procedure conducted, this is in compliance with the minimum 90 percent uptime required by the AMD.

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 December 2022 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

Tables

TABLE 1

Average Wind Speed (metres/second)
AEP Station ID 00010348-C-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
December 2022

Ryley Wind Speed Data (m/s) - Month of December 2022																							
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	3.4	2.7	2.0	2.0	2.3	2.1	0.7	0.9	2.0	1.9	2.0	1.7	1.5	1.7	1.5	0.7	0.9	1.4	2.3	2.1	2.1	2.8	1.6	2.5
2	2.6	2.2	2.4	2.0	2.3	2.5	3.4	4.2	3.8	4.2	3.9	3.7	3.5	3.6	4.5	4.5	4.8	5.0	4.8	5.3	5.7	5.4	5.2	5.1
3	4.5	4.4	5.5	5.7	5.2	4.9	7.3	6.2	5.7	6.1	6.3	6.1	6.3	6.2	5.5	5.0	5.7	5.3	6.8	6.6	6.8	8.1	8.6	8.4
4	8.7	7.7	6.7	5.9	5.7	5.1	7.3	8.4	7.1	8.4	11.2	11.6	10.3	11.3	11.5	11.4	10.8	10.1	7.0	3.5	3.3	4.4	3.7	3.0
5	3.1	4.6	3.8	3.2	2.7	1.4	1.0	0.6	0.9	1.2	1.6	2.1	2.5	2.1	1.9	2.1	6.3	8.8	8.6	8.6	7.2	6.3	4.6	4.1
6	3.9	2.8	2.7	2.7	3.1	3.1	2.6	1.7	1.7	1.5	0.4	2.0	2.0	2.4	2.4	2.8	2.8	3.4	3.9	4.3	5.1	6.1	6.5	6.7
7	6.4	6.2	7.3	6.8	5.4	4.3	5.6	4.9	5.4	7.1	7.4	6.5	6.7	5.0	4.3	3.9	5.4	5.8	6.9	5.8	5.5	4.1	2.8	2.4
8	2.0	2.4	3.4	2.8	2.6	2.6	3.2	3.4	3.4	4.1	4.4	3.9	4.8	4.7	3.5	4.4	3.7	2.2	2.9	4.4	4.3	5.0	4.4	4.7
9	4.9	4.2	3.4	3.2	3.4	3.8	4.1	1.8	2.1	1.2	2.8	3.1	2.2	1.5	1.5	1.2	1.1	0.9	2.6	4.4	5.3	2.4	2.6	5.0
10	2.9	2.6	2.6	2.3	2.9	3.2	3.1	3.6	4.1	4.8	5.7	5.5	5.4	5.9	5.3	4.9	4.6	4.0	3.9	3.8	3.3	3.0	2.1	2.5
11	3.4	2.4	1.4	1.7	2.4	3.6	3.0	3.7	5.8	7.2	7.9	7.4	8.4	8.1	7.8	7.2	8.2	6.0	6.0	5.5	5.6	5.3	4.5	4.1
12	5.0	5.0	4.3	4.9	4.8	4.1	4.1	4.0	3.1	3.0	2.9	3.3	3.0	3.1	2.7	1.8	2.2	2.0	2.3	2.0	1.7	2.7	2.8	2.6
13	2.8	3.7	3.5	4.2	4.4	4.8	4.2	4.8	4.0	5.7	5.6	5.2	4.9	3.4	3.4	3.8	3.3	2.5	2.7	2.0	2.0	1.5	1.6	2.4
14	3.1	4.1	4.0	5.6	4.5	6.1	7.6	7.3	8.2	7.5	5.7	5.5	6.7	7.6	7.6	5.4	3.8	4.0	2.5	2.7	3.1	2.4	2.0	1.8
15	2.5	2.2	1.5	0.8	1.5	1.9	2.6	1.1	2.9	3.2	3.2	3.1	3.5	2.7	2.9	3.4	2.8	3.7	3.5	2.3	1.7	1.3	2.0	3.9
16	0.9	0.7	1.4	2.4	2.6	2.4	3.1	1.9	1.8	2.8	3.6	3.2	2.8	1.5	0.8	1.1	0.6	1.4	1.7	2.9	3.5	4.2	4.7	7.6
17	6.2	6.0	8.9	10.0	10.5	9.8	9.3	9.4	9.3	9.0	7.8	7.2	6.8	6.4	6.0	6.0	5.4	4.1	4.1	4.1	3.9	3.8	4.3	3.5
18	3.2	3.1	2.9	2.9	2.3	2.7	2.5	2.1	2.0	2.3	3.5	3.7	3.9	3.5	2.6	2.7	2.5	1.9	2.7	2.6	2.4	2.7	2.2	2.5
19	3.0	3.3	2.3	2.9	4.3	4.3	3.3	2.8	3.2	3.1	2.9	3.1	3.6	3.9	4.5	4.6	4.8	5.9	5.8	5.6	5.6	5.1	5.0	4.3
20	4.6	5.0	4.7	4.4	4.5	4.7	3.8	4.0	3.6	3.4	3.0	3.2	3.1	2.6	2.4	2.8	2.0	2.7	3.1	3.8	2.9	3.0	3.1	3.5
21	3.9	4.0	3.8	4.3	4.1	4.5	5.1	5.2	5.3	4.8	4.5	4.9	5.5	5.6	7.0	7.4	6.5	5.7	5.9	6.4	5.9	6.5	5.6	6.2
22	6.6	5.8	5.3	4.0	4.7	3.8	3.2	3.5	3.3	2.5	2.2	1.4	1.3	2.1	2.7	3.0	3.4	3.0	3.8	3.5	3.1	3.8	5.0	5.1
23	4.8	4.7	4.1	4.5	5.5	6.8	7.9	8.3	8.6	9.3	9.3	9.4	8.4	7.7	7.8	8.0	8.0	7.6	8.1	7.6	7.6	6.1	5.7	5.7
24	4.8	5.1	5.0	4.3	4.5	3.5	3.4	2.7	2.1	2.1	1.8	2.8	3.6	4.7	6.1	7.2	7.9	7.6	7.1	7.4	6.4	4.3	1.0	2.9
25	5.6	7.5	8.4	8.0	5.4	4.2	4.4	4.7	4.7	4.2	5.2	4.3	4.1	3.9	3.2	4.5	4.1	2.8	1.2	1.9	2.0	2.4	2.5	2.8
26	3.7	4.5	5.8	6.4	7.7	7.1	6.4	5.9	4.6	4.6	4.0	4.3	4.2	3.4	3.6	3.9	3.2	3.0	2.0	1.9	1.3	0.5	1.6	1.8
27	2.9	1.6	2.1	2.6	1.1	1.0	1.1	2.2	1.8	2.2	2.6	3.6	3.9	5.0	4.9	4.7	6.1	6.9	7.4	7.8	6.5	4.9	5.2	5.0
28	4.9	3.8	4.1	3.0	2.6	1.9	2.4	2.6	1.7	1.0	0.8	0.9	0.9	1.4	2.6	2.7	1.9	1.3	1.6	0.5	0.2	1.1	1.9	2.0
29	2.8	1.9	1.8	2.3	1.5	0.9	1.1	1.6	1.6	1.6	2.0	2.6	2.9	2.6	3.0	2.7	3.2	3.4	2.2	3.2	3.3	2.3	1.9	2.0
30	1.9	2.0	1.7	1.5	1.4	1.1	1.1	1.1	1.1	1.0	0.9	0.8	0.6	0.5	0.2	0.0	0.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.4	0.4	1.5	1.5	0.7	0.9	1.1	1.4	1.4	1.0	0.7	1.3	2.2

TABLE 2

Average Wind Direction (degrees from North)
AEP Station ID 00010348-C-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
December 2022

Ryley Wind Direction Data (degrees, blowing from) - Month of December 2022																								
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	33	21	122	330	326	61	243	268	290	309	293	299	316	25	317	286	223	265	257	265	277	290	303	290
2	292	288	292	293	287	269	264	246	245	257	269	273	284	289	289	276	253	245	244	253	260	258	257	240
3	229	222	231	244	237	243	265	249	238	241	260	261	267	296	291	282	258	251	263	269	265	267	272	274
4	278	268	276	276	276	294	312	321	297	301	315	327	321	328	330	332	329	331	339	332	330	302	185	109
5	332	332	330	327	302	320	307	269	206	172	159	169	207	223	273	267	318	341	333	337	334	343	334	325
6	323	313	311	297	290	297	300	315	289	270	227	221	179	170	154	171	148	149	140	144	150	157	160	160
7	160	163	174	175	177	177	187	194	221	234	237	235	241	243	233	237	227	230	229	232	225	211	215	231
8	207	154	176	176	156	168	141	138	130	135	142	149	147	159	155	152	148	145	160	191	201	221	214	217
9	214	199	206	195	183	213	242	261	252	249	275	303	307	280	237	322	260	234	238	235	243	232	221	227
10	197	180	168	150	132	128	130	131	132	128	134	138	129	121	116	121	120	119	119	119	115	86	97	78
11	83	92	71	123	334	329	328	324	309	305	311	312	321	321	324	326	326	320	308	311	323	312	294	310
12	327	328	330	330	331	332	334	337	312	303	290	298	289	289	282	242	215	180	179	184	177	159	158	155
13	143	145	161	165	147	157	158	155	154	161	160	170	174	177	160	166	169	187	190	182	179	249	316	315
14	293	319	322	324	322	328	333	334	331	328	322	323	329	335	339	334	175	273	282	312	267	303	280	259
15	245	206	222	131	165	226	251	221	295	284	283	276	276	268	274	268	265	253	256	260	272	267	255	239
16	164	216	189	191	200	143	153	160	169	239	273	284	282	300	225	28	84	105	86	103	110	113	39	70
17	338	332	331	328	332	329	328	328	329	328	324	323	322	320	319	318	319	326	65	41	47	36	37	41
18	41	47	44	41	288	312	307	307	225	53	43	43	41	43	46	30	33	308	325	312	13	27	38	42
19	46	48	61	52	48	48	50	98	88	258	330	334	337	332	335	331	318	319	319	317	318	316	314	304
20	297	315	305	304	293	292	289	297	280	286	292	282	290	285	308	334	326	320	302	303	304	296	289	292
21	286	283	298	299	303	310	309	312	307	305	295	309	317	316	320	322	320	314	318	321	321	320	317	318
22	323	315	319	309	305	297	295	286	284	288	263	184	129	136	136	124	133	128	94	106	103	112	118	122
23	107	111	115	120	106	105	108	104	103	113	113	108	92	94	92	95	92	94	95	94	92	100	105	100
24	104	102	109	110	109	123	116	136	118	119	113	112	108	110	100	98	88	91	97	105	108	117	133	312
25	318	323	332	332	325	309	304	306	317	328	316	311	312	328	321	138	18	22	47	116	149	149	124	133
26	123	104	98	100	107	112	108	106	114	114	110	110	119	95	106	94	63	70	68	317	306	260	242	201
27	243	268	193	241	109	110	72	87	112	101	68	69	75	64	74	76	60	64	65	61	58	77	68	67
28	64	53	49	52	49	29	23	21	37	41	299	320	294	288	306	317	160	84	222	93	276	266	259	252
29	247	275	286	269	300	250	175	160	171	166	169	164	169	166	177	178	158	156	160	159	160	161	155	163
30	183	165	149	143	149	139	127	127	121	119	131	129	108	99	107	180	67	81	125	106	155	273	199	157
31	270	298	258	207	192	193	257	260	122	178	184	261	166	137	197	201	108	118	154	150	230	195	215	270

TABLE 3

Wind Frequency Distribution
AEP Station ID 00010348-C-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
December 2022

Frequency Distribution Report: Ryley, Alberta - December 2022									
Direction	Angle	Wind Speed (m/s) and Number of Occurences (minutes)						%	Total Occurrences by Direction
		< 0.5	0.5 to < 1.5	1.5 to < 2.5	2.5 to < 3.5	3.5 to < 4.5	>= 4.5		
North	> 337.5 - 22.5	145	267	674	662	344	719	6.3%	2811
Northeast	> 22.5 - 67.5	162	280	515	985	683	584	7.2%	3209
East	> 67.5 - 112.5	184	356	442	548	582	2325	9.9%	4437
Southeast	> 112.5 - 157.5	229	933	953	1370	1419	1472	14.3%	6376
South	> 157.5 - 202.5	353	561	1497	1141	530	882	11.1%	4964
Southwest	> 202.5 - 247.5	179	282	418	419	651	1592	7.9%	3541
West	> 247.5 - 292.5	359	714	1351	1547	1108	1638	15.0%	6717
Northwest	> 292.5 - 337.5	281	696	1563	1914	2001	6130	28.2%	12585
Missing/Invalid Hours								0.0%	0
Total Occurences by Speed		1892	4089	7413	8586	7318	15342		**44640**
Occurences by %		4.2%	9.2%	16.6%	19.2%	16.4%	34.4%	**100.00%**	

TABLE 4

Particulate Matter PM_{10} Results
AEP Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
December 2022

Filter ID	C9697014	C9697013	C9697015
Test ID	814	815	816
Sample Start Date/Time	22/12/01 00:00:00	22/12/13 00:00:00	22/12/25 00:00:00
Sample End Date/Time	22/12/02 00:00:00	22/12/14 00:00:00	22/12/26 00:00:00
Sampling Time (hours)	24	24	24
Flow Rate (l/min)	16.7	16.7	16.7
Volume (m^3)	26.4	25.4	25.6
PM_{10} Mass (mg)	0.045	0.458	0.175
PM_{10} Concentration (ug/m^3)	1.705	18.031	6.836
Sampler Name	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905

TABLE 5

VOC and TNMOC Analytical Results
AEP Station ID 00010348-I-1
Clean Harbors Canada, Inc.
Monthly Ambient Air Monitoring Report
December 2022

		Date	1-Dec-22	13-Dec-22	25-Dec-22
		Sample ID	814	815	816
Parameter	**Units**	**AAAQO[1]**			
Total Non-Methane Organic Carbon	ppmv	-	< 0.07	< 0.08	< 0.07
1,2,3-Trimethylbenzene	ppbv	-	< 0.07	< 0.08	< 0.05
1,2,4-Trimethylbenzene	ppbv	-	0.21	< 0.05	< 0.03
1,3,5-Trimethylbenzene	ppbv	-	< 0.04	< 0.05	< 0.03
1-Butene/Isobutylene	ppbv	-	1.10	< 0.09	< 0.06
1-Hexene/2-Methyl-1-pentene	ppbv	-	< 0.10	< 0.11	< 0.07
1-Pentene	ppbv	-	0.15	< 0.05	< 0.03
2,2,4-Trimethylpentane	ppbv	-	0.14	< 0.03	< 0.02
2,2-Dimethylbutane	ppbv	-	< 0.03	< 0.03	< 0.02
2,3,4-Trimethylpentane	ppbv	-	< 0.03	< 0.03	< 0.02
2,3-Dimethylbutane	ppbv	-	< 0.13	< 0.14	< 0.09
2,3-Dimethylpentane	ppbv	-	0.10	< 0.03	< 0.02
2,4-Dimethylpentane	ppbv	-	< 0.04	< 0.05	< 0.03
2-Methylheptane	ppbv	-	< 0.03	< 0.03	< 0.02
2-Methylhexane	ppbv	-	0.14	< 0.05	0.06
2-Methylpentane	ppbv	-	0.25	< 0.03	0.08
3-Methylheptane	ppbv	-	< 0.04	< 0.05	< 0.03
3-Methylhexane	ppbv	-	0.23	0.04	0.06
3-Methylpentane	ppbv	-	0.28	0.12	0.09
Benzene	ppbv	-	0.29	0.14	0.09
cis-2-Butene	ppbv	-	0.17	< 0.05	< 0.03
cis-2-Pentene	ppbv	-	< 0.03	< 0.03	< 0.02
Cyclohexane	ppbv	-	< 0.06	< 0.06	0.04
Cyclopentane	ppbv	-	0.21	< 0.03	< 0.02
Ethylbenzene	ppbv	-	0.24	< 0.05	< 0.03
Isobutane	ppbv	-	2.89	1.11	1.17
Isopentane	ppbv	-	1.32	0.56	1.24
Isoprene	ppbv	-	0.14	< 0.03	< 0.02
Isopropylbenzene	ppbv	-	0.09	< 0.06	< 0.04
m,p-Xylene	ppbv	161	0.37	0.06	0.04
m-Diethylbenzene	ppbv	-	< 0.03	< 0.03	< 0.02
m-Ethyltoluene	ppbv	-	0.13	< 0.05	< 0.03
Methylcyclohexane	ppbv	-	0.21	0.04	0.06
Methylcyclopentane	ppbv	-	0.31	0.13	0.08
n-Butane	ppbv	-	4.14	1.53	3.09
n-Decane	ppbv	-	< 0.09	< 0.09	< 0.06
n-Dodecane	ppbv	-	< 0.4	< 0.5	< 0.3
n-Heptane	ppbv	-	0.30	< 0.06	0.05
n-Hexane	ppbv	1990	0.65	0.54	0.23
n-Nonane	ppbv	-	0.16	< 0.06	< 0.04
n-Octane	ppbv	-	0.19	< 0.03	0.02
n-Pentane	ppbv	-	1.32	0.57	0.58
n-Propylbenzene	ppbv	-	0.11	< 0.09	< 0.06
n-Undecane	ppbv	-	< 0.7	< 0.8	< 0.5
o-Ethyltoluene	ppbv	-	0.12	< 0.03	0.08
o-Xylene	ppbv	161	0.19	< 0.05	< 0.03
p-Diethylbenzene	ppbv	-	< 0.03	< 0.03	< 0.02
p-Ethyltoluene	ppbv	-	< 0.06	< 0.06	< 0.04
Styrene	ppbv	-	0.29	< 0.06	< 0.04
Toluene	ppbv	106	0.44	0.14	0.11
trans-2-Butene	ppbv	-	0.25	< 0.05	< 0.03
trans-2-Pentene	ppbv	-	< 0.03	< 0.03	< 0.02
Total VOCs [2]	ppbv	-	19.070	8.210	9.040

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.

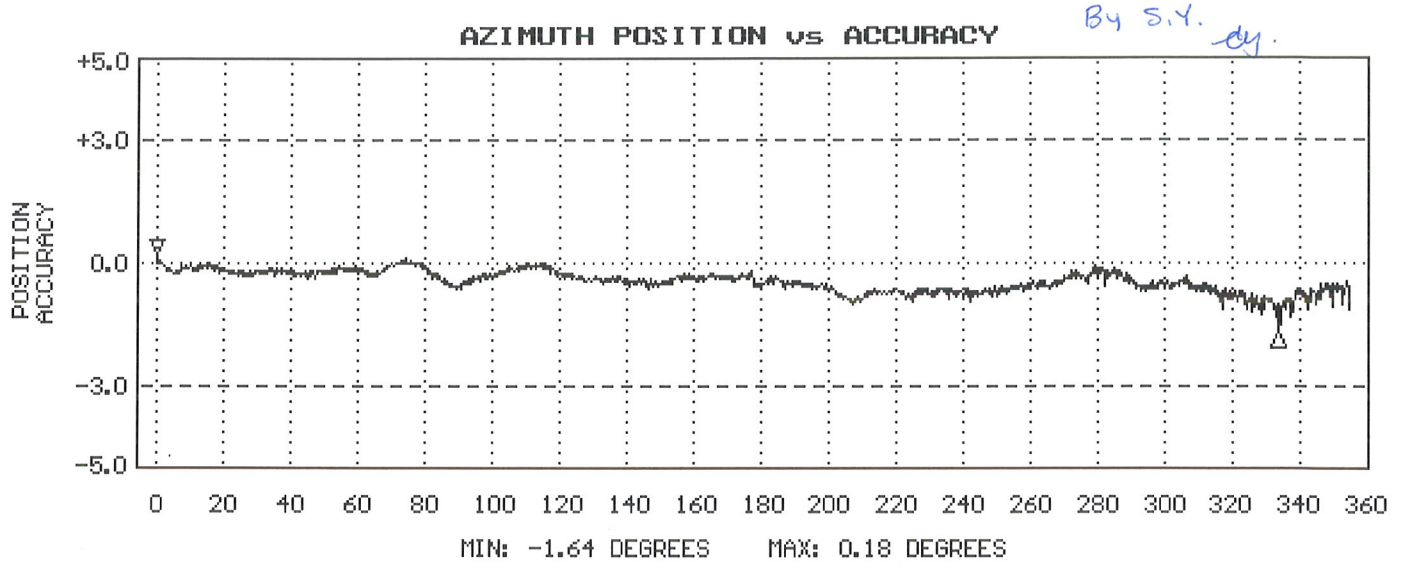
Appendix A
Meteorological Station Calibration Report

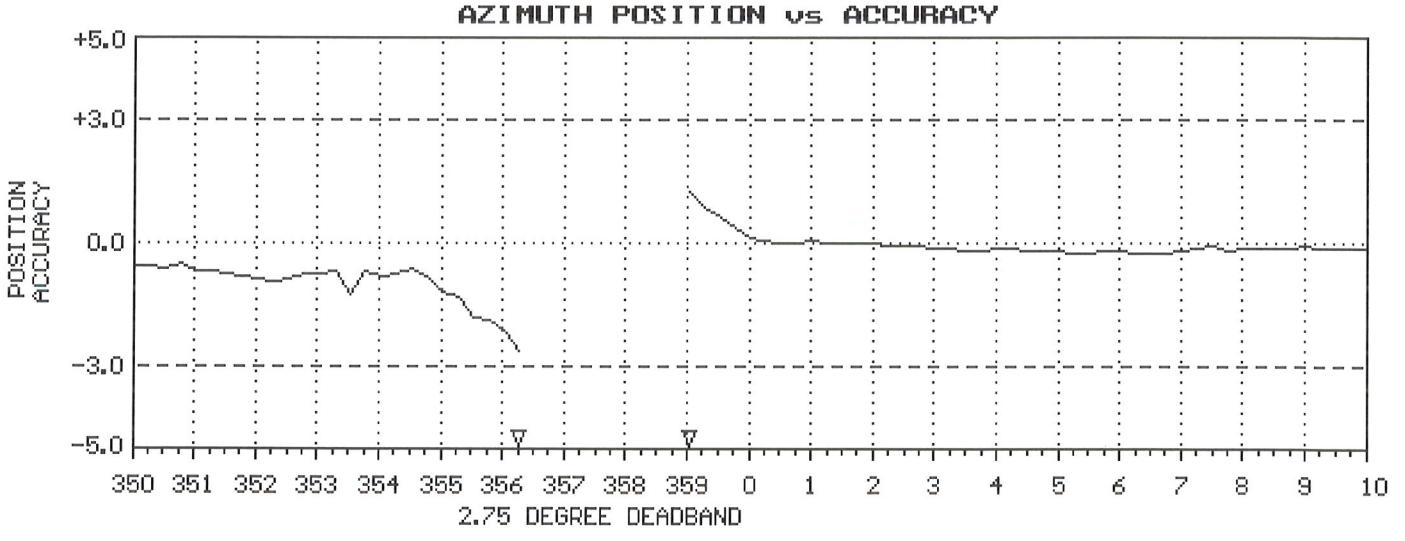
R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

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

Insp. By

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





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

GHD Wind Calibration Form

Site and Instrument Information

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

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

Calibration Information

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

Comments

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

Calibration Adjustment Required?: No

Conversion Factors

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

Appendix B
Sampling Field Sheets

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 814	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T. Webb	
Sampler Name:	Test 814	
Sample Date:	22/12/01	yy/mm/dd
Shipping Date to Laboratory:	22/12/02	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32210	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	22/11/30	22/12/02
Ambient Temperature °C (inside shed):	-3.2	-6.3
Barometric Pressure (mm Hg):	700	704
Canister Pressure Gauge Reading (- Inches Hg):	(-)30	(-)2
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:	Windy, 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:	C9697014			
PO Number:	230061			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 814			
Sample Date:	22/12/01		yy/mm/dd	
Shipping Date to Laboratory:	22/12/02			
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	22/12/01			
Sampling Start Time:	00:00			
Current Instrument Date:	22/11/30			
Current Instrument Time:	15:36			
Ambient Temperature °C:	-18.7			
Barometric Pressure (mm Hg):	700			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	windy, partly cloudy			
Weather Conditions set up:	windy, cold, snow			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	22/12/02			
Sampling End Time:	00:00			
Current Instrument Date:	22/12/02			
Current Instrument Time:	14:48			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	26.4			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	-19.6			
Barometric Pressure (mm Hg) :	704			
Sample Filter Temperature °C :	-16.6			
Flow Rate Coefficient of Variation (%CV):	0.1			
Weather Conditions :	mostly cloudy, cold			
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:	None			
Comments:				

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 815	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T. Webb	
Sampler Name:	Test 815	
Sample Date:	22/12/13	yy/mm/dd
Shipping Date to Laboratory:	22/12/14	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	28908	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	22/12/13	22/12/14
Ambient Temperature °C (inside shed):	5.1	11.0
Barometric Pressure (mm Hg):	704	706
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:	Windy, 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:	C9697013			
PO Number:	230061			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 815			
Sample Date:	22/12/13		yy/mm/dd	
Shipping Date to Laboratory:	22/12/14			
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	22/12/13			
Sampling Start Time:	00:00			
Current Instrument Date:	22/12/12			
Current Instrument Time:	13:38			
Ambient Temperature °C:	-14.8			
Barometric Pressure (mm Hg):	704			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	partly cloudy			
Weather Conditions set up:	windy, cold, snow			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	22/12/14			
Sampling End Time:	00:00			
Current Instrument Date:	22/12/14			
Current Instrument Time:	19:40			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	25.4			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	-3.0			
Barometric Pressure (mm Hg) :	706			
Sample Filter Temperature °C :	-1.9			
Flow Rate Coefficient of Variation (%CV):	0			
Weather Conditions :	mostly cloudy, windy			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	Yes		(Yes/No)	
Filter ID:	C9698036			
Filter Batch Number:				
Current Instrument Date:	22/12/14			
Current Instrument Time:	7:35			
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:	None			
Comments:				

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 816	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T. Webb	
Sampler Name:	Test 816	
Sample Date:	22/12/25	yy/mm/dd
Shipping Date to Laboratory:	23/01/03	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	32185	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	22/12/22	23/01/03
Ambient Temperature °C (inside shed):	-3.7	3.1
Barometric Pressure (mm Hg):	718	692
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.8	(-)2
Sample Time:	24	24

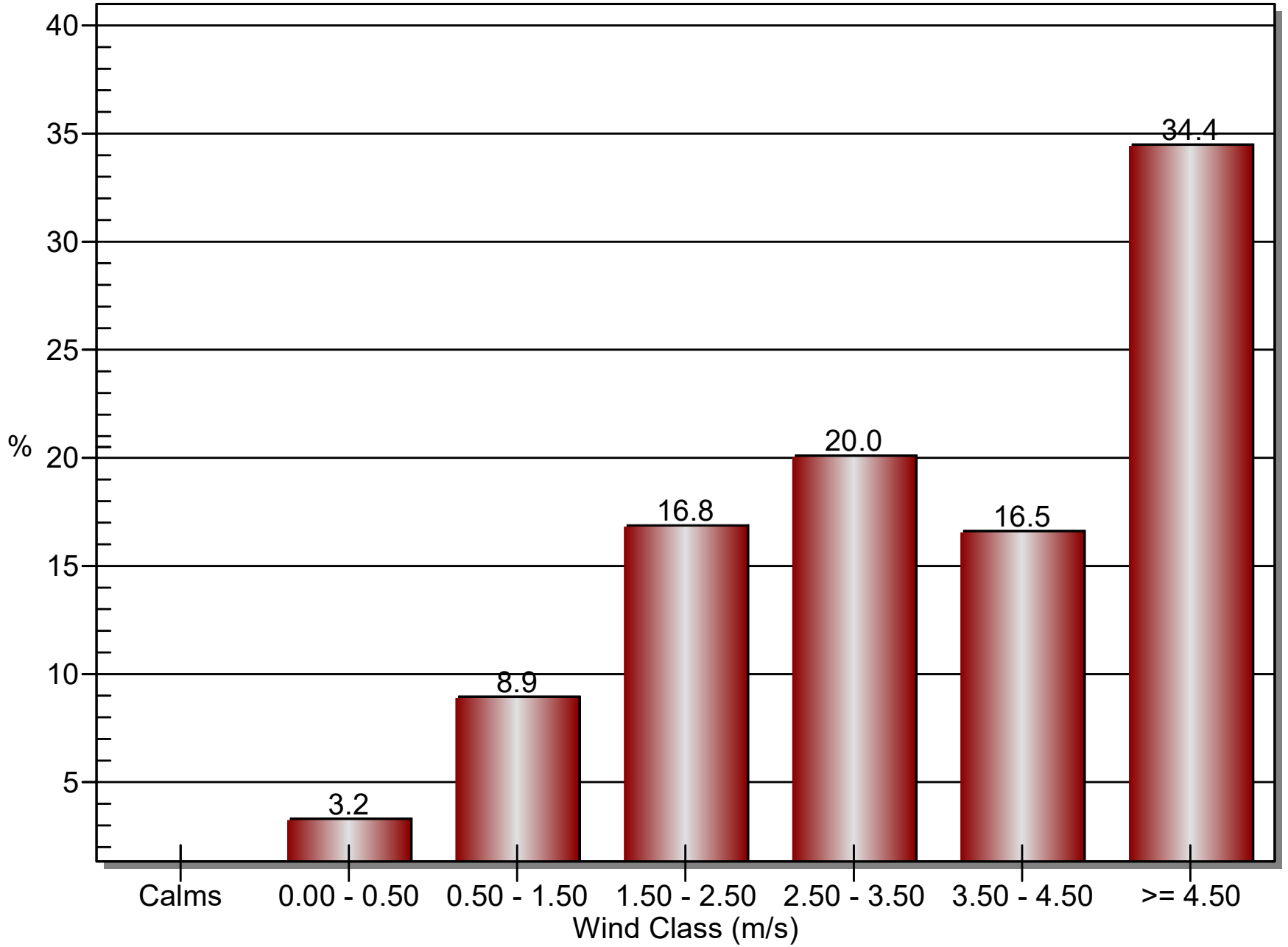
C) OBSERVATIONS

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:	Windy, 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:	C9697015			
PO Number:	230061			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 816			
Sample Date:	22/12/22		yy/mm/dd	
Shipping Date to Laboratory:	23/01/03			
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	22/12/25			
Sampling Start Time:	00:00			
Current Instrument Date:	22/12/22			
Current Instrument Time:	13:28			
Ambient Temperature °C:	-27.0			
Barometric Pressure (mm Hg):	718			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Cloudy			
Weather Conditions set up:	windy, cold, snow			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	22/12/26			
Sampling End Time:	00:00			
Current Instrument Date:	23/01/03			
Current Instrument Time:	8:03			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	25.6			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	-14.7			
Barometric Pressure (mm Hg) :	692			
Sample Filter Temperature °C :	-12.7			
Flow Rate Coefficient of Variation (%CV):	0			
Weather Conditions :	mostly cloudy, windy			
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:	None			
Comments:				

Appendix C
Wind Class Frequency Distribution Graphs and Wind Rose

Wind Class Frequency Distribution

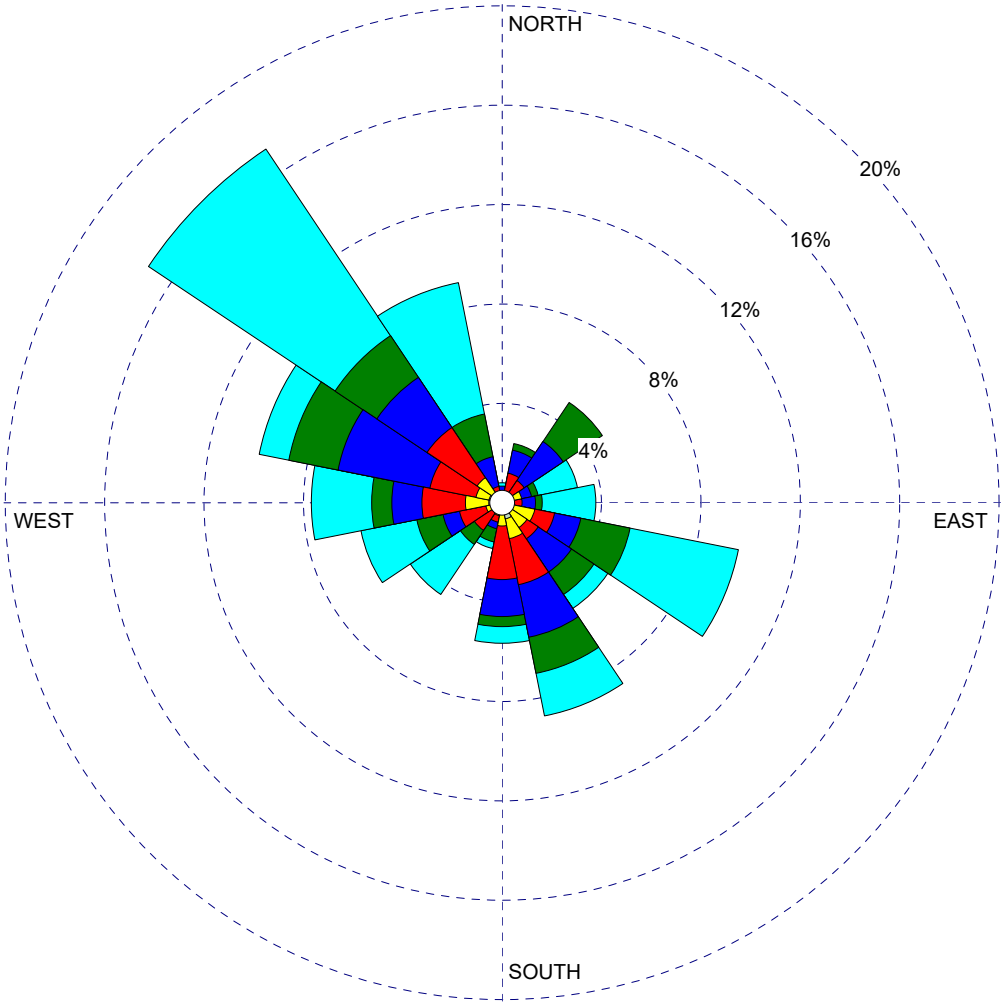


WIND ROSE PLOT:

Wind Rose Plot - Ryley, AB
December 2022

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(m/s)

- >= 4.50
- 3.50 - 4.50
- 2.50 - 3.50
- 1.50 - 2.50
- 0.50 - 1.50
- 0.00 - 0.50

Calms: 0.00%

COMMENTS:	DATA PERIOD: **Start Date: 12/1/2022 - 00:00** **End Date: 12/31/2022 - 23:00**	COMPANY NAME: **Clean Harbors**	
		MODELER: **GHD**	GHD
	CALM WINDS: **0.00%**	TOTAL COUNT: **743 hrs.**	
	AVG. WIND SPEED: **3.85 m/s**	DATE: **1/9/2023**	PROJECT NO.: **11114644**

Appendix D
Chain of Custody Forms and Laboratory Analytical Reports

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: PM10 Test # 814 - Filter # C9697014

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM10 Filter

DATE SAMPLED: 01-Dec-22 0:00

DATE RECEIVED: 06-Dec-22

REPORT CREATED: 14-Dec-22

REPORT NUMBER: 22120024

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120024-002	Particulate Weight		0.045	mg	0.004	AC-029	07-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 14, 2022

Inquiries: (780) 632 8455 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 # 814	32210	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22120024 **REPORT CREATED:** 14-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120024-001	Total Non-Methane Organic Carbon	K, T, U	< 0.07	ppmv	0.07	NA-028	08-Dec-22
22120024-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Dec-22
22120024-001	1,2,4-Trimethylbenzene	I	0.21	ppbv	0.04	AC-058	07-Dec-22
22120024-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Dec-22
22120024-001	1-Butene/Isobutylene		1.10	ppbv	0.09	AC-058	07-Dec-22
22120024-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	07-Dec-22
22120024-001	1-Pentene		0.15	ppbv	0.04	AC-058	07-Dec-22
22120024-001	2,2,4-Trimethylpentane		0.14	ppbv	0.03	AC-058	07-Dec-22
22120024-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22
22120024-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22
22120024-001	2,3-Dimethylbutane	K, T, U	< 0.13	ppbv	0.13	AC-058	07-Dec-22
22120024-001	2,3-Dimethylpentane	I	0.10	ppbv	0.03	AC-058	07-Dec-22
22120024-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Dec-22
22120024-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22
22120024-001	2-Methylhexane	I	0.14	ppbv	0.04	AC-058	07-Dec-22
22120024-001	2-Methylpentane		0.25	ppbv	0.03	AC-058	07-Dec-22
22120024-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Dec-22
22120024-001	3-Methylhexane		0.23	ppbv	0.03	AC-058	07-Dec-22
22120024-001	3-Methylpentane		0.28	ppbv	0.03	AC-058	07-Dec-22
22120024-001	Benzene		0.29	ppbv	0.04	AC-058	07-Dec-22
22120024-001	cis-2-Butene		0.17	ppbv	0.04	AC-058	07-Dec-22
22120024-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22
22120024-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Dec-22
22120024-001	Cyclopentane		0.21	ppbv	0.03	AC-058	07-Dec-22
22120024-001	Ethylbenzene	I	0.24	ppbv	0.04	AC-058	07-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 14, 2022

Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 814	32210	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22120024 **REPORT CREATED:** 14-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120024-001	Isobutane		2.89	ppbv	0.04	AC-058	07-Dec-22
22120024-001	Isopentane		1.32	ppbv	0.06	AC-058	07-Dec-22
22120024-001	Isoprene		0.14	ppbv	0.03	AC-058	07-Dec-22
22120024-001	Isopropylbenzene	I	0.09	ppbv	0.06	AC-058	07-Dec-22
22120024-001	m,p-Xylene	I	0.37	ppbv	0.06	AC-058	07-Dec-22
22120024-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22
22120024-001	m-Ethyltoluene	I	0.13	ppbv	0.04	AC-058	07-Dec-22
22120024-001	Methylcyclohexane		0.21	ppbv	0.03	AC-058	07-Dec-22
22120024-001	Methylcyclopentane		0.31	ppbv	0.07	AC-058	07-Dec-22
22120024-001	n-Butane		4.14	ppbv	0.03	AC-058	07-Dec-22
22120024-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Dec-22
22120024-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Dec-22
22120024-001	n-Heptane		0.30	ppbv	0.06	AC-058	07-Dec-22
22120024-001	n-Hexane		0.65	ppbv	0.04	AC-058	07-Dec-22
22120024-001	n-Octane		0.19	ppbv	0.03	AC-058	07-Dec-22
22120024-001	n-Pentane		1.32	ppbv	0.06	AC-058	07-Dec-22
22120024-001	n-Propylbenzene	I	0.11	ppbv	0.09	AC-058	07-Dec-22
22120024-001	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	07-Dec-22
22120024-001	n-Nonane		0.16	ppbv	0.06	AC-058	07-Dec-22
22120024-001	o-Ethyltoluene	I	0.12	ppbv	0.03	AC-058	07-Dec-22
22120024-001	o-Xylene	I	0.19	ppbv	0.04	AC-058	07-Dec-22
22120024-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22
22120024-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Dec-22
22120024-001	Styrene		0.29	ppbv	0.06	AC-058	07-Dec-22
22120024-001	Toluene		0.44	ppbv	0.04	AC-058	07-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 14, 2022

Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 814	32210	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22120024 **REPORT CREATED:** 14-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120024-001	trans-2-Butene		0.25	ppbv	0.04	AC-058	07-Dec-22
22120024-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 14, 2022

Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
22120024	01	14-Dec-22	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

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Qualifiers

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

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Order Comments

22120024

Test 814. Send results to Stan Yuha. Send invoice to Stephanie Dennis.

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(780) 632-8211

Sample Comments

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Result Comments

Note:

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: PM10 Qrtr 4 Field Blank - C9698036
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: PM10 Filter
DATE SAMPLED: 14-Dec-22 7:35
DATE RECEIVED: 15-Dec-22
REPORT CREATED: 16-Jan-23
REPORT NUMBER: 22120140
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120140-003	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	20-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 16, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
PM10 Test # 815 - Filter # C9697013		Air Filter	13-Dec-22 0:00

DESCRIPTION: PM10 Filter

REPORT NUMBER: 22120140 **REPORT CREATED:** 16-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120140-002	Particulate Weight		0.458	mg	0.004	AC-029	20-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 16, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 815	28908	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22120140 **REPORT CREATED:** 16-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120140-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	15-Dec-22
22120140-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	17-Dec-22
22120140-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	17-Dec-22
22120140-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	17-Dec-22
22120140-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	17-Dec-22
22120140-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	3-Methylhexane	I	0.04	ppbv	0.03	AC-058	17-Dec-22
22120140-001	3-Methylpentane	I	0.12	ppbv	0.03	AC-058	17-Dec-22
22120140-001	Benzene	I	0.14	ppbv	0.05	AC-058	17-Dec-22
22120140-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 16, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 815	28908	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22120140 **REPORT CREATED:** 16-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120140-001	Isobutane		1.11	ppbv	0.05	AC-058	17-Dec-22
22120140-001	Isopentane		0.56	ppbv	0.06	AC-058	17-Dec-22
22120140-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	m,p-Xylene	I	0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	Methylcyclohexane	I	0.04	ppbv	0.03	AC-058	17-Dec-22
22120140-001	Methylcyclopentane	I	0.13	ppbv	0.08	AC-058	17-Dec-22
22120140-001	n-Butane		1.53	ppbv	0.03	AC-058	17-Dec-22
22120140-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	17-Dec-22
22120140-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	17-Dec-22
22120140-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	n-Hexane		0.54	ppbv	0.05	AC-058	17-Dec-22
22120140-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	n-Pentane		0.57	ppbv	0.06	AC-058	17-Dec-22
22120140-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	17-Dec-22
22120140-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	17-Dec-22
22120140-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22
22120140-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	17-Dec-22
22120140-001	Toluene	I	0.14	ppbv	0.05	AC-058	17-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 16, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 815	28908	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22120140 **REPORT CREATED:** 16-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120140-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	17-Dec-22
22120140-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	17-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 16, 2023

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

Revision History

Order ID	Ver	Date	Reason
22120140	01	16-Jan-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

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

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

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Qualifiers

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

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Order Comments

22120140

Test 815. Send results to Stan Yuha.

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Canada T9C 1T4
(780) 632-8211

Sample Comments

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Result Comments

Note:

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

INVOICE: 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: PM10 Test # 816 - Filter C9697015

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM10 Filter

DATE SAMPLED: 25-Dec-22 0:00

DATE RECEIVED: 04-Jan-23

REPORT CREATED: 12-Jan-23

REPORT NUMBER: 23010012

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010012-002	Particulate Weight		0.175	mg	0.004	AC-029	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 12, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test # 816	32185	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23010012 **REPORT CREATED:** 12-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010012-001	Total Non-Methane Organic Carbon	K, T, U	< 0.07	ppmv	0.07	NA-028	04-Jan-23
23010012-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23
23010012-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010012-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jan-23
23010012-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jan-23
23010012-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	2-Methylhexane	I	0.06	ppbv	0.03	AC-058	05-Jan-23
23010012-001	2-Methylpentane	I	0.08	ppbv	0.02	AC-058	05-Jan-23
23010012-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	3-Methylhexane	I	0.06	ppbv	0.02	AC-058	05-Jan-23
23010012-001	3-Methylpentane	I	0.09	ppbv	0.02	AC-058	05-Jan-23
23010012-001	Benzene	I	0.09	ppbv	0.03	AC-058	05-Jan-23
23010012-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	Cyclohexane	I	0.04	ppbv	0.04	AC-058	05-Jan-23
23010012-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

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

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 # 816	32185	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23010012 **REPORT CREATED:** 12-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010012-001	Isobutane		1.17	ppbv	0.03	AC-058	05-Jan-23
23010012-001	Isopentane		1.24	ppbv	0.04	AC-058	05-Jan-23
23010012-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010012-001	m,p-Xylene	I	0.04	ppbv	0.04	AC-058	05-Jan-23
23010012-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	05-Jan-23
23010012-001	Methylcyclopentane	I	0.08	ppbv	0.05	AC-058	05-Jan-23
23010012-001	n-Butane		3.09	ppbv	0.02	AC-058	05-Jan-23
23010012-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010012-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010012-001	n-Heptane	I	0.05	ppbv	0.04	AC-058	05-Jan-23
23010012-001	n-Hexane		0.23	ppbv	0.03	AC-058	05-Jan-23
23010012-001	n-Octane	I	0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	n-Pentane		0.58	ppbv	0.04	AC-058	05-Jan-23
23010012-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010012-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
23010012-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010012-001	o-Ethyltoluene	I	0.08	ppbv	0.02	AC-058	05-Jan-23
23010012-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010012-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010012-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010012-001	Toluene	I	0.11	ppbv	0.03	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

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

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 # 816	32185	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Canister

REPORT NUMBER: 23010012 **REPORT CREATED:** 12-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010012-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010012-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 12, 2023

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

Revision History

Order ID	Ver	Date	Reason
23010012	01	12-Jan-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

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

23010012

Send results to Stan Yuha. Send invoice to Stephanie Dennis. Test # 816

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 22120024-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 814

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 814
PO #:	0000230061

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

Date Received – Lab Use Only

RECEIVED
DEC 06 2022

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: 814	Canister	32210	01/12/22	00:00	VOC PAMS & TNMOC
				02/12/22	00:00	
	PM10 Test Number: 814	PM10 filter	C9697014	01/12/22	00:00	FLT Particulate Weight
				02/12/22	00:00	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 22120024-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test # 814 - Filter # C9697014

Filter Shipping Record

RECEIVED
DEC 0 [illegible]

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

Date: Sept 16 22

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9697014

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: 32210

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 2 3 2022

Evacuated: _____ Recertified: OCT 1 9 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 814

Sampled By: T. Webb, T. Peschel

Starting Vacuum:	End Vacuum:
-27.1 "Hg	-2 "Hg/psig

KG -4

Sample ID: 22120024-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 814

{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: 22120024-002 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: PM10 Test # 814 - Filter # C9697014

Sample ID: 22120140-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 815

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 815
PO #: 0000230061

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

Date Received – Lab Use Only

RECEIVED
DEC 15 2022

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: 815	Canister	28908	13/12/22	00:00	VOC PAMS & TNMOC
				14/12/22	00:00	
2	PM10 Test Number: 815	PM10 filter	C9697013	13/12/22	00:00	FLT Particulate Weight
				14/12/22	00:00	
3	PM10 Qrtr 4 Field Blank	PM10 Filter	C9698036	14/12/22	07:35	FLT Particulate Weight
				14/12/22		

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

Sample ID: 22120140-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test # 815 - Filter # C9697013

RECEIVED
DEC 15 2022

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: Sept 16-2022

Project: Clean Harbors

Prepared by: S Meleshko

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9697013

Test 815

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

Sample ID: 22120140-003 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Qrtr 4 Field Blank - C9698036

RECEIVED
DEC 15 2022

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: July 8 - 2022

Project: Clean Harbors

Prepared by: S Jelenka

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9698036

Qtr 4 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: 28908

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: KD4 on: SEP 2 8 2022

Evacuated: SEP 2 8 2022 Recertified: NOV 0 7 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 815

Sampled By: T. Webb

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

Sample ID: 22120140-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID VOCs and TNMOC Test # 815

Sample ID: 22120140-001 **Priority:** Normal

This "Chain of Custody" nditions.

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 815

{00004084:2}

TERMS AND CONDITIONS

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

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

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

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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.

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

Sample ID: 23010012-001 **Priority:** Normal

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 # 816

Client	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 816	
Email: Webb.Todd@cleanharbors.com, Yuha.Stan@cleanharbors.com	PO #: 0000230061	

Special Instructions/Comments

JMP

Date Received – Lab Use Only

RECEIVED
JAN 04 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: 816	Canister	32185	25/12/22	00:00	VOC PAMS & TNMOC
				26/12/22	00:00	
2	PM10 Test Number: 816	PM10 filter	C9697015	25/12/22	00:00	FLT Particulate Weight
				26/12/22	00:00	

Client Authorization: _____ (Signature)

Laboratory Personnel: _____ (Signature)

{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 items 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.

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

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

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

Sample ID: 23010012-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 816

y InnoTech Alberta to the Client within thirty (30)
n or set-off.
r this Agreement, such unpaid amount shall bear
percent (or 12.6825% per annum) with interest on

warranties or conditions, either expressed or implied,
he quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

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Sample ID: 23010012-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test # 816

Filter Shipping Record

RECEIVED
JAN 04 2023

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

Date: Sept 16/22

Project: Clean Harbors

Prepared by: SM Jelenska

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9697015

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: 32185

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 15 2022

Evacuated: SEP 15 2022 Recertified: NOV 07 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 816

Sampled By: T-Webb

0psi JW

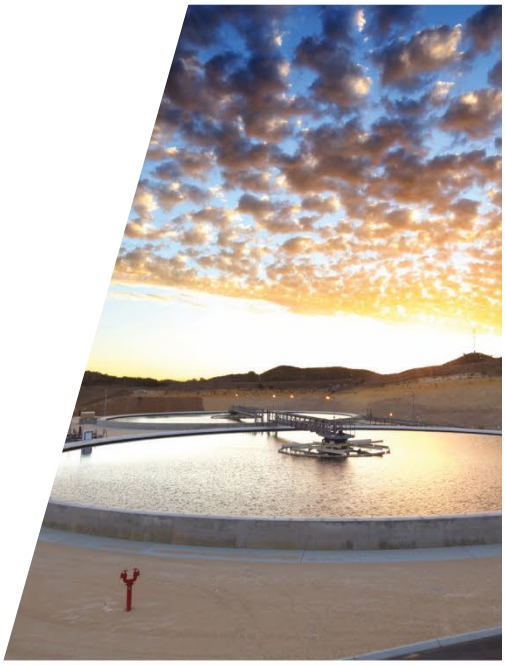
Starting Vacuum:	End Vacuum:
-27.1 "Hg	-2 "Hg/ psig

Sample ID: 23010012-001 **Priority:** Normal

Customer ID: Clean Harbours

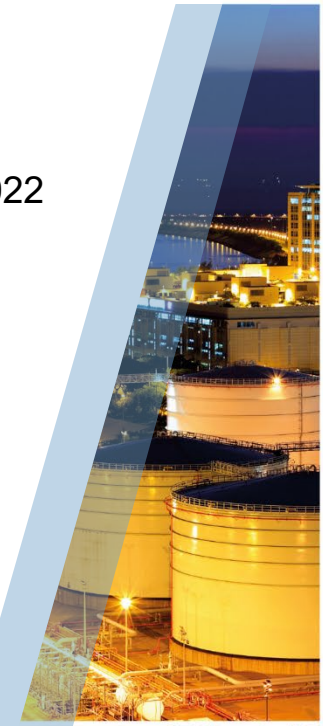
Cust Samp ID: VOCs and TNMOC Test # 816

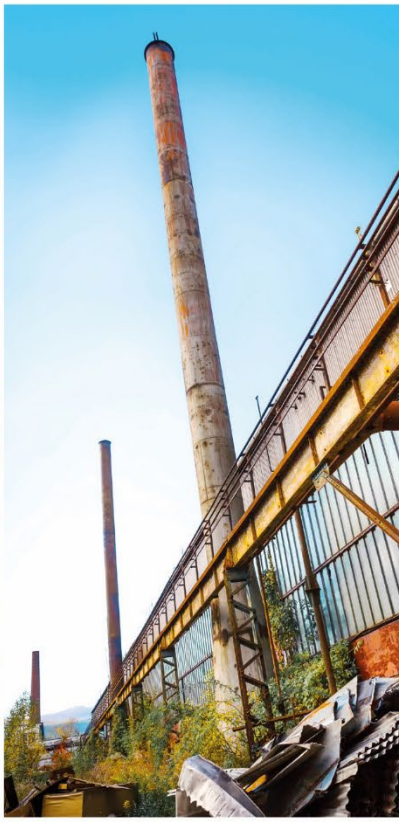
Appendix E
December Quarterly Audit



Quarterly Audit Partisol FRM Model 2000

Clean Harbors
50114 Range Rd. 173
Ryley, Alberta T0B 4A0
Quarterly Audit Date: December 9, 2022





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 December 9, 2022. The Quarterly Audit was conducted on the Partisol FRM 2000 Particulate Matter less than 10 microns (PM_{10}) Sampler (Partisol Sampler), located on the roof of the Ryley Lift Station (AEP Station ID 00010348-I-1), which is southeast of the Facility. The coordinates of the lift station are 53.297961, -112.416076.

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 53.297961, -112.416076.
- 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)	1.40	0.8	0.6	±2°C	Pass
Barometric Pressure (mmHg)	693.0	694.4	1.4	±10 mmHg	Pass
Filter Temperature (°C)	2.0	1.6	0.4	±2°C	Pass
Flow (L/min	16.7	16.1	0.6	±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 11 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 0.5 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	12/9/2022	Weather Cond.:	Partly Cloudy, Windy/17.52°C
Owner	Clean Harbors	Start Time:	1:00:00 PM
Station Name	Ryley Lift Station	End Time:	1:20:00 PM
Parameter	PM_{10}	Performed By:	S. Davey and E. Strytveen

Partisol FRM Model 2000 Identification		**Sampler Data**	
Make/Model:	R & P Partisol FRM 2000	Temperature:	1.4
Unit ID:	Ryley Lift Station	Pressure:	693 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	9565P	1551A Ex	477-1-FM
Serial Number:	FRM1218	9565P1324046	3520009	N36X
Calibration Date:	5/17/2016	1/31/2022	3/22/2022	12/8/2022

Audit Data

	Sampler Data	Reference Data	Difference	Pass/Fail	Units
Ambient Temperature (+/- 2 °C)	1.40	0.81	0.6	Pass	°C
Barometric Pressure (+/- 10 mmHg)	693.00	694.44	1.4	Pass	mmHg
Filter Temperature (+/- 2 °C)	2.00	1.58	0.4	Pass	°C
Flow (+/- 1.0 Litres/min)	16.70	16.10	0.6	Pass	Litres/min

Leak Check

Manual Check (-8.5 inHg)

Initial Pressure	Final Pressure	Pressure Drop	Pass/Fail	Units
-13.50	-13.00	-0.50	Pass	inHG

Automatic Check (-127 mmHg)

Leak check was performed in automatic mode, sampler indicated:	11 mmHg/min	Pass	mmHg/min

As Found/As Left	**Yes/No**	**As Found**	**As Left**	**Pass/Fail**
Did the ambient temperature require adjustment?	No	1.4	1.4	Pass
Did the barometric pressure require adjustment?	No	693	693	Pass
Did the filter temperature require adjustment?	No	2.0	2.0	Pass
Did the flow audit require adjustment?	No	16.7	16.7	Pass

Comments

Partisol sampler was moderately dirty, GHD cleaned the components of the sampling inlet, inside the cabinet, all filters and wiped down all seals.

Flow Equation

Set Point (lpm)	Actual Flow *(Qact)* (lpm)	Absolute Difference (lpm)	Pass/Fail (± 1 lpm)			
				Manometer *(DH)*	4.35 "H2O	
				Actual Temp *(Tact)*	273.96 °K	0.8°C
				Actual Pres *(Pact)*	0.926 bar	
16.7	16.1	0.6	Pass	Actual Pres *(Pact)*	27.34 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

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
4911-99 Street NW
Edmonton, AB T6E 4Y1
Office: 780-643-2680
Fax: 780-468-3050

Pine Environmental Services, Inc.

Instrument ID A03613
Description Dwyer DM-477-1-FM
Calibrated 12/8/2022 12:59:14PM

Manufacturer Dwyer
Model Number 477-1-FM
Serial Number/ Lot Number N36X
Location Edmonton
Department

State Certified
Status Pass
Temp °C 21
Humidity % 20

Calibration Specifications

Group # 1
Group Name Functionality
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Mateo Pipe

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
4911-99 Street NW
Edmonton, AB T6E 4Y1
Office: 780-643-2680
Fax: 780-468-3050

Pine Environmental Services, Inc.

Instrument ID 29815
Description TSI 9565P VelociCalc Display
Calibrated 12/8/2022 11:44:51AM

Manufacturer Tsi
Model Number 9565
Serial Number/ Lot Number 9565P1324046
Location Edmonton
Department

State Certified
Status Pass
Temp °C 20
Humidity % 21

Calibration Specifications

Group # 1
Group Name Datalogging
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Mateo Pipe

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 29815
Description TSI 9565P VelociCalc
Calibrated 1/31/2022

Manufacturer TSI
Model Number 9565P
Serial Number 9565P1324046
Location New Jersey
Temp 70

Classification
Status pass
Frequency Yearly
Department Lab
Humidity 20

Calibration Specifications

Group # 1
Group Name Barometric Pressure
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 2.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
30.000 / 30.230	inHg	30.230	inHg	30.310	30.230	0.00%	Pass

Group # 2
Group Name Differential Pressure
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 1.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
-4.00 / -4.00	inH2O	-4.00	inH2O	-4.02	-4.02	0.50%	Pass
4.00 / 4.00	inH2O	4.00	inH2O	4.04	4.04	1.00%	Pass
8.00 / 8.00	inH2O	8.00	inH2O	8.06	8.06	0.75%	Pass
12.00 / 12.00	inH2O	12.00	inH2O	12.08	12.08	0.67%	Pass

Test Instruments Used During the Calibration

Test Instrument ID	Description	Manufacturer	Serial Number	(As Of Cal Entry Date) Last Cal Date	Next Cal Date
DWYER 477AV-1	Dwyer 477AV-1 Digital Manometer	Dwyer	005PM2	10/25/2021	10/25/2022
OMEGA HX93AC/DP25-E	Omega HX93AC/DP25-E	Omega Engineering	1010368 035025 035026	11/25/2020	11/25/2022

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated David Galego

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services LLC
6580 Kestrel Road
Mississauga, ONTARIO L5T 2C8
Toll-free: (866) 688-0388

Pine Environmental Services, Inc.

Instrument ID 25097
Description TSI 964 Probe
Calibrated 12/8/2022 11:45:46AM

Manufacturer Tsi
Model Number 964
Serial Number/ Lot Number P09140053
Location Ontario
Department

State Certified
Status Pass
Temp °C 21
Humidity % 20

Calibration Specifications

Group # 1
Group Name Functional Test
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Next Cal Date / Last Cal Date/ Expiration Date Opened Date

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Mateo Pipe

All instruments are calibrated by Pine Environmental Services LLC according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services LLC of any defect within 24 hours of receipt of equipment
Please call 800-301-9663 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 25097
Description TSI 964 Probe
Calibrated 2/11/2022

Manufacturer TSI
Model Number 964
Serial Number P09140053
Location New Jersey
Temp 73

Classification
Status pass
Frequency Yearly
Department Lab
Humidity 20

Calibration Specifications

Group # 1
Group Name Relative Humidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
30.00 / 28.90	%	28.90	%	28.50	29.00	0.35%	Pass

Group # 2
Group Name Temperature
Stated Accy Plus / Minus
Range Acc % 0.0000
Reading Acc % 0.0000
Plus/Minus 1.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
70.00 / 70.80	°F	70.80	°F	70.80	70.80	0.00%	Pass

Group # 3
Group Name Velocity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	ft/min	0.00	ft/min	0.00	0.00	0.00%	Pass
40.00 / 40.00	ft/min	40.00	ft/min	41.00	41.00	2.50%	Pass
70.00 / 70.00	ft/min	70.00	ft/min	72.00	72.00	2.86%	Pass
100.00 / 100.00	ft/min	100.00	ft/min	102.00	102.00	2.00%	Pass
150.00 / 150.00	ft/min	150.00	ft/min	153.00	153.00	2.00%	Pass
325.00 / 325.00	ft/min	325.00	ft/min	323.00	323.00	-0.62%	Pass
700.00 / 700.00	ft/min	700.00	ft/min	690.00	690.00	-1.43%	Pass
1000.00 / 1000.00	ft/min	1000.00	ft/min	970.00	970.00	-3.00%	Pass
1500.00 / 1500.00	ft/min	1500.00	ft/min	1,470.00	1,470.00	-2.00%	Pass
2000.00 / 2000.00	ft/min	2000.00	ft/min	1,940.00	1,940.00	-3.00%	Pass
5000.00 / 5000.00	ft/min	5000.00	ft/min	4,970.00	4,970.00	-0.60%	Pass
8000.00 / 8000.00	ft/min	8000.00	ft/min	7,820.00	7,820.00	-2.25%	Pass

INSTRUMENT CALIBRATION REPORT

Advanced Labs, Inc.

Pine Environmental Services, Inc

Instrument ID 25097
Description TSI 964 Probe
Calibrated 2/11/2022

Test Instruments Used During the Calibration

Test Instrument ID	Description	Manufacturer	Serial Number	(As Of Cal Entry Date) Last Cal Date	Next Cal Date
MICHELL DM-509-TX-01	Relative Humidity Meter	Michell	273296	12/15/2021	12/15/2022
OMEGA HX93AC/DP25-E	Omega HX93AC/DP25-E	Omega Engineering	1010368 035025 035026	11/25/2020	11/25/2022
OMEGA PX02K1-16A5T /DP25-E-A	Omega PX02K1-16A5T/DP25-E-A	Omega Engineering	168377/8375030	11/25/2020	11/25/2022
OMEGA WT4401-D	Omega WT4401-D	Omega Engineering	101105	11/25/2020	11/25/2022

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated David Galego

Advanced Labs, Inc. hereby certifies that this instrument is calibrated and functions to meet the manufacture's specifications using NIST traceable standards, or is derived from accepted values of physical constants.

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.

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END OF REPORT